Government College(A) , Rajamahendravaram

B.Sc - I ; Biotechnology ; Semester – 1

Course code :- BTL112 : Microbiology and Cell biology .

Total credits : 3 Total Hours : 60

Microbiology

UNIT I

History and development of microbiology: contributions of Louis Pasteur, Robert Koch and Edward Jenner.

Microscopy: Compound microscopy: Numerical aperture and its importance, resolving power, oil immersion objectives and their significance, principles and applications of dark field, phase contrast, fluorescent microscopy. Electron microscopy: Principle, ray diagram and applications, TEM and SEM, comparison between optical and electron microscope, limitations of electron microscopy.

Stains and staining procedures: Acidic, basic and neutral stains, Gram staining, Acid fast staining, Flagella staining, Endospore staining.

UNIT II

A.Bacteria

Bacterial morphology and subcellular structures, general morphology of bacteria, shapes and sizes, generalized diagram of typical bacterial cell.

Slime layer and capsule, difference between the structure, function and the position of the two structures. Cell wall of gram +ve and Gram -ve cells, Prokrayotic classification.

General account of flagella and fimbriae.

Chromatin material, plasmids; definition and kind of plasmids (conjugative and non-conjugative) F, R, and Col plasmids.

Endospores: Detailed study of endospore structure and its formation, germination, basis of resistance. A brief idea Bergey's manual. Morphology of archaea, archaeal cell membrane (differences between bacterial and archaeal cell membrane), other cell structures, concept of the three distinct archaea groups.

B.Virus:

General characteristics of viruses, difference between virus and typical microbial cell structure, different shapes and symmetries with one example of each type, classification of viruses on the basis of nucleic acids, phage and animal cell viruses, example of each and their importance. Brief idea of lytic cycle and lysogeny.

UNIT III

Microbial Nutrition: Basic nutritional requirements: Basic idea of such nutrients as water, carbon, nitrogen, sulfur and vitamins etc., natural and synthetic media, nutritional classification of bacteria. Selective and Differential media, Enriched media, Enrichment media.

UNIT IV

Microbial growth and control:

Growth: Growth rate and generation time, details of growth curve and its various phases. Concept of synchronous cultures, continuous and batch cultures (chemostat and turbidostat). Measurement of growth.

Physical conditions required for growth: Temperature (classification of microorganisms on the basis of temperature requirements), pH etc. Pure cultures and cultural characteristics. Maintenance of pure culture.

Microbial Control: Terminologies - Sterilization, disinfection, antiseptic, sanitization, germicide, microbistasis, preservative and antimicrobial agents.

Mechanism of cell injury: Damage to cell wall, cell membrane, denaturation of proteins, inhibition of protein synthesis, transcription, replication, other metabolic reactions and change in supercoiling of DNA. Physical control: Temperature (moist heat, autoclave, dry heat, hot air oven and incinerators), dessication, surface tension, osmotic pressure, radiation, UV light, electricity, ultrasonic sound waves, filtration.

Chemical control: Antiseptics and disinfectants (halogens, alcohol, gaseous sterilization. Concept of biological control.

Cell Biology

UNIT V

Eukaryotic Cell - Structure and function of the following: nucleus, nuclear membrane, nucleoplasm, nucleolus, golgi complex, Mitochandria, Chloroplast, endoplasmic reticulum, lysosomes, peroxisomes, glyoxisomes and vacuoles.

Plant cell wall Cytoskeleton (Micro and Macro filaments, microtubules) and cell locomotion. Mitosis and meiosis. Brief idea of cell cycle.

Muscle and nerve cell structure, synaptic transmission and neuromuscular junctions.

Government College(A) , Rajamahendravaram.
B.Sc - I ; Biotechnology ; Semester - 2
Course code:- BTL113 : Macromolecules, Enzymology And Bioenergetics

Total credits : 3 Total Hours : 60

Biomolecules

UNIT I

Nucleic Acids and Chromosomes: Chemical structure and base composition of nucleic acids, Chargaff's rules, Watson Crick Model (B-DNA), deviations from Watson-Crick model, other forms of DNA (A- and Z-DNA), forces stabilizing nucleic acid structures, (hydrogen bonds and hydrophobic associations, base stacking).

UNIT II

Amino acids and Proteins: Structure of amino acids occurring in proteins, classification of amino acids (pH based, polarity based and nutrition based physico-chemical properties of amino acids. Primary, Secondary, Tertiary & Quaternary structure of proteins.

UNIT III

Carbohydrates: Definition, classification, nomenclature of carbohydrates, structures of monosaccharides, disaccharides and polysaccharides.Concept and examples of heteropolysaccharides.

Lipid: Types of lipids, structures of saturated and unsaturated fatty acids, triglycerides, phospholipids, Concept of acid value, saponification value and iodine value. Chemistry of Porphyrines, Heme, Cytochromes, and Chlorophylls

UNIT IV

Enzymes: Terminology: Active site, allosteric site, Holoenzyme, apoenzyme, coenzyme, substrate, inhibitor, activator, modulator etc. Classification and nomenclature of enzymes. Substrate Specificity (bond specificity, group specificity, absolute specificity, stereo-specificity), lock and key and induced fit models.
Enzyme kinetics: Michaelis-Menten equation, effect of substrate concentration, effect of enzyme concentration, effect of p H and temperature, temperature. Enzyme inhibition kinetics (reversible inhibition types – competitive, uncompetitive and non-competitive), brief idea of irreversible inhibition.

UNIT V

Bioenergetics: Concept of free energy, Entropy, Enthalpy & Redox Potential. Concept of high energy bonds as related to the structure of ATP, Phosphoenolpyruvate, Creatine phosphate etc. Glycolysis (pathway, entry of other monosachharides and disaccharides, regulation, inhibitors) Gluconeogenesis: Bypass reactions. Structure of mitochondria.

Government College (A), Rajamahendravam.
B.Sc -III; Biotechnology ; Semester-5.

Course code: BTL114:- Animal Biotechnology

Unit I

- Introduction to Animal Biotechnology
- Principles of Animal cell culture.
- Culture vessels

Unit II

- Cell culture media preparation, Sterilization,types of cultures
- Establishment and preservation of cell lines
- Explants and cell disaggregation

Unit III

- Culture of cells and tissues
- Stem cell culture and its application
- Invitro fertilization and embryo transfer technology

Unit IV

- Methods of gene transfer – Microinjection and viral mediated gene transfer techniques.
- Production of transgenic animals and molecular pharming
- Principles of Ex vivo and in vivo gene therapy

Government College (A), Rajamahendravam.
B.Sc -III; Biotechnology ; Semester-5.

Course code BTL115:- Industrial Biotechnology

Industrial Biotechnology

Unit I

- Introduction to Industrial Biotechnology
- Primary and secondary metabolic products of microorganisms
- Screening and isolation and preservation of industrial microorganisms

Unit II

- Principles of Fermentation Technology
- Commercial production of fuels and chemicals by microbial fermentations
- Fermentative production of microbial enzymes(amylases, proteases), and antibiotics.

Unit III

- Fermentative production of foods.
- Fermentative production of dairy products.
- Animal cells as bioreactors; characteristics of bioreactors,

Unit IV

- Expression and over production of targeted proteins – human growth hormones – production of α and β – interferon, monoclonal antibodies.
- Good manufacturing practices, Biosafety issues, Bioethics.
- Intellectual Property Rights and Patenting issues.

Additional input: Applications of Industrial biotechnology

Government College (A), Rajamahendravam.
B.Sc -III; Biotechnology ; Semester-6.

Course code:-BTL118 : Biostatistics and Bioinformatics

Biostatistics and Bioinformatics

Unit I

- Concept of Mean, Median and Mode**.**
- Concept of probability, basic laws and its application to Mendelian segregation.

Unit II

- Concept of probability ditribution. Binomial and Poisson distributions, Normal distribution and their application to biology
- Concept of sampling and sampling distribution. Concept of test of hypothesis. Applications of t-test statistics to biological problems/data:

Unit III

- Chi-square, statistic applications in biology
- Simple regression and correlation. Concept of analysis of variance(one-way classification**)**

UnitIV

- Introduction to Bioinformatics: Biological Databases – Nucleotide sequence and Protein databases, their utilization in Biotechnology.
- Storage of biological data in databanks, data retrieval from databases and their utilization

Government College (A), Rajamahendravam.

B.Sc -III; Biotechnology ; Semester-6.

Course code:- BTL119 : Environmental Biotechnology

Unit I

- Introduction to environmental biotechnology
- Renewable and non-renewable energy resources
- Microbial analysis of milk, food and water

Unit II

- Conventional energy sources and their impact on environment.

  Non-conventional fuels and their impact on environment (biogas,bioethanol,microbial hydrogen production)

Unit III

- Microbiological treatment of municipal and industrial effluents
- Microbial degradation of pesticides and toxic chemicals

Unit IV

- Biopesticides and Biofertilizers(Nitrogen fixing, Phosphate solubilizing microorganisms)
- Microbial ore leaching
- Intoduction to Bioremediation

Government College(A) , Rajamahendravaram.
B.Sc - III ; Biotechnology ; Semester - 6

Course code : BTL116 : "Biostatistics, Bioinformatics and IPRS"

Credits : 3

Total teaching hours : 60

UNIT I

Collection, Classification and Tabulation of data, Bar diagrams and Pie diagrams, Histogram, Frequency curve and frequency polygon. Mean, median, mode, Standard deviation.

UNIT II

Random variable,(.discrete and continuous), Probability density function(discrete and continuous), Distribution function for discrete random variable. Distribution function for continuous random variable, Joint probability distribution, Conditional and marginal distribution. Mathematical expectations: Introduction, The expected value of a random variable, moments, Moment generating functions, Product moments, Conditional expectations. Standard distributions -: Uniform distribution. (Discrete and continuous).Exponential distribution Gamma distribution, Beta distribution. Binomial distribution, Poisson distribution, Normal distributions. Standard normal distributions.

UNIT III

Correlation and Regression analysis: Correlations and regressions-: Relation between two variables, scatter diagram, definition of correlations. Probability theory: Random experiments, sample space, probability theory, conditional probability. Baye's theorem.

UNIT IV

Sequence Analysis: Introduction to biological databases: NCBI, EMBL, EXPASY, PIR, Pfam. Concept of World Wide Web: HTML, HTPP. Similarity measures - Euclidean, Mahalanobis distance, Edit distance, similarity matrices (PAM, BLOSUM) Searching sequence databases using BLAST. Multiple sequence alignment – progressive alignment – profiles – multidimensional dynamic programming.

UNIT V

Introduction to Intellectual property: Introduction, types of intellectual property, international organizations, agencies and treaties, importance of intellectual property rights.

Government College(A) , Rajamahendravaram.
B.Sc - III ; Biotechnology ; Semester - 6

Course code : BTL117 : Animal Physiology

Unit I

Blood and circulation- Blood corpuscles, hematopoiesis and formed elements, plasma function, blood volume, blood volume regulation, blood groups, haemoglobin, immunity, haemostasis.

Unit II

Respiratory system- Comparison of respiration in different species, anatomical considerations, transport of gases, exchange of gases, waste elimination, neural and chemical regulation of respiration.

Unit III

Nervous system- Neurons, action potential, neuroanatomy of the brain and spinal cord, central and peripheral nervous system, neural control of muscle tone and posture.Sense organs - Vision, hearing and tactile response.

Unit IV

Digestive system -Digestion, absorption, energy balance, BMR.

Unit V

Endocrinology and reproduction- Endocrine glands, basic mechanism of hormone action, hormones and diseases; reproductive processes, gametogenesis, ovulation, neuroendocrine regulation

Government College(A) , Rajamahendravaram.
B.Sc - III ; Biotechnology ; Semester - 6

Course code : BTL120 : Plant Physiology

Unit I

Photosynthesis-Light harvesting complexes; mechanisms of electron transport; photoprotective mechanisms; CO2 fixation -C3, C4and CAM pathways.

Unit II

Respiration and photorespiration–Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photorespiratory pathway.

Unit III

Nitrogen metabolism- Nitrate and ammonium assimilation; amino acid biosynthesis

Unit IV

Solute transport and photoassimilate translocation–uptake, transport and translocation of water, ions, solutes and macromolecules from soil, through cells, across membranes, through xylem and phloem; transpiration; mechanisms of loading and unloading of photoassimilates

Unit V

Sensory photobiology-Structure, function and mechanisms of action of phytochromes, cryptochromes and phototropins; stomatal movement; photoperiodism and biological clocks

Government College(A) , Rajamahendravaram.
B.Sc - III ; Biotechnology ; Semester - 6

Course code : BTL121: Plant Biotechnology

Credits :3

Total teaching hours : 60

UNITI:
Cell and tissue culture: Introduction to cell and Tissue culture Laboratory facilities, Explant. Tissue culture media (composition, preparation and sterilisation) Callus and suspension cultures: initiation and maintenance of callus and suspension cultures; single cell clones.
UNITII:
Tissue and micropropagation: Direct and indirect regeneration, production of haploids, protoplast culture and Somatic hybridization.
UNITIII:
Cloning plants -Ti plasmid organization. Concept of transgenic plants Bt-cotton and other plant applications.
UNIT IV:
Meristem culture and production of virus free plants. Mass cultivation of cell cultures and process engineering (Batch and continuous cultures, Bioreactors).
Unit V :
Methods of gene transfer techniques (Agrobacterium, Microprojectile bombardment) Applications of Recombinant DNA technology in agriculture (production of therapeutic proteins from transgenic plants)

Additional input : Production of commercially useful compounds by plant cell culture.

Government College(A) , Rajamahendravaram.
B.Sc - III ; Biotechnology ; Semester - 6

Course code : BTL122 : Inheritance Biology

Unit I

Gene mapping methods: Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids.

Unit II

Extra chromosomal inheritance: Inheritance of Mitochondrial and chloroplast genes, maternal inheritance.

Unit III

Human genetics:Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders.

Unit IV

Mutation: Types, causes and detection, mutant types– lethal, conditional, biochemical, loss of function, gain of function, germinal verses somatic mutants, insertional mutagenesis.

Unit V

Recombination: Homologous and non-homologous recombination including transposition

Government College(A) , Rajamahendravaram.
B.Sc - II ; Biotechnology ; Semester - 4

Course code : BTL123: Immunology

Credits : 3

Total teaching hours : 60

UNIT I

Immune system: Organs and cells of immune system,
Immunity, innate immune mechanism, Acquired immune mechanism,
Antigen, Humoral immunity, main pathways of complement system.

UNIT II

Antibody and Antigen: Antibody structure and classes, Antibody diversity, Types of Antigens Antigenicity (factors affecting antigenicity). Complement system .

UNIT III

Immunity: Cell mediated immunity: TC mediated immunity, NK cell mediated immunity, ADCC, brief description of cytokines and MHC (MHC types and diversity)

UNIT IV

Hypersensitivity and vaccination : General features of hypersensitivity, various types of hypersensitivity, Vaccination: Discovery, principles, significance, Types of Vaccines

UNIT V

Immunological Techniques:Antigen-antibody reactions: Precipitation, agglutination, complement fixation, immunodiffusion, ELISA. Hybridoma technology: Monoclonal antibodies and their applications in immunodiagnosis.

Additional input : New generation vaccines.

Government (Autonomous) College , Rajamahendravaram.
Department of Biotechnology
B.Sc-II; Biotechnology ; Semester -III

Course code: BTL124: BIOPHYSICAL TECHNIQUES

UNIT – I:

Spectrophotometry: Spectrum of light, absorption of electromagnetic radiations, B e e r ' s law - derivation and deviations, extinction coefficient. Instrumentation of UV and visible spectrophotometry, Double beam spectrometer; dual-wavelength spectrometer, Applications of
UV and visible spectrophotometry. Coloriemetry principles and its applications.

UNIT II:

Chromatography: Partition principle, partition coefficient, nature of partition forces, brief account of paper chromatography.Thin layer chromatography and column chromatography. Gel
filtration: Concept of distribution coefficient, types of gels and glass beads, applications. Ionexchange
chromatography: Principle, types of resins, choice of buffers, applications including
amino acid analyzer. Affinity chromatography: Principle, selection of ligand, brief idea of ligand
attachment, specific and non-specific elution, applications.

UNIT III:

Electrophoresis: Migration of ions in electric field, Factors affecting electrophoretic mobility.
Paper electrophoresis, Gel electrophoresis: - Types of gels, Solubilizers, Procedure, Column &
slab gels Detection, Recovery & Estimation of macromolecules. SDS-PAGE Electrophoresis and
applications. Isoelectric focusing,Pulsed-field gel electrophoresis.

UNIT – IV:

Isotopic tracer technique: Radioactive & stable isotopes, rate of radioactive decay. Units of radioactivity. Measurement of radioactivity: - Ionization chambers, proportional counters, Geiger- Muller counter, Solid and liquid scintillation counters (basic principle, instrumentation
and technique), Cerenkov radiation. Measurement of Stable isotopes: Falling drop method for deuterium measurement. Biological applications of Radioisotopes.

UNIT V:

Centrifugation: Basic principles, concept of RCF, types of centrifuges (clinical, high speed and
ultracentrifuges).Preparative centrifugation: Differential and density gradient centrifugation, applications (Isolation of cell components). Analytical centrifugation: Sedimentation coefficient, determination of molecular weight by sedimentation velocity and sedimentation equilibrium methods.

Biostatistics Basic concepts of mean, median, mode, Standard deviation and Standard error. Introduction to ANOVA

BOT – 110

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II B.Sc. BOTANY THEORY SYLLABUS

Core-Iii Module-Ii Plant Taxonomy And Embryology

Total hours of teaching 60hrs @ 4 hrs per week

UNIT – I: INTRODUCTION TO PLANT TAXONOMY (12hrs)

1. Fundamental components of taxonomy (identification, nomenclature, classification)
2. Taxonomic resources: Herbarium- functions& important herbaria, Botanical gardens.
3. Botanical Nomenclature - Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

UNIT – II: CLASSIFICATION (12hrs)

1. Types of classification- Artificial, Natural and Phylogenetic.
2. Bentham & Hooker's system of classification- merits and demerits.
3. Engler & Prantle's system of classification- merits and demerits
4. Phylogeny

UNIT –III: SYSTEMATIC TAXONOMY-I (12hrs)

1. Systematic study and economic importance of the following families: Annonaceae, Fabaceae, Rutaceae, Curcurbitaceae, and Apiaceae.

UNIT –IV: SYSTEMATIC TAXONOMY-II (12hrs)

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Ephorbiaceae,orchidaceae and Poaceae.

UNIT – V: EMBRYOLOGY (12hrs)

1. Anther structure, microsporogenesis and development of male gametophyte.
2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (*Peperomia ,Drusa, Adoxa*) of embryo sacs.
3. Pollination and Fertilization (out lines) Endosperm development and types.
4. Development of Dicot and Monocot embryos, Polyembryony

Government College (Autonomous) Rajamahendravaram

ELECTIVE- II

TISSUE CULTURE AND BIOTECHNOLOGY

- Tissue culture, Introduction, sterilization procedures, culture media composition and preparation, Explants.

- Callus culture, cell and protoplast culture, somatic hybrids and cybrids.

- Applications of tissue culture: production of pathogen free plants and somaclonal variants, production of stress resistant plants, secondary metabolities and synthetic seeds.
- Biotechnology: Introduction, history and scope.

- r-DNA technology: Vectors and gene cloning and transgenic plants.

BOT - 116

Government College (Autonomous), Rajamahendravaram

II B.Sc., – Botany - 3 / III Semester End (W.E.F. 2018-19)

Plant Taxonomy and Embryology

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Introduction to Plant Taxonomy (12 h)

- **a.** Fundamental components of taxonomy (identification, nomenclature, classification) Bentham & Hooker system of classification
- **b.** Taxonomic resources: Herbarium- functions & Herbaria of National and International importance.
- **c.** Botanical gardens, Flora, Keys- single access and multi-access.
- **d.** Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

Unit II : Classification (12 h)

- **a.** Types of classification- Artificial, Natural and Phylogenetic.
- **b.** Bentham & Hooker's system of classification- merits and demerits.
- **c.** Engler & Prantle's system of classification- merits and demerits
- **e.** Phylogeny – origin and evolution of Angiosperms; Angiospermic Phylogenetic Group IV (APG IV-2016).

Unit III : Systematic Taxonomy - I (12 h)

Systematic study and economic importance of plants belong to the following families:

Polypetalous : Annonaceae, Brassicaceae, Rutaceae, Cucurbitaceae and Apiaceae.

Unit IV : Systematic Taxonomy - II (12 h)

Systematic study and economic importance of plants belong to the following families:

Gamopetalous : Asteraceae, Asclepiadaceae and Lamiaceae

Monochlamydeous : Euphorbiaceae

Monocotyledonous : Arecaceae, Orchidaceae and Poaceae

Unit V : Embryology (12 h)

- **a.** Anther structure, microsporogenesis and development of male gametophyte.
- **b.** Ovule structure and types.
- **c.** Megasporogenesis; development of Monosporic (*Polygonum, Oenothera*), Bisporic (*Allium, Endymion*) and Tetrasporic (*Peperomia, Drusa* and *Adoxa* types).
- **d.** Pollination and Fertilization (out lines) Endosperm development and types.
- **e.** Development of Dicot and Monocot embryos, Polyembryony.

BOT -120

Government College(Autonomous), Rajamahendravaram

I B.Sc., – Botany-2 / II Semester End (W.E.F. 2018-19)

Diversity of Archegoniates and Plant Anatomy

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Bryophyta (12h)

- **a.** Introduction, general characters, classification up to classes.
- **b.** Systematic position, Structure, reproduction and life history of following genera (Developmental stages are not required):
  - i. Hepaticopsida **:** *Marchantia*
  - ii. Bryopsida **:** *Funaria*
- **c.** Evolution of gametophyte in Bryophytes.
- **d.** Evolution of sporophyte in Bryophytes.
- **e.** Economic and biological importance of Bryophytes

Unit II : Pteridophyta (12h)

- **a.** Introduction, general characters, classification up to classes.
- **b.** Systematic position,structure,reproduction and life history of following genera (Developmental stages are not required):
  - i. Lycopsida **:** *Lycopodium*
  - ii. Pteropsida **:** *Marsilea*
- **c.** Stelar evolution in Pteridophytes
- **d.** Heterospory and seed habit in Pteridophytes.

Unit III : Gymnosperms (12h)

- **a.** Introduction, general characters, structure, reproduction and classification.
- **b.** Systematic position, structure, reproduction and life history of following genera (Developmental stages are not required):
  - i. Coniferopsida **:** *Pinus*
  - ii. Gnetopsida **:** *Gnetum*
- **c.** Economic importance of Gymnosperms
- **d.** Endangered Gymnosperms

Unit IV : Tissues & Tissue systems (12h)

- **a.** Meristems : Introduction, characteristics and classification.
- **b.** Root apical meristem and theories on its histological organization.
- **c.** Shoot apical meristem and theories on its histological organization.
- **d.** Tissues*:* Introduction, simple, complex and special.
- **e.** Tissue Systems : Epidermal, ground and vascular

Unit V : Secondary growth in stem and wood structure (12h)

- **a.** Anamalous secondary growth in Stem (*Boerhaavia, Achyranthus* and *Dracaena*) and Root (*Beta*)

Botanical name, family, general characters of the wood and identification characters of : Teak (*Tectona grandis*), Red sanders, (*Pterocarpus santalinus*), Tella maddi (*Terminalia arjuna*) and Neem (*Azadirachta indi*

BOT - 121

Government College (Autonomous), Rajamahendravaram

II B.Sc., – Botany -4 / IV Semester End (W.E.F. 2018-19)

Plant Physiology and Metabolism

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Plant - Water relations (12 h)

- **a.** Importance of water to plant life, physical properties of water, diffusion, imbibition osmosis; Concept and components of water potential
- **b.** Absorption and lateral transport of water; Ascent of sap –Various Theories
- **c.** Transpiration : Definition, types of transpiration
- **d.** Stomata structure ; opening and closing mechanism of stomata.

Unit II : Mineral nutrition and Enzymes (12 h)

- **a.** Essential macro and micro mineral nutrients and their role in plants; symptoms of mineral deficiency.
- **b.** Uptake of mineral ions - passive and active transport**.**
- **c.** Nitrogen fixation- Types,Physical and biological nitrogen fixation in *Rhizobium*.
- **d.** Enzymes**:** General characteristics, mechanism of enzyme action and factors regulating enzyme action.

Unit III : Plant metabolism - 1 (12 h)

a. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect.

b. Concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation

c. Carbon assimilation pathways (C_3, C_4 and CAM).

d. Photorespiration and its significance.

e. Translocation of organic substances: Mechanism of phloem transport; source-sink relationships.

Unit IV : Plant metabolism - 1 (12 h)

a. Respiration: Aerobic and Anaerobic processes; Glycolysis, Krebs cycle.

b. Electron Transport System, mechanism of oxidative phosphorylation,

c. Lipid metabolism : Introduction, classification of lipids, saturated and unsaturated fatty acids, anabolism of triglyceride, β-oxidation of fatty acids.

Unit V : Plant growth and Development (12 h)

a. Growth and Development: Definition, phases and kinetics of growth.

b. Physiological effects of phytohormones - auxins, gibberellins, cytokinins, ABA, ethylene .

c. Physiology of flowering : Photoperiodism, role of phytochrome in flowering; vernalization.

d. Physiology of senescence and ageing.

BOT - 122

Government College (Autonomous), Rajamahendravaram

IIIB.SC –BOTANY/VI SEMESTER (W.E.F-2018-2019)

PAPER-VII (A)-Organic farming and sustainable agriculture

Unit-1 : Concept of organic farming:

1. Introduction : farming ,organic farming ,concept and development of organic farming ,principles of organic farming, types of organic farming biodynamic farming.
2. Benefits of organic forming ,need for organic forming ,conventional v/s Organic farming
3. Scope of Organic forming; Andhra Pradesh and National and international status
4. Agencies and institutions organic agriculture
5. Requirements for organic forming, farm components for an organic farm.

Unit –II : Organic plant nutrient management:

1. Organic farming systems, soil tillage, land preparation and mulching.
2. Choice of varieties
3. Propagation –seed, planting, propagation materials and seed treatments, water management.
4. Green manuring, composting- principles, stages, types and factors, composting methods, vermicomposting.
5. Bulk organic manures, concentrated organic manures, organic preparations, organic amendments and sledges.
6. Bio fertilizers- types : methods of applications, advantages and disadvantages, stands for organic inputs- fertilizers.

Unit – III : Organic plant protection

1. Plant protection- cultural, mechanical, botanical, pesticides, control agents.
2. Weed management.
3. Standards for organic input - plant protection.

Unit – IV : Organic crop production practices :

1. Organic crop production methods- rice, coconut.
2. Organic crop production methods – vegetables- okra, amaranthus, cucurbits.
3. Livestock component in organic farming.
4. Sustainable agriculture – apiculture, mushroom cultivation.

Unit – V : ORGANIC certification :

1. Farm economy : basic concepts economics – demand and supply, economic viability of a farm.
2. Basic production principles, reducing expenses, ways to increase returns ,cost of production system, benefits/cost ratio, marketing, imports and exports,
3. Policies and intensives of organic production.
4. Farm inspection and certification.Terrace farming.

BOT - 123

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – 8 A3 / VI Semester End (W.E.F. 2018-19)

Ethanobotany and medicinal botany

Total Teaching Hours 60 Hrs @3 Hrs / Week Credits: 03

Unit – I : Ethnobotany : 12hrs

1. Introduction, concept, scope, and objectives : ethnobotany as an interdisciplinary science the relevance of ethnobotany in the present context.
2. Major and minor ethnic groups or tribal of india, and their life styles.
3. Plasnts used by the tribal populations : a) food plants, b) intoxicants and beverages, c) resins, oils and miscellaneous uses.

Unit – II : Role of ethnobotany in modern medicine : 12 hrs

1. Role of enthnobotany modern medicine with special examples *Rauwolfia serpantina, Trichopus zeylanicus, Artemisia annuna, Withania somnifera*.
2. Medico- ethanobotanical sources in India.
3. Significance of the following plants in ethnobotanical practices. (along with their habitat and morpholigy) a) *Azadiracta indica,* b*) Ocmium sanctum,* c) *Vitex negundo*, d) *Glorisa superba*, e) *Tribulus terrestris*, f) *Phyllanthus niruri*, g) *Cassia auriculata*, h) *Indigofera tinctoria*, i) *Senna auriculata* j) *Curcuma longa*
4. Role of ethnic groups in the conservation of plant genetic resources.

Unit – III : Ethanobotany as a tool to protect Interests of ethnic groups.12hrs

1. Sharing of wealth concept with few examples from india.
2. Biopiracy, intellectual property right and traditional knowledge.

Unit – IV :history and scope and importance medicinal plants Indigenous medicinal sciences: 12hrs

Definition and scope – **Ayruveda** : History, origin, panmchamahabuthas, saptadhatu and tridosha concepts, rasayana. Plants using ayurvedic treatments.

1. **Siddha** : origin of siddha medicinal systems, basis of siddha systems plants used in siddha medicine.
2. **Unani** : History, concept Unmoor – e – tibia tumours treatment/therapy, poly herbal formulations (in brief)

Unit – V : Conservation of endangered and endemic medicinal plants :12hrs

1. **Definition** : endemic and endangered medicinal plants.
2. Red list criteria.
3. In situ conservation : biosphere reservoirs, sacred groves, national parks.
4. Ex situ conservation : botanical gardens

BOT - 128

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany -5 / V Semester End (W.E.F. 2018-19)

Cell Biology, Genetics and Plant Breeding

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Cell Biology (12 h)

a. Cell, the unit of life- Cell theory, Prokaryotic and eukaryotic cells.
    a. Eukaryotic cell components.
b. Ultra structure and functions of cell wall.
c. Ultra structure and functions of cell membrane.
d. Chromosomes**:** morphology of prokaryotic and eukaryotic chromosome.
e. Organization of DNA in a chromosome (nucleosome model), Euchromatin and heterochromatin.

Unit II : Genetic material (12 h)

a. DNA structure (Watson & Crick model)
b. Replication of DNA (semi-conservative method)
c. Types of RNA (mRNA, tRNA, rRNA), their structure and function.
d. Genetic code; Gene regulation – *Lac* operon

Unit III : Inheritance (14 h)

a. Mendel's laws of Inheritance (Mono- and Di- hybrid crosses); backcross and test cross.
b. Interaction of genes –Typical dihybrid, complementary, epistasis (dominant and recessive), inhibitory, duplicate.
c. Chromosomal mapping – 2-point and 3-point test cross.
d. Linkage: concept, complete and incomplete linkage, coupling and repulsion
e. Crossing over: concept and significance.

Unit IV : Plant breeding (10 h)

a. Introduction and Objectives of plant breeding.
b. Methods of crop improvement: Procedure, advantages and limitations of (i)Introduction, (ii)Selection – Mass, Pureline and Clonal (iii) Hybridization.

Unit V : Breeding, Crop improvement and Biotechnology (12 h)

a. Role of mutations in crop improvement.
b. Role of somaclonal variations in crop improvement.
c. Molecular breeding – use of DNA markers in plant breeding and crop improvement (RAPD, RFLP).

BOT- 129

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany -6 / V Semester End (W.E.F. 2018-19)

Plant Ecology and Phytogeography

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Elements of Ecology (12 h)

a. Ecology: definition, branches and significance of ecology.
b. Climatic Factors: Light, Temperature.
c. Edaphic Factor: Origin, formation, composition and soil profile.
d. Biotic Factor: Interactions between plants and animals.

Unit II : Ecosystem Ecology (12 h)

a. Ecosystem: Concept and components, energy flow, Food chain, Food web.
b. Ecological pyramids.
c. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.
d. Productivity of ecosystem-Primary,Secondary and Net productivity.

Unit III : Population and Community Ecology (12 h)

a. Population -definition, characteristics and importance, outlines –ecads and ecotypes.
b. Plant communities- characters of a community, outlines – Frequency, density, cover, life forms, competition.
c. Interaction between plants growing in a community.

Unit IV : Phytogeography (12 h)

a. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species).
b. Phytogeographic regions of India.
c. Phytogeographic regions of World.
d. Endemism – types and causes.

Unit V : Plant Biodiversity (12 h)

a. Biodiversity – definition; Earth summit; Levels of biodiversity - genetic, species and ecosystem.
b. Biodiversity hotspots- Criteria, Biodiversity hotspots of India.
c. Loss of biodiversity – causes and conservation (*In-situ* and *ex-situ* methods).
d. Role of UNDP, UNEP, NBA
e. Seed banks - conservation of genetic resources and their importance.
f. Cartagena protocol and Nagoya protocol.

BOT - 131

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – VIII A1 / VI Semester End (W.E.F. 2018-19)
Plant Biotechnology and Genetic Engineering

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit –I : Concepts of Plant Tissue culture (12 h)

a. Introduction to Plant Biotechnology - Definition, history, scope and significance
b. Organization and equipment of a plant tissue culture laboratory.
c. Basic concepts of tissue culture :Explant, totipotency, differentiation, dedifferentiation, and redifferentiation.
d. Sterilization techniques in tissue culture laboratory.
e. Murashige and Skoog culture medium composition, preparation and sterilization techniques.

Unit –II : Methods in Tissue culture (12 h)

a. Meristem, ovule, pollen and embryo cultures
b. Callus, Cell and Cell suspension techniques and their significance.
c. Protoplast culture, Somatic hybridization and cybridization techniques and their significance.
d. Somatic embryogenesis and synthetic seeds.
e. Applications of plant tissue culture.

Unit –III : Tools of r-DNA technology (12 h)

a. Classification, properties and applications of restriction endonucleases.
b. Reverse transcriptase; Alkaline phosphatase; DNA ligase.
c. Cloning vectors : Plasmids, Lamda-phage, cosmids, M-13, phagemids.
d. Structure of pBR 322; Artificial chromosome vectors - BAC, YAC, Shuttle vectors.

Unit –IV : Techniques in r-DNA technology (12 h)

a. Different steps in gene cloning ; r-DNA duplication; Genomic libraries; c-DNA libraries.
b. Direct methods of gene transfer - Biolistics, Lipofection, Electroporation, microinjection - Advantages and disadvantages
c. Vector mediated gene transfer-*Agrobacterium* mediated gene transfer - T DNA, Ti -plasmid and Ri -plasmid derived vector systems.
d. Selection of transgenics– selectable marker and reporter genes (Luciferase, GUS, GFP).

Unit –V : Applications of Genetic Engineering (12 h)

a. Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, insect resistance, virus resistance.
b. Transgenic plants - Herbicide resistance (Glyphosate), Insect resistance (Cry proteins), Nutritional quality (Golden rice), Shelf-life (Slow fruit softening tomatoes), Improved horticultural varieties (Moon dust carnations).

BOT - 132

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – 8 A2 / VI Semester End (W.E.F. 2018-19)

Seed Technology and Horticulture (Course : BO5207A)

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit –I : Basics of Seed Technology (12 h)

a. Structure of Dicot and Monocot seeds; outgrowths of seeds.
b. Seed dormancy and reasons for seed dormancy.
c. Methods of breaking seed dormancy.
d. Seed storage methods.

Unit –II : Seed Banks, testing & certification (12 h)

a. Seed banks – necessity, working mode, types of seeds stored, seed banks around globe.
b. Seed viability – measures of seed viability, factors affecting seed viability.
c. Genetic erosion – introduction, causes, examples in India and abroad; measures to check genetic erosion.
d. Seed testing ; seed certification.

Unit –III : Basics of Horticulture & Nursery (12 h)

a. Horticulture – Introduction, branches of horticulture, scope and impact of horticulture.
b. Definition, objectives, scope and building up of infrastructure for nursery.
c. Planning and seasonal activities - Planting - direct seeding and transplants.
d. Nursery Management and Routine Garden Operations.

Unit –IV : Propagation of Horticulture plants (12 h)

a. Vegetative propagation of horticulture plants – Cuttings, grafting and layering.; mist chamber.
b. Ornamental plants – classification; Propagation of ornamental plants. by rhizomes, corms tubers, bulbs and bulbils.
c. Bonsai – History, principles, creation, training, repotting, post-establishment care and common styles of bonsai.
d. Protected structures for cultivation – Green house, poly house and shade net.

Unit –V :Floriculture & Landscaping (12 h)

a. Floriculture – introduction; potential and trade in India; cultivation of *Chrysanthemum* and rose
b. Landscaping – introduction, goals, categories, designing, elements; Planning residential and non-residential land scapes; plant arrangement in land scape. Computer applications in landscaping.
c. Some Famous gardens of India.

BOT - 133

Government College (Autonomous) Rajamahendravaram

I B.SC. HORTICULTURE-1/I SEMESTER END (W.E.F) 2018-19

Theory Syllabus

PAPER -I Basic Concepts Of Horticulture And Soil Science

Total Hours of Teaching 60 Hrs @ 4 Hrs per Week credits : 03

Unit I : introduction to horticulture 12 hrs

1. Definitions Of Horticulture, Importance Of Horticulture In Terms Of Economy, Production, Employment Of Generation Environmental Production And Human Resource Development
2. Scope Of Horticulture In India
3. Division Of Horticulture With Suitable Examples And Their Importance.
4. Fruit And Vegetable Zones Of India And Andhra Pradesh

Unit II : Classification and nutritional values of horticulture crops 12hrs

1. Classification of Horticultural crops based on soil and climatic requirements
2. Nutritive value of horticultural crops
3. Global scenario of horticultural crops- horticultural therapy
4. Export and import of horticultural plants

Unit III : environmental factors – horticultural crops 12 hrs

1. Influence of soil – physical and chemical properties.
2. Climatic factors – light, photoperiod, temperature relative humidity, rainfall,
3. Micro climate, pollution
4. Influence of biotic and abiotic stresses on crop production.

Unit IV : Soil as a medium for plant growth 12 hrs

1. Mineral and weathering to form soils, factors of soil formation.
2. Soil taxonomy, soil colour, texture, and structure, other physical properties and stabilities.
3. Soil colloids and charges; ion absorption and exchange.
4. Soil pH and acidity, soil alkalinity and salinity.

Unit V : mineral nutrition of plants 12 hrs

1. Macro and micro nutrients.
2. Soil organic matter.
3. Soil micro organisms; soil faunal ecology.
4. Integrated nutrient management and soil test.

BOT – 110

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II B.Sc. BOTANY THEORY SYLLABUS

Core-Iii Module-Ii Plant Taxonomy And Embryology

Total hours of teaching 60hrs @ 4 hrs per week

UNIT – I: INTRODUCTION TO PLANT TAXONOMY (12hrs)

1. Fundamental components of taxonomy (identification, nomenclature, classification)
2. Taxonomic resources: Herbarium- functions& important herbaria, Botanical gardens.
3. Botanical Nomenclature - Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

UNIT – II: CLASSIFICATION (12hrs)

1. Types of classification- Artificial, Natural and Phylogenetic.
2. Bentham & Hooker's system of classification- merits and demerits.
3. Engler & Prantle's system of classification- merits and demerits
4. Phylogeny

UNIT –III: SYSTEMATIC TAXONOMY-I (12hrs)

1. Systematic study and economic importance of the following families: Annonaceae, Fabaceae, Rutaceae, Curcurbitaceae, and Apiaceae.

UNIT –IV: SYSTEMATIC TAXONOMY-II (12hrs)

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Ephorbiaceae,orchidaceae and Poaceae.

UNIT – V: EMBRYOLOGY (12hrs)

1. Anther structure, microsporogenesis and development of male gametophyte.
2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (*Peperomia ,Drusa, Adoxa*) of embryo sacs.
3. Pollination and Fertilization (out lines) Endosperm development and types.
4. Development of Dicot and Monocot embryos, Polyembryony
5.

ELECTIVE- II

TISSUE CULTURE AND BIOTECHNOLOGY

- Tissue culture, Introduction, sterilization procedures, culture media composition and preparation, Explants.

- Callus culture, cell and protoplast culture, somatic hybrids and cybrids.

- Applications of tissue culture: production of pathogen free plants and somaclonal variants, production of stress resistant plants, secondary metabolities and synthetic seeds.
- Biotechnology: Introduction, history and scope.

- r-DNA technology: Vectors and gene cloning and transgenic plants.

BOT -120

Government College(Autonomous), Rajamahendravaram

I B.Sc., – Botany-2 / II Semester End (W.E.F. 2018-19)

Diversity of Archegoniates and Plant Anatomy

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Bryophyta (12h)

- **a.** Introduction, general characters, classification up to classes.
- **b.** Systematic position, Structure, reproduction and life history of following genera (Developmental stages are not required):
  - i. Hepaticopsida **:** *Marchantia*
  - ii. Bryopsida **:** *Funaria*
- **c.** Evolution of gametophyte in Bryophytes.
- **d.** Evolution of sporophyte in Bryophytes.
- **e.** Economic and biological importance of Bryophytes

Unit II : Pteridophyta (12h)

- **a.** Introduction, general characters, classification up to classes.
- **b.** Systematic position,structure,reproduction and life history of following genera (Developmental stages are not required):
  - i. Lycopsida **:** *Lycopodium*
  - ii. Pteropsida **:** *Marsilea*
- **c.** Stelar evolution in Pteridophytes
- **d.** Heterospory and seed habit in Pteridophytes.

Unit III : Gymnosperms (12h)

- **a.** Introduction, general characters, structure, reproduction and classification.
- **b.** Systematic position, structure, reproduction and life history of following genera (Developmental stages are not required):
  - i. Coniferopsida **:** *Pinus*
  - ii. Gnetopsida **:** *Gnetum*
- **c.** Economic importance of Gymnosperms
- **d.** Endangered Gymnosperms

Unit IV : Tissues & Tissue systems (12h)

- **a.** Meristems : Introduction, characteristics and classification.
- **b.** Root apical meristem and theories on its histological organization.
- **c.** Shoot apical meristem and theories on its histological organization.
- **d.** Tissues*:* Introduction, simple, complex and special.
- **e.** Tissue Systems : Epidermal, ground and vascular

Unit V : Secondary growth in stem and wood structure (12h)

- **a.** Anamalous secondary growth in Stem (*Boerhaavia, Achyranthus* and *Dracaena*) and Root (*Beta*)

Botanical name, family, general characters of the wood and identification characters of : Teak (*Tectona grandis*), Red sanders, (*Pterocarpus santalinus*), Tella maddi (*Terminalia arjuna*) and Neem (*Azadirachta indi*

BOT - 116

Government College (Autonomous), Rajamahendravaram

II B.Sc., – Botany - 3 / III Semester End (W.E.F. 2018-19)

Plant Taxonomy and Embryology

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Introduction to Plant Taxonomy (12 h)

- **a.** Fundamental components of taxonomy (identification, nomenclature, classification) Bentham & Hooker system of classification
- **b.** Taxonomic resources: Herbarium- functions & Herbaria of National and International importance.
- **c.** Botanical gardens, Flora, Keys- single access and multi-access.
- **d.** Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

Unit II : Classification (12 h)

- **a.** Types of classification- Artificial, Natural and Phylogenetic.
- **b.** Bentham & Hooker's system of classification- merits and demerits.
- **c.** Engler & Prantle's system of classification- merits and demerits
- **e.** Phylogeny – origin and evolution of Angiosperms; Angiospermic Phylogenetic Group IV (APG IV-2016).

Unit III : Systematic Taxonomy - I (12 h)

Systematic study and economic importance of plants belong to the following families:

Polypetalous : Annonaceae, Brassicaceae, Rutaceae, Cucurbitaceae and Apiaceae.

Unit IV : Systematic Taxonomy - II (12 h)

Systematic study and economic importance of plants belong to the following families:

Gamopetalous : Asteraceae, Asclepiadaceae and Lamiaceae

Monochlamydeous : Euphorbiaceae

Monocotyledonous : Arecaceae, Orchidaceae and Poaceae

Unit V : Embryology (12 h)

- **a.** Anther structure, microsporogenesis and development of male gametophyte.
- **b.** Ovule structure and types.
- **c.** Megasporogenesis; development of Monosporic (*Polygonum, Oenothera*), Bisporic (*Allium, Endymion*) and Tetrasporic (*Peperomia, Drusa* and *Adoxa* types).
- **d.** Pollination and Fertilization (out lines) Endosperm development and types.
- **e.** Development of Dicot and Monocot embryos, Polyembryony.

BOT - 121

Government College (Autonomous), Rajamahendravaram

II B.Sc., – Botany -4 / IV Semester End (W.E.F. 2018-19)

Plant Physiology and Metabolism

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Plant - Water relations (12 h)

- **a.** Importance of water to plant life, physical properties of water, diffusion, imbibition osmosis; Concept and components of water potential
- **b.** Absorption and lateral transport of water; Ascent of sap –Various Theories
- **c.** Transpiration : Definition, types of transpiration
- **d.** Stomata structure ; opening and closing mechanism of stomata.

Unit II : Mineral nutrition and Enzymes (12 h)

- **a.** Essential macro and micro mineral nutrients and their role in plants; symptoms of mineral deficiency.
- **b.** Uptake of mineral ions - passive and active transport**.**
- **c.** Nitrogen fixation- Types,Physical and biological nitrogen fixation in *Rhizobium*.
- **d.** Enzymes**:** General characteristics, mechanism of enzyme action and factors regulating enzyme action.

Unit III : Plant metabolism - 1 (12 h)

a. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect.
b. Concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation
c. Carbon assimilation pathways (C_3, C_4 and CAM).
d. Photorespiration and its significance.
e. Translocation of organic substances: Mechanism of phloem transport; source-sink relationships.

Unit IV : Plant metabolism - 1 (12 h)

a. Respiration: Aerobic and Anaerobic processes; Glycolysis, Krebs cycle.

b. Electron Transport System, mechanism of oxidative phosphorylation,

c. Lipid metabolism : Introduction, classification of lipids, saturated and unsaturated fatty acids, anabolism of triglyceride, β-oxidation of fatty acids.

Unit V : Plant growth and Development (12 h)

a. Growth and Development: Definition, phases and kinetics of growth.
b. Physiological effects of phytohormones - auxins, gibberellins, cytokinins, ABA, ethylene .
c. Physiology of flowering : Photoperiodism, role of phytochrome in flowering; vernalization.
d. Physiology of senescence and ageing.

BOT - 128

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany -5 / V Semester End (W.E.F. 2018-19)

Cell Biology, Genetics and Plant Breeding

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Cell Biology (12 h)

a. Cell, the unit of life- Cell theory, Prokaryotic and eukaryotic cells.
    a. Eukaryotic cell components.
b. Ultra structure and functions of cell wall.
c. Ultra structure and functions of cell membrane.
d. Chromosomes**:** morphology of prokaryotic and eukaryotic chromosome.
e. Organization of DNA in a chromosome (nucleosome model), Euchromatin and heterochromatin.

Unit II : Genetic material (12 h)

a. DNA structure (Watson & Crick model)
b. Replication of DNA (semi-conservative method)
c. Types of RNA (mRNA, tRNA, rRNA), their structure and function.
d. Genetic code; Gene regulation – *Lac* operon

Unit III : Inheritance (14 h)

a. Mendel's laws of Inheritance (Mono- and Di- hybrid crosses); backcross and test cross.
b. Interaction of genes –Typical dihybrid, complementary, epistasis (dominant and recessive), inhibitory, duplicate.
c. Chromosomal mapping – 2-point and 3-point test cross.
d. Linkage: concept, complete and incomplete linkage, coupling and repulsion
e. Crossing over: concept and significance.

Unit IV : Plant breeding (10 h)

a. Introduction and Objectives of plant breeding.
b. Methods of crop improvement: Procedure, advantages and limitations of (i)Introduction, (ii)Selection – Mass, Pureline and Clonal (iii) Hybridization.

Unit V : Breeding, Crop improvement and Biotechnology (12 h)

a. Role of mutations in crop improvement.
b. Role of somaclonal variations in crop improvement.
c. Molecular breeding – use of DNA markers in plant breeding and crop improvement (RAPD, RFLP).

BOT- 129

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany -6 / V Semester End (W.E.F. 2018-19)

Plant Ecology and Phytogeography

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit I : Elements of Ecology (12 h)

a. Ecology: definition, branches and significance of ecology.
b. Climatic Factors: Light, Temperature.
c. Edaphic Factor: Origin, formation, composition and soil profile.
d. Biotic Factor: Interactions between plants and animals.

Unit II : Ecosystem Ecology (12 h)

a. Ecosystem: Concept and components, energy flow, Food chain, Food web.
b. Ecological pyramids.
c. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.
d. Productivity of ecosystem-Primary,Secondary and Net productivity.

Unit III : Population and Community Ecology (12 h)

a. Population -definition, characteristics and importance, outlines –ecads and ecotypes.
b. Plant communities- characters of a community, outlines – Frequency, density, cover, life forms, competition.
c. Interaction between plants growing in a community.

Unit IV : Phytogeography (12 h)

a. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species).
b. Phytogeographic regions of India.
c. Phytogeographic regions of World.
d. Endemism – types and causes.

Unit V : Plant Biodiversity (12 h)

a. Biodiversity – definition; Earth summit; Levels of biodiversity - genetic, species and ecosystem.
b. Biodiversity hotspots- Criteria, Biodiversity hotspots of India.
c. Loss of biodiversity – causes and conservation (*In-situ* and *ex-situ* methods).
d. Role of UNDP, UNEP, NBA
e. Seed banks - conservation of genetic resources and their importance.
f. Cartagena protocol and Nagoya protocol.

BOT - 122

Government College (Autonomous), Rajamahendravaram

IIIB.SC –BOTANY/VI SEMESTER (W.E.F-2018-2019)

PAPER-VII (A)-Organic farming and sustainable agriculture

Unit-1 : Concept of organic farming:

1. Introduction : farming ,organic farming ,concept and development of organic farming ,principles of organic farming, types of organic farming biodynamic farming.
2. Benefits of organic forming ,need for organic forming ,conventional v/s Organic farming
3. Scope of Organic forming; Andhra Pradesh and National and international status
4. Agencies and institutions organic agriculture
5. Requirements for organic forming, farm components for an organic farm.

Unit –II : Organic plant nutrient management:

1. Organic farming systems, soil tillage, land preparation and mulching.
2. Choice of varieties
3. Propagation –seed, planting, propagation materials and seed treatments, water management.
4. Green manuring, composting- principles, stages, types and factors, composting methods, vermicomposting.
5. Bulk organic manures, concentrated organic manures, organic preparations, organic amendments and sledges.
6. Bio fertilizers- types : methods of applications, advantages and disadvantages, stands for organic inputs- fertilizers.

Unit – III : Organic plant protection

1. Plant protection- cultural, mechanical, botanical, pesticides, control agents.
2. Weed management.
3. Standards for organic input - plant protection.

Unit – IV : Organic crop production practices :

1. Organic crop production methods- rice, coconut.
2. Organic crop production methods – vegetables- okra, amaranthus, cucurbits.
3. Livestock component in organic farming.
4. Sustainable agriculture – apiculture, mushroom cultivation.

Unit – V : ORGANIC certification :

1. Farm economy : basic concepts economics – demand and supply, economic viability of a farm.
2. Basic production principles, reducing expenses, ways to increase returns ,cost of production system, benefits/cost ratio, marketing, imports and exports,
3. Policies and intensives of organic production.
4. Farm inspection and certification.Terrace farming.

BOT - 131

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – VIII A1 / VI Semester End (W.E.F. 2018-19)
Plant Biotechnology and Genetic Engineering
Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit –I : Concepts of Plant Tissue culture (12 h)

a. Introduction to Plant Biotechnology - Definition, history, scope and significance
b. Organization and equipment of a plant tissue culture laboratory.
c. Basic concepts of tissue culture :Explant, totipotency, differentiation, dedifferentiation, and redifferentiation.
d. Sterilization techniques in tissue culture laboratory.
e. Murashige and Skoog culture medium composition, preparation and sterilization techniques.

Unit –II : Methods in Tissue culture (12 h)

a. Meristem, ovule, pollen and embryo cultures
b. Callus, Cell and Cell suspension techniques and their significance.
c. Protoplast culture, Somatic hybridization and cybridization techniques and their significance.
d. Somatic embryogenesis and synthetic seeds.
e. Applications of plant tissue culture.

Unit –III : Tools of r-DNA technology (12 h)

a. Classification, properties and applications of restriction endonucleases.
b. Reverse transcriptase; Alkaline phosphatase; DNA ligase.
c. Cloning vectors : Plasmids, Lamda-phage, cosmids, M-13, phagemids.
d. Structure of pBR 322; Artificial chromosome vectors - BAC, YAC, Shuttle vectors.

Unit –IV : Techniques in r-DNA technology (12 h)

a. Different steps in gene cloning ; r-DNA duplication; Genomic libraries; c-DNA libraries.
b. Direct methods of gene transfer - Biolistics, Lipofection, Electroporation, microinjection - Advantages and disadvantages
c. Vector mediated gene transfer-*Agrobacterium* mediated gene transfer - T DNA, Ti -plasmid and Ri -plasmid derived vector systems.
d. Selection of transgenics– selectable marker and reporter genes (Luciferase, GUS, GFP).

Unit –V : Applications of Genetic Engineering (12 h)

a. Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, insect resistance, virus resistance.
b. Transgenic plants - Herbicide resistance (Glyphosate), Insect resistance (Cry proteins), Nutritional quality (Golden rice), Shelf-life (Slow fruit softening tomatoes), Improved horticultural varieties (Moon dust carnations).

BOT - 132

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – 8 A2 / VI Semester End (W.E.F. 2018-19)

Seed Technology and Horticulture (Course : BO5207A)

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits : 03

Unit –I : Basics of Seed Technology (12 h)

a. Structure of Dicot and Monocot seeds; outgrowths of seeds.
b. Seed dormancy and reasons for seed dormancy.
c. Methods of breaking seed dormancy.
d. Seed storage methods.

Unit –II : Seed Banks, testing & certification (12 h)

a. Seed banks – necessity, working mode, types of seeds stored, seed banks around globe.
b. Seed viability – measures of seed viability, factors affecting seed viability.
c. Genetic erosion – introduction, causes, examples in India and abroad; measures to check genetic erosion.
d. Seed testing ; seed certification.

Unit –III : Basics of Horticulture & Nursery (12 h)

a. Horticulture – Introduction, branches of horticulture, scope and impact of horticulture.
b. Definition, objectives, scope and building up of infrastructure for nursery.
c. Planning and seasonal activities - Planting - direct seeding and transplants.
d. Nursery Management and Routine Garden Operations.

Unit –IV : Propagation of Horticulture plants (12 h)

a. Vegetative propagation of horticulture plants – Cuttings, grafting and layering.; mist chamber.
b. Ornamental plants – classification; Propagation of ornamental plants. by rhizomes, corms tubers, bulbs and bulbils.
c. Bonsai – History, principles, creation, training, repotting, post-establishment care and common styles of bonsai.
d. Protected structures for cultivation – Green house, poly house and shade net.

Unit –V :Floriculture & Landscaping (12 h)

a. Floriculture – introduction; potential and trade in India; cultivation of *Chrysanthemum* and rose
b. Landscaping – introduction, goals, categories, designing, elements; Planning residential and non-residential land scapes; plant arrangement in land scape. Computer applications in landscaping.
c. Some Famous gardens of India.

BOT - 123

Government College (Autonomous), Rajamahendravaram

III B.Sc., – Botany – 8 A3 / VI Semester End (W.E.F. 2018-19)

Ethanobotany and medicinal botany

Total Teaching Hours 60 Hrs @3 Hrs / Week Credits: 03

Unit – I : Ethnobotany : 12hrs

1. Introduction, concept, scope, and objectives : ethnobotany as an interdisciplinary science the relevance of ethnobotany in the present context.
2. Major and minor ethnic groups or tribal of india, and their life styles.
3. Plasnts used by the tribal populations : a) food plants, b) intoxicants and beverages, c) resins, oils and miscellaneous uses.

Unit – II : Role of ethnobotany in modern medicine : 12 hrs

1. Role of enthnobotany modern medicine with special examples *Rauwolfia serpantina, Trichopus zeylanicus, Artemisia annuna, Withania somnifera*.
2. Medico- ethanobotanical sources in India.
3. Significance of the following plants in ethnobotanical practices. (along with their habitat and morpholigy) a) *Azadiracta indica,* b*) Ocmium sanctum,* c) *Vitex negundo*, d) *Glorisa superba*, e) *Tribulus terrestris*, f) *Phyllanthus niruri*, g) *Cassia auriculata*, h) *Indigofera tinctoria*, i) *Senna auriculata* j) *Curcuma longa*
4. Role of ethnic groups in the conservation of plant genetic resources.

Unit – III : Ethanobotany as a tool to protect Interests of ethnic groups.12hrs

1. Sharing of wealth concept with few examples from india.
2. Biopiracy, intellectual property right and traditional knowledge.

Unit – IV :history and scope and importance medicinal plants Indigenous medicinal sciences: 12hrs

Definition and scope – **Ayruveda** : History, origin, panmchamahabuthas, saptadhatu and tridosha concepts, rasayana. Plants using ayurvedic treatments.

1. **Siddha** : origin of siddha medicinal systems, basis of siddha systems plants used in siddha medicine.
2. **Unani** : History, concept Unmoor – e – tibia tumours treatment/therapy, poly herbal formulations (in brief)

Unit – V : Conservation of endangered and endemic medicinal plants :12hrs

1. **Definition** : endemic and endangered medicinal plants.
2. Red list criteria.
3. In situ conservation : biosphere reservoirs, sacred groves, national parks.
4. Ex situ conservation : botanical gardens

BOT - 133

Government College (Autonomous) Rajamahendravaram

I B.SC. HORTICULTURE-1/I SEMESTER END (W.E.F) 2018-19

Theory Syllabus

PAPER -I Basic Concepts Of Horticulture And Soil Science

Total Hours of Teaching 60 Hrs @ 4 Hrs per Week credits : 03

Unit I : introduction to horticulture 12 hrs

1. Definitions Of Horticulture, Importance Of Horticulture In Terms Of Economy, Production, Employment Of Generation Environmental Production And Human Resource Development
2. Scope Of Horticulture In India
3. Division Of Horticulture With Suitable Examples And Their Importance.
4. Fruit And Vegetable Zones Of India And Andhra Pradesh

Unit II : Classification and nutritional values of horticulture crops 12hrs

1. Classification of Horticultural crops based on soil and climatic requirements
2. Nutritive value of horticultural crops
3. Global scenario of horticultural crops- horticultural therapy
4. Export and import of horticultural plants

Unit III : environmental factors – horticultural crops 12 hrs

1. Influence of soil – physical and chemical properties.
2. Climatic factors – light, photoperiod, temperature relative humidity, rainfall,
3. Micro climate, pollution
4. Influence of biotic and abiotic stresses on crop production.

Unit IV : Soil as a medium for plant growth 12 hrs

1. Mineral and weathering to form soils, factors of soil formation.
2. Soil taxonomy, soil colour, texture, and structure, other physical properties and stabilities.
3. Soil colloids and charges; ion absorption and exchange.
4. Soil pH and acidity, soil alkalinity and salinity.

Unit V : mineral nutrition of plants 12 hrs

1. Macro and micro nutrients.
2. Soil organic matter.
3. Soil micro organisms; soil faunal ecology.
4. Integrated nutrient management and soil test.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-C-2 Semester – VI

ADVANCED ORGANIC REACTIONS

Course Code: CHE121 **No. of h/w : 3**

UNIT – I

Organic Photochemistry **8 h**

Organic photochemistry: Molecular orbitals, carbonyl chromophore–triplet states, Jablonski diagram, inter–system crossing. Energy transfer. Energies properties and reaction of singlet and triplet states of and transitions.

Photochemical reactions : (a) Photoreduction, mechanism, influence of temperature, solvent, nature of hydrogen donors, structure of substrates on the course of photo reduction.

UNIT – II

Orgnaic Photochemistry **8 h**

Norrisch cleavages, type I: Mechanism, acyclic cyclicdiones, influence of sensitizer, photo Fries rearrangement. Norrisch type II cleavage: Mechanism and stereochemistry, type II reactions of esters: 1: 2 diketones, photo decarboxylation, Di - π methane rearrangement, Photochemistry of conjugated dienes, Decomposition of nitrites - Barton reaction.

UNIT – III

Protecting Groups and Organic Reactions 9 h Principles of (1) Protection of alcohols – ether formation including silyl ethers – ester formation, (2) Protection of diols – acetal, ketal and carbonate formation, (3) Protection of carboxylic acids – ester formation, benzyl and t–butyl esters, (4) Protection of amines – acetylation, benzoylation, benzyloxy carbonyl, triphenyl methyl groups and fmoc, (5) Protection of carbonyl groups – acetal, ketal, 1,2–glycols and 1,2–dithioglycols formation.

UNIT – IV **8 h**

Synthetic reactions : Mannich reaction – Mannich bases – Robinson annulations. The Shapiro reaction, Stork–enamine reaction. Use of dithioacetals - Umpolung, phase transfercatalysis - mechanisms and use of benzyl trialkyl ammonium halides. Witting reaction.

UNIT –V :

New Synthetic Reactions 12 h

Baylis–Hillman reaction, RCM olefm metathesis, Grubb catalyst, Mukayama aldol reaction, Mitsunobu reaction, McMurrey reaction, Julia–Lythgoe olefination, and Peterson's stereoselective olefination, Heck reaction, Suziki coupling, Stille coupling and Sonogishira coupling, Buchwald– Hartwig coupling. Ugi reaction, Click reaction.

REFERENCE BOOKS

1. Molecular reactions and Photochemistry by Charles Dupey and O.L. Chapman.
2. Molecular Photochemistry by Turru.
3. Importance of antibonding orbitals by Jaffe and Orchin.
4. Text Book of Organic Chemistry by Cram,. Hammand and Henrickson.
5. Some modern methods of organic synthesis by W. Carruthers.
6. Guide Book to Organic Synthesis by R.K. Meckie, D.M. Smith and R.A. Atken.
7. Organic Synthesis by O.House.
8. Organic synthesis by Michael B. Smith.
9. Organic Chemistry Claydon and others 2005.
10. Name Reactions by Jie Jack Li
11. Reagents in Organic synthesis by B.P. Mundy and others.
12. Tandem Organic Reactions by Tse–Lok Ho.

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DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-B-3 Semester – VI

ANALYSIS OF APPLIED INDUSTRIAL PRODUCTS

Course Code: CHE119 **No. of h/w : 3**

UNIT-I **9 h**

Analysis of soaps: moisture and volatile matter, combined alkali, total fatty matter, free alkali, total fatty acid, sodium silicate and chlorides.

Analysis of paints : Vehicle and pigments, Barium Sulphate, total lead, lead chromate, iron pigments, zinc chromate.

UNIT- II **8 h**

Analysis of oils: saponification value, iodine value, acid value, ester value, bromine value, acetyl value. Analysis of industrial solvents like benzene, acetone, methanol and acetic acid, Determination of methoxyl and N-methyl groups.

UNIT-III **10 h**

Analysis of fertilizers: urea, NPK fertilizer, super phosphate. Analysis of DDT, BHC, endrin, endosulfone, malathion, parathion. Analysis of starch, sugars, cellulose and paper.

UNIT -IV **9 h**

Gas analysis: carbon dioxide, carbon monoxide, oxygen, hydrogen, saturated hydro carbons, unsaturated hydrocarbons, nitrogen, octane number, cetane number.

Analysis of Fuel gases like: water gas, producer gas, kerosene (oil) gas.

Ultimate analysis: carbon, hydrogen, nitrogen, oxygen, phosphorus and sulphur.

UNIT - V **9 h**

Analysis of Complex materials:

Analysis of cement- loss on ignition, insoluble residue, total silica, sesqui oxides, lime, magnesia, ferric oxide, sulphuric anhydride.

Analysis of glasses - Determinaiton of silica, sulphur, barium, arsenic, antimony, total R_2O_3, calcium, magnesium, total alkalies, aluminium, chloride, floride.

REFERENCE BOOKS

1. F.J.Welcher - Standard methods of analysis.

2. A.I.Vogel - A text book of quantitative Inorganic analysis - ELBS.

3. H.H.Willard and H.Deal - Advanced quantitative analysis - Van Nostrand Co.

4. F.D.Snell & F.M.Biffen - Commercial methods of analysis - D.B.Taraporavala & sons.

5. J.J.Elving and I.M.Kolthoff - Chemical analysis - A series of monographs on analytical chemistry and its applications - Inter Science Vol I to VII.

6. G.Z.Weig - Analytical methods for pesticides, plant growth regulators and food additives - Vols I to VII.

7. S.L.Chopra & J.S.Kanwar - Aanalytical Agricultrual Chemistry - Kalyani Publishers.

8. R.M.Upadhyay and N.L. Sharma - Manual of soil, plant, water and fertilizer analysis - Kalyani Publishers.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2017 – 2019 onwards

Paper - VIII-A-3 Semester – VI

ANALYSIS OF DRUGS, FOOD PRODUCTS & BIO-CHEMICAL ANALYSIS

Course Code: CHE116

No. of h/w : 3

Unit – I **8h**

Drugs-I : Introduction - Drug & disease (definition) -Sources - Plant Animal & synthetic. - Terminology - Pharmacy - Pharmacology – Pharmacophore - Pharmacodynamics - Pharmacokinetics (ADME, Receptors – brief treatment) - Metabolites and Anti metabolites.

Unit – II **8h**

Drugs-II : Nomenclature - Chemical name, Generic name and Trade names with examples - Classification - Classification based on - structures and Therapeutic activity with one example each - Administration of Drugs.

UNIT - III **10 h**

Analysis of the following drugs and pharmaceuticals preparations: (Knowledge of molecular formula, structure and analysis) Analysis of analgesics and antipyretics like aspirin and paracetamol Analysis of anti malerials like choloroquine.

Analysis of drugs in the treatment of infections and infestations: Amoxycillin, chloramphenicol, metronidazole, penicillin, tetracycline, cephalexin (cefalexin).

Anti tuberculous drug- isoniazid.

UNIT - IV **10 h**

Determination of Moisture, Ash, Crude fat or ether-extract, Soluble extractor, Crude protein, True protein, Crude fiber, Starch, Analysis of Sugars (Carbohydrate), Estimation of Sucrose in a given sample of cane sugar, Determination of Phosphorous in plant or food material, Destruction of organic matter, Important points, Determination of total Na, K, Ca and Mg in food materials by flame photometry.

UNIT - V **9 h**

Clinical analysis of blood: Composition of blood, clinical analysis, trace elements in the body. Estimation of blood chlolesterol, glucose, enzymes, RBC & WBC, Blood gas analyser.

REFERENCE BOOKS

1. F.J. Welcher-Standard methods of analysis.
2. A.I.Vogel-A text book of quantitative Inorganic analysis-ELBS.
3. F.D. Snell & F.M. Biffen-Commercial methods of analysis-D.B.Taraporavala & sons.
4. J.J.Elving and I.M.Kolthoff- Chemical analysis - A series of monographs on analytical chemistry and its applications -- Inter Science- Vol I to VII.
5. Analytical Agricultural Chemistry by S.L.Chopra & J.S.Kanwar -- Kalyani Publishers
6. Quantitative analysis of drugs in pharmaceutical formulations by P.D.Sethi, CBS Publishers and Distributors, New Delhi.
7. G.Ingram- Methods of organic elemental micro analysis- Chapman and Hall.
8. H.Wincciam and Bobbles (Henry J) - Instrumental methods of analysis of food additives.
9. H.Edward-The Chemical analysis of foods; practical treatise on the examination of food stuffs and the detection of adulterants.
10. The quantitative analysis of drugs- D.C.Garratt-Chapman & Hall.
11. A text book of pharmaceutical analysis by K.A.Connors-Wiley-International.
12. Comprehensive medicinal chemistry-Ed Corwin Hansch Vol 5, Pergamon Press.

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DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-B-1 Semester – VI

FUEL CHEMISTRY AND BATTERIES

Course Code: CHE117 **No. of h/w : 3**

UNIT –I **12 h**

Review of energy sources (renewable and non-renewable) – classification of fuels and their calorific value. Coal: Uses of Coal (fuel and non fuel) in various industries, its composition, carbonization of coal - coal gas, producer gas and water gas – composition and uses – fractionation of coal tar – uses of coal tar based chemicals, requisites of a good metallurgical coke, coal gasification (Hydro gasification and catalytic gasification) coal liquefaction and solvent refining.

UNIT-II **6 h**

Petroleum and petrol chemical industry:

Composition of crude petroleum, refining and different types of petroleum products and their applications.

UNIT-III **10 h**

Fractional distillation (principle and process), cracking (Thermal and catalytic cracking). Reforming petroleum and non petroleum fuels (LPG, CNG, LNG, bio-gas), fuels derived from biomass, fuel from waste, synthetic fuels (gaseous and liquids), clear fuels, petro chemicals: vinyl acetate, propylene oxide, isoprene, butadiene, toluene and its derivative xylene.

UNIT-IV **10 h**

Lubricants

Classification of lubricants, lubricating oils (conducting and non-conducting), solid and semi solid lubricants, synthetic lubricants. Properties of lubricants (viscosity index, cloud point, pore point) and their determination.

UNIT-V **7 h**

Batteries

Primary and secondary batteries, battery components and their role, Characteristics of Battery. Working of following batteries: Pb acid, Li-Battery, Solid state electrolyte battery. Fuel cells, Solar cell and polymer cell.

REFERENCE BOOKS

1. E.Stochi : Industrial chemistry , Vol-1, Ellis Horwood Ltd. UK.

2. P.C.Jain, M.Jain: Engineering chemistry, Dhanpat Rai & sons, Delhi.

3. B.K.Sharma: Industrial Chemistry, Goel Publishing house, Meerut.

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DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-B-2 Semester – VI

No. of h/w : 3

INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE

Course Code:CHE118

UNIT-I

Recapitulation of s- and p-Block Elements **8 h**

Periodicity in s- and p-block elements with respect to electronic configuration, atomic and ionic size, ionization enthalpy, electronegativity (Pauling, Mulliken and Alfred - Rochow scales). Allotropy in C, S, and P. Oxidation states with reference to elements in unusual and rare oxidation states like carbides and nitrides), inert pair effect, diagonal relationship and anomalous behaviour of first member of each group.

UNIT – II **15 h**

Silicate Industries

Glass: Glassy state and its properties, classification (silicate and non-silicate glasses). Manufacture and processing of glass. Composition and properties of the following types of glasses: Soda lime glass, lead glass, armoured glass, safety glass, borosilicate glass, fluorosilicate, coloured glass, photosensitive glass.

Ceramics: Important clays and feldspar, ceramic, their types and manufacture. High technology ceramics and their applications, superconducting and semiconducting oxides, fullerenes, carbon nanotubes and carbon fibre.

Cements: Classification of cement, ingredients and their role, Manufacture of cement and the setting process, quick setting cements.

UNIT – III **8 h**

Fertilizers:

Different types of fertilizers. Manufacture of the following fertilizers: Urea, ammonium nitrate, calcium ammonium nitrate, ammonium phosphate, polyphosphate, superphosphate, compound and mixed fertilizers, potassium chloride, potassium sulphate.

UNIT – IV **8 h**

Surface Coatings:

Objectives of coatings surfaces, preliminary treatment of surface, classification of surface coatings. Paints and pigments-formulation, composition and related properties. Oil paint, Vehicle, modified oils, Pigments, toners and lakes pigments, Fillers, Thinners, Enamels, emulsifying agents. Special paints (Heat retardant, Fire retardant, Eco-friendly paint, Plastic paint), Dyes, Wax polishing, Water and Oil paints, additives, Metallic coatings (electrolytic and electroless), metal spraying and anodizing.

UNIT – V **6 h**

Alloys:

Classification of alloys, ferrous and non-ferrous alloys, Specific properties of elements in alloys. Manufacture of steel (removal of silicon decarbonization, demanganization, desulphurization, dephosphorisation) and surface treatment (argon treatment, heat treatment, nitriding, carburizing). Composition and properties of different types of steels.

Chemical explosives:

Origin of explosive properties in organic compounds, preparation and explosive properties of lead azide, PETN, cyclonite (RDX). Introduction to rocket propellants.

REFERENCE BOOKS

1. E. Stocchi: Industrial Chemistry, Vol-I, Ellis Horwood Ltd. UK.

2. R. M. Felder, R. W. Rousseau: Elementary Principles of Chemical Processes, Wiley Publishers, New Delhi.

3. W. D. Kingery, H. K. Bowen, D. R. Uhlmann: Introduction to Ceramics, Wiley Publishers, New Delhi.

4. J. A. Kent: Riegel's Handbook of Industrial Chemistry, CBS Publishers, New Delhi.

5. P. C. Jain & M. Jain: Engineering Chemistry, Dhanpat Rai & Sons, Delhi.

6. R. Gopalan, D. Venkappayya, S. Nagarajan: Engineering Chemistry, Vikas Publications, New Delhi.

7. B. K. Sharma: Engineering Chemistry, Goel Publishing House, Meerut.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-A-2 Semester – VI

INSTRUMENTAL METHODS OF ANALYSIS

Course Code: CHE115

UNIT – I

Introduction to spectroscopic methods of analysis: 4 h

Recap of the spectroscopic methods covered in detail in the core chemistry syllabus: Treatment of analytical data, including error analysis. Classification of analytical methods and the types of instrumental methods. Consideration of electromagnetic radiation.

UNIT – II

Molecular spectroscopy: 8 h

Infrared spectroscopy:

Interactions with molecules: absorption and scattering. Means of excitation (light sources), separation of spectrum (wavelength dispersion, time resolution), detection of the signal (heat, differential detection), interpretation of spectrum (qualitative, mixtures, resolution), advantages of Fourier Transform (FTIR).

UNIT – III 10 h

UV-Visible/ Near IR – emission, absorption, fluorescence and photoaccoustic. Excitation sources (lasers, time resolution), wavelength dispersion (gratings, prisms, interference filters,laser, placement of sample relative to dispersion, resolution), Detection of signal (photocells, photomultipliers, diode arrays, sensitivity and S/N), Single and Double Beam instruments.

UNIT – IV

Separation techniques 12 h

Solvent Extraction: Principle and process, Batch extraction, continuous extraction and counter current extraction. Applications, determination of Iron (III).

Chromatography: classification of chromatography methods, principles of differential migration, adsorption phenomenon, nature of adsorbents, solvent systems, stationary and

mobile phases R_f values, factors effecting r_f values. Paper Chromatography, principles, experimental procedures, choice of paper, developments of chromatogram, ascending, descending, radial and two dimensional, applications. Thin layer chromatography, advantages, principles, factors effecting R_f values, experimental procedures, preparation of plates, development of the chromatogram, detection of the spots, applications. Column Chromatography, principle and experimental procedure, applications. High Performance Liquid Chromatography & Gas Liquid Chromatography, principles and applications, importance of column technology (packing & capillary), super critical fluids.

Elemental Analysis: 11 h

Molecular Spectrometry (electrical discharges).

Atomic spectroscopy: Atomic absorption, Atomic emission, and Atomic fluorescence. Excitation and getting sample into gas phase (flames, electrical discharges, plasmas)

NMR spectroscopy: Principle, Instrumentation, Factors affecting chemical shift, spin coupling, Applications.

Electro analytical Methods: Potentiometry & Voltammetry

Radio chemical Methods: X-ray analysis and electron spectroscopy (surface analysis)

REFERENCE BOOKS

1. Skoog, D.A., Holler F.J. & Nieman, T.A. Principles of Instrumental Analysis, Cengage Learning India Ed.

2. Willard, H.H., Merritt, L.L., Dean, J. & Settoe, F.A. Instrumental Methods of Analysis, 7th Ed. Wadsworth Publishing Company Ltd., Belmont, California, USA, 1988.

3. P.W. Atkins: Physical Chemistry.

4. G.W. Castellan: Physical Chemistry.

5. C.N. Banwell: Fundamentals of Molecular Spectroscopy.

6. Brian Smith: Infrared Spectral Interpretations: A Systematic Approach.

7. W.J. Moore: Physical Chemistry

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DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-C-1 Semester – VI

ORGANIC SPECTROSCOPIC TECHNIQUES

Course Code: CHE120 **No. of h/w : 3**

UNIT-I **10 h**

Nuclear Magnetic Resonance Spectroscopy

Nuclear spin, Principles of NMR - Classical and Quantum Mechanical methods, Magnetic moment and Spin angular momentum. Larmour Frequency. Instrumentation. Relaxation - spin-spin & spin lattice relaxation. Shielding constants, Chemical shifts, Shielding and Deshielding mechanism - Factors influencing Chemical shift. Spin-Spin interactions - AX, AX2 and AB types. Vicinal, Geminal and Long range coupling - Factors influencing coupling constants.

UNIT – II **5 h**

Spin decoupling, Spin tickling, Deuterium exchange, Chemical shift reagents and Nuclear Overhauser effect. Applications in Medical diagnostics, Reaction kinetics and mechanically induced dynamic nuclear polarization. FT NMR and its advantages.

UNIT-III **10 h**

UV & Visible Spectroscopy

Electronic spectra of diatomic molecules. The Born-oppenheimer approximation. Vibrational coarse structure: Bond association and Bond sequence. Intensity of Vibrational - electronic spectra: The Franck-Condon principle. Rotational fine structure of electronic vibration transitions. Electronic structure of diatomic molecules.

Types of transitions, Chromophores, Conjugated dienes, trienes and polyenes, unsaturated carbonyl compounds – Woodward-Fieser rules.

UNIT-IV **5 h**

Electronic spectra of polyatomic molecules. Chemical analysis by Electronic Spectroscopy – Beer- Lambert's Law. Deviation from Beer's law. Quantitative determination of metal ions (Mn^{+2}, Fe^{+2}, NO_2^-, Pb^{+2}). Simultaneous determination of Chromium and Manganese in a mixture.

UNIT-V **15 h**

Electron Spin Resonance Spectroscopy

Basic Principles, Theory of ESR, Comparison of NMR & ESR. Instrumentation, Factors affecting the 'g' value, determination of 'g' value. Isotropic and Anisotropic constants. Splitting hyper fine splitting coupling constants. Line width, Zero field splitting and Kramer degeneracy. Crystal field splitting, Crystal field effects.

Applications:- Detection of free radicals - ESR spectra of Methyl radical ($CH_3^{\bullet}$), Benzene anion ($C_6H_6^-$), Isoquinine, $[Cu(H_2O)_6]^{+2}$ and $[Fe(CN)_5NO]^{-3}$

REFERENCE BOOKS

1. Electron Spin Resonance Elementary Theory and Practical Applications - John E. Wertz and James R. Bolton, Chapman and Hall, 1986.
2. Spectroscopic Identification of organic compounds – Silverstein, Basseler and Morril.
3. Organic Spectroscopy - William Kemp.
4. Fundamentals of Molecular Spectroscopy - C.N.Banwell and E.A. Mc cash 4th Edition, Tata Mc Graw Hill Publishing Co., Ltd. 1994.
5. Physical Methods in Inorganic Chemistry – R.S.Drago, Saunders Publications.
6. Application of MÖssbauer Spectroscopy – Green Mood.
7. NMR, NQR, EPR and MÖssbauer Spectroscopy in inorganic chemistry – R.V.Parish, Ellis, Harwood.
8. Instrumental Methods of Chemical Analysis - H.Kaur, Pragathi Prakashan, 2003.

9. Instrumental Methods of Analysis, 7th Edition – Willard, Merrit, Dean, Settle, CBS Publications, 1986.

10. Molecular Structure and Spectroscopy – G.Aruldhas, Prentice Hall of India Pvt.Ltd, New Delhi, 2001.

11. MÖssbauer Spectroscopy – N.N.Green Wood and T.C.Gibb, Chapman and Hall, Landon 1971.

12. Coordination Chemistry: Experimental Methods - K.Burger, London Butter Worths, 1973.

13. Analytical spectroscopy – Kamlesh Bansal, Campus books, 2008.

14. Structural Inorganic Chemistry Mossbauer Spectroscopy – Bhide.

15. Principle of MÖssbauer Spectroscopy – T.C.Gibb, Chapman and Hall, Landon 1976.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-C-3 Semester – VI

PHARMACEUTICAL AND MEDICINAL CHEMISTRY

Course Code: CHE122 **No. of h/w : 3**

UNIT-I 8 h

Pharmaceutical chemistry Terminology: Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptors - brief treatment) Metabolites and Anti metabolites.

UNIT-II

Drugs: **8 h**

Nomenclature: Chemical name, Generic name and trade names with examples, Classification: Classification based on structures and therapeutic activity with one example each, Administration of drugs.

UNIT-III

Synthesis and therapeutic activity of the compounds: **12 h**

a. Chemotheraputic Drugs

I. Sulphadrugs(Sulphamethoxazole) 2. Antibiotics - β-Lactam Antibiotics, Macrolide Antibiotics,

3. Anti-malarial Drugs (chloroquine)

b. Psycho therapeutic Drugs:

1. Anti-pyretics (Paracetamol) 2. Hypnotics 3. Tranquilizers (Diazepam) 4. Levodopa

UNIT-IV

Pharmacodynamic Drugs: **8 h**

1. Antiasthma Drugs (Solbutamol) 2. Antianginals (Glycerol Trinitrate)

3. Diuretics(Frusemide)

UNIT-V HIV-AIDS: 9 h

Immunity - CD-4cells, CD-8cells, Retro virus, Replication in human body, Investigation available, prevention of AIDS, Drugs available - examples with structures: PIS: Indivanir (crixivan), Nelfinavir(Viracept).

REFERENCE BOOKS

1. Medicinal Chemistry by Dr. B.V.Ramana
2. Synthetic Drugs by O.D.Tyagi & M.Yadav
3. Medicinal Chemistry by Ashutoshkar
4. Medicinal Chemistry by P.Parimoo
5. Pharmacology & Pharmacotherapeutics R.S Satoshkar & S.D.Bhandenkar
6. Medicinal Chemistry by Kadametal P-I & P-II
7. European Pharmacopoeia

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DEPARTMENT OF CHEMISTRY

CBCS Syllabus for B.Sc. III Year

Effective from 2018 – 2019 onwards

Paper - VIII-A-1 Semester – VI

POLYMER CHEMISTRY

Course Code:CHE114

No. of h/w: 3 hrs

UNIT-I **12 h**

Introduction of polymers:

Basic definitions, degree of polymerization ,classification of polymers - Natural and Synthetic polymers, Organic and Inorganic polymers, Thermoplastic and Thermosetting polymers, Plastics, Elastomers, Fibres and Resins, Linear, Branched and Cross Linked polymers, Addition polymers and Condensation Polymers, mechanism of polymerization. Free radical, ionic and Zeigler – Natta polymerization.

UNIT-II **10 h**

Techniques of Polymerization: Bulk polymerization, solution polymerization, suspension and emulsion polymerization.

Molecular weights of polymers: Number average and weight average molecular weights Determination of molecular weight of polymers by Viscometry, Osmometry and light scattering methods.

UNIT-III **6 h**

Kinetics of Free radical polymerization, Glass Transition temperature (Tg) and Determination of Tg: Free volume theory, WLF equation, factors affecting glass transition temperature (Tg).

UNIT-IV **9 h**

Polymer additives:

Introduction to plastic additives – fillers, Plasticizers and Softeners, Lubricants and Flow Promoters, Anti aging additives, Flame Retardants, Colourants, Blowing agents, Cross linking agents, Photo stabilizers, Nucleating agents.

UNIT-V 8 h

Polymers and their applications:

Preparation and industrial applications of Polyethylene, Polyvinyl chloride, Teflon, Terelene, Polyacrylonitrile, Nylon6,6 and silicones.

REFERENCE BOOKS

1. Seymour, R.B. & Carraher, C.E. Polymer Chemistry: An Introduction, Marcel Dekker, Inc. New York, 1981.

2. Odian, G. Principles of Polymerization, 4th Ed. Wiley, 2004.

3. Billmeyer, F.W. Textbook of Polymer Science, 2nd Ed. Wiley Interscience, 1971.

4. Ghosh, P. Polymer Science & Technology, Tata McGraw-Hill Education, 1991.34

5. Lenz, R.W. Organic Chemistry of Synthetic High Polymers. Interscience Publishers, New York, 1967.

1303

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of **First** Semester)
FINANCIAL ACCOUNTING

Paper: Paper 101 **Max Marks:75+25**

Objectives:

1. To make the students acquire the conceptual knowledge of accounting
2. To equip the students with the knowledge of accounting process and preparation of final accounts
3. To develop the skills of recording financial transactions and preparation of reports using computers

.UNIT1: Introduction to Accounting:

Need for Accounting – definition, features, objectives. functions. systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations-basic terminology used- – Accounting concepts and conventions.

Accounting Process-Accounting cycle-Accounting equation-classification of accounts-rules of double entry book keeping – identification of financial transactions- Journalizing –Posting to Ledgers. Balancing of Ledger Accounts –- Computerized Accounting: Meaning and Features-Advantages and disadvantages of computerized Accounting Creating of an Organization - Grouping of accounts – Creation of Accounts – creation of inventory-creation of stock groups-.stock categories, units of measurement-stock items-entering of financial transactions-types of vouchers-voucher entry-editing and deleting of vouchers-voucher numbering-customization of vouchers

UNIT 2: Subsidiary Books and Bank Reconciliation Statement

Sub Division of Journal-Preparation of Subsidiary Books including different types of cashbooks- simple cashbook, cashbook with cash and discount columns. cashbook with cash. discount and bank columns. cashbook with cash and bank columns and petty cash book. Preparation of sales register. purchase register. journal proper. debit note register, credit note register. and different cash books including interest and discount transactions using computers.

Bank Reconciliation Statement- Need - Reasons for difference between cash book and pass book balances - problems on favorable and over draft balances - Ascertainment of correct cash book balance. Preparation of bank reconciliation statement using computers

UNIT 3:Trial Balance, Final Accounts; Errors and Rectification.

Trial Balance: meaning, objectives, methods of preparation - Final Accounts: Meaning, features, uses and preparation of Manufacturing, Trading Account. Profit & Loss Account and Balance Sheet-Adjusting and Closing entries. Preparation of trial balance, trading, profit and loss account. processing of year ending and closing the books, adjusting and closing entries and balance sheet using computers

Errors and their Rectification - Types of Errors - Rectification before and after preparations of final Accounts - Suspense Account- Effect of Errors on Profit. Rectification of errors using computers.

2303

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of second Semester)
FINANCIAL ACCOUNTING

Max Marks:75+25

Paper: Paper 10I

Objectives:

4. To make the students acquire the conceptual knowledge of accounting
5. To equip the students with the knowledge of accounting process and preparation of final accounts
6. To develop the skills of recording financial transactions and preparation of reports using computers

UNIT 1: Consignment and Joint Ventures:

Consignment - Features, Terms used Proforma invoice - Account sale Deleredere commission -Accounting treatment in the books of the consignor and the consignee Valuation of consignment stock - Normal and abnormal Loss - Invoice of goods at a price higher than the cost price.

Joint ventures -features-difference between joint venture and consignment, Accounting Procedure – Methods of keeping records for Joint venture accounts-Method of recording in co ventures books-separate set of books method .

UNIT 2: Depreciation - Provisions and Reserves:

Meaning of Depreciation - Causes- objects of providing for depreciation -Factors affecting depreciation - Accounting Treatment- Methods of providing depreciation - Straight line method - Diminishing Balance Method. .

Provisions and Reserves - Reserve Fund – Different Types of Provisions and Reserves.

Additional Input under autonomy

UNIT 3: Average due date and account current

Suggested Readings:

1. Principles and Practice of Accounting R.L. Gupta & V.K. Gupta
2. Accountancy - I S.P. Jain & K.L Narang Kalyani Publishers
3. Accountancy – I Tulasian Tata Megraw Hill Co
4. Financial Accounting – Dr.V.K.Goyal Excel Books
5. Introduction to Accountancy T.S.Grewal S.Chand and CO
6. Accountancy – I Haneef and Mukherjee tata Megraw Hill co
7. Advanced Accountancy - Arulanandam Himalaya publishers
8. Advanced Accountancy-I
9. S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
10. Ashok Banarjee Financial Accounting Excel
11. Warren Financial Accounting Cengage

P. Vyajab

N. Sol

1312

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of First Semester)
Business organization and Management

Paper: Paper 103 Max Marks:75+25

Objective: To facilitate the students to learn the concepts of business organization

Unit :1 Fundamental Concepts:
Concepts of business, trade, industry and commerce- Business – features of business. Trade – Classification- Aids to Trade – Industry- Classification – Commerce- Relationship between trade, industry and commerce- Business Organization-Concept- – Functions of Business.
Entrepreneur – Meaning-Characteristics of Entrepreneurs – Types of Entrepreneurs – Functions of an entrepreneur - Steps to start Enterprise– Sources of finance –Long Term-Short Term
Lab Work: The students are expected to go through project reports.

Unit:2 Forms of Organization, Sole Proprietorship, Partnership and Joint Hindu Family:
Business Organization – Forms of Business Organization – Classification – Factors influencing the choice of suitable form of organization.
Sole Proprietorship -Meaning –Characteristics – Advantages and disadvantages – suitability.
Partnership – Meaning –Characteristics –Kinds of partners- Registration of partnership – Partnership deed – Rights and obligations of partners - Joint Hindu Family Business – Characteristics – Advantages and limitations.
Lab Work: The students are expected to go through partnership deed and prepare a simple partnership deed.

Unit 3: Joint Stock Company:
Joint Stock Company – Meaning – Characteristics –Advantages - Kinds of Companies – Difference between private and public companies –Promotion of A Company: Promotion – Stages-Promoters –Characteristics –Registration –Capital subscription – Commencement of Business – Preparation of Important documents – Memorandum of Association – Significance – Clauses – – Articles of Association – Contents — Prospectus – Contents – Statement in lieu of Prospectus.
Lab Work: The students are expected to go through a memorandum of association, articles of association and prospectus. As a group they are expected to prepare a model prospectus.

Additional Input under autonomy
Unit 4: Cooperative societies

Suggested Books:

- Bhatia RC: Business Organization and Management, Ane Books
- Talloo : Business Organisation and Management. Tata
- RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
- CB Gupta : Industrial Organization and Management
- Aryasri and Murthy : Industrial Organization and Management. Tata
- Govindarajan and Natarajan : Principles of Management, Prentice Hall

M. Vijaya

N. Sai

2312

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of Second Semester)
Business organization and Management
Max Marks:75+25

Paper: Paper 103

To facilitate the students to learn the concepts of management

Unit: I: Management, Planning and Decision Making

Management- Meaning – Significance- Management Vs Administration – Functions of management – Levels of Management – Skills of management –Leadership-Leader Vs Manager-Traits of successful Leaders- Scientific Management – features- Fayol's Principles of Management .

Planning – Meaning – Significance –Types of Plans – Decision making – Steps in Process Decision making process

Lab Work: The students are expected to prepare a small note of the skills of management required to manage the organization of their choice.

Unit II: Organizing

Organizing – meaning - Organization – Features – the process of organization – principles of organization- Elements of organizations –organization chart

Delegation of authority – meaning - Elements – Principles – Types – Difficulties in delegation – Guidelines for making delegation effective

Centralization – Decentralization –Meaning – Differences between delegating and decentralization

Lab Work:

The students are expected to go through the organization structures of a few organizations and prepare an organization structure for a small unit.

The students are expected to prepare a small project report on how to start a small industry unit of their choice incorporating various aspects learned in this subject.

Additional Input under autonomy

Elton Mayo theory

Suggested Books:

- Bhatia RC: Business Organization and Management, Ane Books
- Talloo : Business Organisation and Management. Tata
- RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
- CB Gupta : Industrial Organization and Management
- Aryasri and Murthy : Industrial Organization and Management, Tata
- Govindarajan and Natarajan : Principles of Management, Prentice Hall
- RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
- CB Gupta : Industrial Organization and Management, Sultan Chand
- Bhushan Y K: Business Organization and Management, Sultan Chand
- Surendar and Madhavi : Industrial Organization and Management, Himalaya
- Sherlekar: Business Organization and Management, Himalaya

N. Sai

1311

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of First Semester)
FUNDAMENTALS OF INFORMATION TECHONOLOGY

Paper: Paper 104 **Max Marks:75+25**

Objective: To impart basic knowledge about computer with application of various packages.

Unit – I :

Introduction to computers: Definition, Characteristics and limitations of computers - Elements of Computers - Hardware - CPU - Primary and Secondary memory - Input and Output devices. IT enabled services - BPO, KPO, Call centers.

Modern communications: (Concepts only)- communications – FAX, Voice mail, and information services – E Mail – Creation of email id - group communication – Tele conferencing – Video conferencing – File exchange – Bandwidth – Modem – Network Topologies – Network types LAN, MAN, WAN and their architecture – Dial up access

Unit – II :

Operating System and Windows: Operating Systems: Meaning, Definition, Functions and Types of Operating Systems - Booting process – Disk Operating System: Internal and External Commands – Wild Card Characters – Computer Virus, Cryptology. Windows operating system - Desktop, Start menu, Control panel, Windows accessories .

Unit – III :

MS Office I : MS Word : Word Processing : Meaning and features of word processing – Advantages and applications of word processing - Parts of MS Word application window – Toolbars – Creating, Saving and closing a document – Opening and editing a document - Moving and copying text – Text and paragraph formatting, applying Bullets and Numbering – Find and Replace – Insertion of Objects, Date and Time, Headers, Footers and Page Breaks – Auto Correct – Spelling and Grammar checking – Graphics, Templates and wizards - Mail Merge : Meaning, purpose and advantages – creating merged letters, mailing labels, envelops and catalogs- Working with Tables – Format Painter.

References:

1. Information Technology : Dennis P. Curtin, McGraw Hill International
2. Fundamentals of Computers : P. Mohan, Himalaya Publishing House
3. Fundamentals of Computers : Atul Kahate, Tata McGraw Hill
4. Fundamentals of Computers : V. Srinivas, Kalyani Publications
5. MS Office : Sanjay Saxsena
6. MS Office : BPB Publications
7. E commerce : CSV Murthy,Himayalaya Publishing House
8. Raymond Green Law :Fundamentals of theInternet,Tata Mc Graw Hill
9. Efraim Turban :Electronic Commerce,Pearson Education

2311

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of **Second** Semester)
FUNDAMENTALS OF INFORMATION TECHONOLOGY
Paper: Paper 104 **Max Marks:75+25**

Objective: To impart basic knowledge about computer with application of various packages

MS EXCEL : Features of MS Excel – Spread sheet / worksheet, workbook, cell, cell pointer, cell address etc., - Parts of MS Excel window – Saving, Opening and Closing workbook – Insertion and deletion of worksheet – Entering and Editing data in worksheet – cell range – Formatting – Auto Fill –Formulas and its advantages – References : Relative, absolute and mixed – Functions: Meaning and Advantages of functions, different types of functions available in Excel – Templates –Charts – Graphs – Macros : Meaning and Advantages of macros, creation, editing and deletion of macros – Data Sorting, Filtering, validation, Consolidation, Grouping, Pivot Table and Pivot Chart Reports.

Unit – IV :
MS Office II : MS Access - Data, Information, Database, File, Record, Fields- Features, advantages and limitations of MS Access – Application of MS Access – parts of MS Access window – Tables, Forms, Queries and Reports – Data validity checks – (Theory with simple problems)

MS PowerPoint: Features, advantages and application of Ms Power point – Parts of MS Power point window – Menus and Tool bars – Creating presentations through Auto content wizard, Templates and manually – slide show – saving, opening and closing a Presentation – Inserting, editing and deleting slides –Types of slides - Slide Views- Formatting –Insertion of Objects and Charts in slides- Custom Animation and Transition.
Multimedia : Meaning, purpose, Usage and application – Images, Graphics, sounds and music – Video presentation devices – Multimedia on web.

Unit- V :
Internet & E commerce
Services available on internet - WWW - ISP.
E commerce : Meaning ,advantages and limitations, applications of E commerce - trading stocks online, ordering products / journals / books etc., online, travel and tourism services, employment placement and job market, internet banking, auctions, online publishing, advertising-Online payment system..(including practicals)

Lab Work:
MS DOS
MS WINDOWS
MS WORD
MS EXCEL
MS ACCESS
MS POWERPOINT
INTERNET AND E COMMERCE PRACTICALS

N. Sai

3301
(EM 8TH)

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of **Third** Semester)

ADVANCED ACCOUNTING

Paper: Paper 201 **Max Marks:75+25**

Objectives:

1.To appraise the students about the application of accounting knowledge in special business activities.

2. To impart the skills of preparation of final accounts of non- trading concerns. partnership. organizations.

3.To develop the skills of recording of transactions relating to issue of shares and debentures. branches and departments manually and using computers.

UNIT – I: Accounts from Incomplete Records - Hire purchase and installment purchase system.

Single Entry: Features – books and accounts maintained- Recording of transactions -Ascertainment of Profit. –(Statement of Affairs method only).
Hire Purchase System - Features –- Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession - Installment Purchase System - Difference between Hire purchase and Installment purchase systems - Accounting Treatment in the books of Purchaser and Vendor

UNIT - II : Partnership Accounts:
Legal provisions in the absence of Partnership Deed - Fixed and Fluctuating Capitals –Preparation of final accounts. – Accounting Treatment of Goodwill and Admission of a partner.

Accounting treatment of Retirement and Death of a Partner - Dissolution of Firm (Excluding Sale to Firm, Company and Amalgamation) – Recording of partnership transaction and preparation of final accounts using computers. (24 hours)

UNIT-III : Accounting of Non-Profit Organizations:

Non-Profit entities-Features of non-profit entities – Accounting process- Preparation of summaries -Receipts and Payments Account meaning and special features-Procedure for preparation-uses and limitations.

Income and Expenditure Account- features- procedure for preparation- preparation of Balance Sheet

M. S. Vyaijat

N. S.

4301

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of **Fourth** Semester)

ADVANCED ACCOUNTING

Paper: Paper 201 **Max Marks:75+25**

Objectives:

1.To appraise the students about the application of accounting knowledge in special business activities.

2. To impart the skills of preparation of final accounts of non- trading concerns, partnership, organizations.

3.To develop the skills of recording of transactions relating to issue of shares and debentures, branches and departments manually and using computers.

UNIT-I : Branch and Departmental Accounts:

Dependent Branches: features-Books of accounts- methods of accounting of dependent branches - Debtors System, Stock and debtors system -- Recording of transaction relating to branch accounts using computers.

Departmental Accounts: need, features, Basis for Allocation of Expenses, treatment of Inter - Departmental Transfer at cost or Selling Price-Treatment of Expenses that cannot be allocated – Preparation of departmental profit and loss.. (24 hours)

UNIT-II: Company Accounts:

Issue of Shares at par, Premium and at Discount - Forfeiture and Reissue of Shares-Rights issue (Theory Only) - Recording of transactions relating to issue of shares using computers.

Issue and Redemption of Debentures - Redemption out of profits –sinking fund method. Recording of transaction relating to issue and redemption of debentures using computers
Underwriting of Issue of Shares(Simple Problems)

Suggested Readings:

1.Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
2. Accountancy – I Tulasian TaTA Mcgraw Hill Co
3.Accountancy - I S.P. Jain & K.L Narang Kalyani Publishers
4.Financial Accounting – Dr.V.K.Goyal Excel Books
5.Introduction to Accountancy T.S.Grewal S.Chand and CO
6.Accountancy – I Haneef and Mukherjee tata Mcgraw Hill co
7.Advanced Accountancy Arulanandam Himalaya publishers
8..Advanced Accountancy-I S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.

M. Vijaya N. Sal

3306 (E) 2TH)

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of Third Semester)
BUSINESS STATISTICS

Paper: Paper 202 Max Marks:75+25

The objective of this paper is to impart knowledge on the application of statistical tools and techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT 1: Introduction to Statistics:

Meaning, definition, importance and limitations of statistics. Collection of data- Primary and Secondary data –(Sampling- Random-Non Random-Census)- Schedule and questionnaire –Frequency distribution –Tabulation-Diagrammatic and graphic presentation of data using Computers (Excel)

UNIT 2: Measures of Central Tendency :

Defination Objectives and Characteristics of measures of Central Tendency-Types of Averages – Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Deciles, Percentiles, Properties of averages and their applications. Calculation of averages using computers.

UNIT 3:Measures of dispersion and Skewness:

Meaning, definitions, Properties of dispersion-Range-Quartile Deviation –Mean Deviation-Standard Deviation- Coefficient of Variation-Skewness definition-Karl Pearson's and Bowley's Measures of skewness-Normal Distribution Calculation of Dispersion and skewness using Computers.

UNIT 4:Measures of Relation:

Meaning, definition and use of correlation – Types of correlation-Karlpearson's correlation coefficient – Spearman's Rank correlation-probable error-Calcuation of Correlation by Using Computers.

1. Business Statistics — Reddy, C.R Deep Publications, New Delhi.
2. Statistics-Problems and Solutions — Kapoor V.K.
3. Fundamentals of Statistics — Elhance.D.N
4. Statistical Methods — Gupta S.P
5. Statistics — Gupta B.N.
6. Fundamentals of Statistics — Gupta S.C

N. Sai

4306

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of Fourth Semester)
BUSINESS STATISTICS

Paper: Paper 202 Max Marks:75+25

UNIT 1 : Regression Analysis

Meaning and utility of Regression analysis comparison between correlation and Regression – Regression Equations-Interpretation of Regression Co-efficient. Calcuation of Regression by Using Computers

UNIT 2:Analysis of Time Series & Index Numbers:

Meaning and utility of time series Analysis- Components of Time series- Measurement of trend and Seasonal Variations – Utility of Decomposition of Time Series-Decentralization of Data-Calculation of trend and seasonal variations using computers.

UNIT 3 Index Numbers

Meaning, Definition and Importance of Index Numbers-Methods of Construction of Index Numbers – Price Index Numbers – Quantity Index Numbers –Tests of Adequacy of Index Numbers – Deflating Index Numbers – Cost of Index Numbers-Limitation of Index Numbers. Calculation of index numbers using computers.

Suggested Readings:

7. Business Statistics — Reddy, C.R Deep Publications, New Delhi.
8. Statistics-Problems and Solutions — Kapoor V.K.
9. Fundamentals of Statistics — Elhance.D.N
10. Statistical Methods — Gupta S.P
11. Statistics — Gupta B.N.
12. Fundamentals of Statistics — Gupta S.C
13. Statistics-Teory,Methods and Applications. — Sancheti,D.C. &Kapoor V.K
14. Practical Business Statistics — Croxton & Crowdorv.
15. Statistics and their applications to Commerce — Borddigtion
16. Statistics Concepts & Applications — Nabendu Pal & Sahadeb Sarkar
17. Business Statistics,An Applied Orientation — P.K.Viswanathan
18. Business Statistics — J.K.Sharma
19. Business Statistics — Bharat Jhunjhunwala
20. Busniess Statistics — R.S.Bharadwaj

3313 (CBCS & TM)

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of **Third** Semester)
Financial Services - Banking & Insurance

Paper: Paper 203 **Max Marks:75+25**

Objective: To impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services

Unit I : Introduction to Financial Services

a. Meaning of Financial Services, Structure of Indian Financial System Importance of Financial system for the economic development.(Financial and Banking system charts)
b. Definition of Bank, Functions of Commercial Banks and Reserve Bank of India.(Forms of various accounts and deposits)
c. Definition/ Meaning of Insurance and reinsurance, Principles of Insurance, kinds of Insurance, advantages of insurance, globalization of insurance and insurance sector reforms in India.

Unit II : Banking Systems and its Regulation

a. Banking Systems – Branch banking, Unit Banking, Correspondent banking, Group banking, Deposit banking, Mixed banking and Investment banking. An overview of banking; Banking Sector Reforms with special reference to Prudential Norms: capital adequacy norms, income recognition norms, classification of assets and NPAs; Innovations in Banking-ATMs, E-Banking, Credit cards, Online & Offshore Banking, etc (working and operations) Regional Rural banks, Cooperative banks, Micro Finance, Priority Sector Lending, Indigenous banking, Role of NABARD, Development Financial institutions – SFC,SIDBI.

Unit III: Banker and customer, loans and advances:

a. Banker and customer definition and their relationship, types of customers and modes of operations, procedure and precaution for opening an account, pass book & its features, Rights, duties and obligations of the banker.(Application forms for opening accounts, Cheque Books, pass books,requisition slips for withdrawals and deposits, bank statements,etc)
b. Promissory Note and Bills of Exchange and Cheque, differences between them, types of crossing the cheque, payment of cheque and consequences of wrongful dishonor, collection of local and upcountry cheques, responsibilities and liabilities of collecting banker and statutory protection to the collecting banker.(Promissory notes, B/E, Crossed cheques-various modes)
c. Types of loans and advances, principles of sound lending policies, credit appraisals of various forms of loans and advances- modes of creating charges- lien, pledge ,mortgage and hypothecation (Documents required for sanction of loans and advances)

Additional Input under autonomy

Online banking

M. Nyayab

N. Sol

4313

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of fourth Semester)

Financial Services - Banking & Insurance

Paper: Paper 203 Max Marks:75+25

Objective: To impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services

Unit IV. Financial Markets & Services:

a. Indian Money Market- Characteristics, Structure, composition (call and notice money, market, treasury bills market, CDs, CPs, short term bill market, MMMFs and DFHI) problems and reforms in Indian money markets (CDs,CPs,Treasury Bills)
b. Indian capital market-composition and growth of primary and secondary markets, differences between primary and secondary markets, capital market reforms and NBFCs in capital markets; Stock Exchanges, NSE, OTCEI, Online Trading and role of SEBI.
c. Financial intermediaries and services : Merchant bankers, Mutual funds, Leasing companies, Venture Capital Funds, Forfaiting, Loan Syndication, Factoring, Custodial Services, Depository Services, and Depository participants.(Documentation)

Unit V : Types of Insurance and its regulation

a. Life Insurance – Practical aspects of Life Insurance, procedure for issuing a life insurance policy, issue of duplicate policies, nomination, surrender value, policy loans, assignment, revivals and claim settlement.(Formats of types of Insurance)
b. Non Life Insurance- Types of products and scope of Fire Insurance, Marine Insurance, Health Insurance, Social Insurance and Rural Insurance. Regulation of Insurance in India-Insurance Act,1938 and IRDA 1999.(Formats of types of Non Life Insurance)

Additional Input under autonomy

ICICI banking training

Books Recommended:

1 Maheshwari and Paul R.R... Banking theory law and practice
2.Sundaram and Varsheney... Banking theory law and practice
3. Tannans-- Banking law and practice in India
4. Aryasri.. Banking and Financial system
5. M.Y.Khan.. Indian Financial System
6. P.K.Gupta.. Insurance and risk management
7.Vijaya Raghavan Iyengar Introduction to Banking
8. Guruswamy: Banking Theory Law and Practice, Tata
9. Aryasri &Murty: Banking and Financial Systems, Tata
10.Guruswamy: Merchant Banking and Financial Services, Tata
11.Murthy and Venugpoal: Indian Financial System, IK International
12. Paul Suresh: Management of Banking and Financial Services, Pearson

N. Sal

3314
(ENGTM)

Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of **Third** Semester)
TAXATION

Paper: Paper 204 **Max Marks:75+25**

Objective: To equip the students with the working knowledge of both direct and indirect taxes.

UNIT I : INTRODUCTION

Taxes – Meaning – Need for and Rationale of taxes – Direct and Indirect Taxes - Constitutional Provisions on Taxation – Union List - State List – Tax Rates – Blanket Rate Method – Slab Rate Method – Surcharge – Cess – Progressive v/s Regressive Taxes. – An Overview of Taxation System in India.

UNIT – II: INCOME TAX

Income Tax Act 1961- Important Definitions - Residential Status – Incidence of Tax – Exempted Incomes – Agricultural Income – An overview of five heads of income - .Deduction – Set off and Carry Forward of losses – Assessment of Individual - Computation of Taxable Income – Return Filing and Assessment thereof. – Collection and Recovery of Taxes – Tax Deducted at Source – Advance Tax. – (Including Problems)

Lab Work: Filing Relevant Forms for Individual Assessees.
Format and filling of Form:16
Format and filling & filing of ITR-1 & ITR-2

UNIT – III: WEALTH TAX

Wealth Tax Act 1957 – Charge of Wealth Tax – Valuation Date – Location of Assets -Assets – Meaning – Deemed Assets – Exempted Assets – Net Wealth -- Computation of Net Wealth – Valuation of Assets - Return of Wealth and Procedure of Assessment – Time Limit for Completion of Assessment. (Including Problems)

Lab Work: Computation of Tax liability.

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Government College (A) Rajahmundry
II B.Com., Degree Examination
(At the end of **Pourth** Semester)
TAXATION

Paper: Paper 204 .

Max Marks:75+25

UNIT – IV: SALES TAX & SERVICE TAX

Central Sales Tax –: Definitions - Dealer, Declared Goods, Place of Business, Sale, Sale Price, Turnover – Inter State Trade or Commerce – Computation of Taxable Turnover - Assessment and Returns under CST Act (Including Problems)

APVAT Act, 2005 – Statement of Objectives and Reasons – Definitions: Business Casual Trader, Dealer, Input Tax, Output Tax, Place of Business, Tax Invoice, Total Turnover, Turnover Tax. – Computation of Taxable Turnover – Registration Procedure (Including Problems)

Service Tax Act, 1994 – Introduction – Meaning of Service – Classification of Taxable Services – Valuation of Taxable Services - Registration – Assessment Procedure.

UNIT – V: CENTRAL EXCISE & CUSTOMS

Central Excise Duty – Definitions – Taxable Event under Central Excise – Types of Duties – Classification – Valuation - Registration Procedure - CENVAT Credit.

Customs Duty – Important Definitions – Goods, Import, Export, Importer, Exporter, Territorial Waters, India, Bill of Entry - Import and Export Procedure – Various Documents used in Foreign Trade - Baggage – Stores – Valuation Rules.

Peferences:

- Direct taxes law & practice – Vinod K Singhania, Kapil Singhania, Taxmann's
- Direct taxes law & practice – Girish Ahuja, Dr. Ravi Gupta, Bharat's
- Direct taxes law & practice – BB Lal -- Pearson's
- Indirect taxes law & practice – V.S. Datey, Taxmann's
- Indirect taxes – V. Nagaragan, Asia Law house
- Central Exercise Mannual – Law & procedure – P. Verra Reddy, Asia Law house
- Andhra Pradesh VAT Act & Rules – N K Acharya , Asia Law house
- Elements of Income Tax – Dr. P.V. Ramana Rao, Dr. A. Sudhakar, Dr. S. Krishnaiah Goud, National Publishing House
- Income Tax Law & Practice – Gaur & Narang, Kalyani Publishers
- Income Tax – Tata Mcgraw Hill
- Income Tax Law and Practice-N.Hariharan, Tata
- Income Tax and Central Sales Tax: Lal Vashist, Pearson

P. Vijaya

N. Sai

3311

3rd & 4th Semester

Government College(A) Rajahmundry
B.Com II YEAR
Paper I: FoxPro and computer accountancy through Tally
SEMESTER - III

UNIT I: DBMS Concepts, Introduction to database system, Advantages, Data independence, Role of D.B.A. Architecture, possible representations of data, indexing techniques, Tipple Calculus, Domain Calculus.

UNIT II: FoxPro: Introduction, database file, Record and field, Data types, Managing the database, Creating, adding, Listing and Deleting, Operations on Record pointer, Conditional clauses, Modifying the database, Mathematical commands, Functional usage of Memo fields, Sorting and Indexing, searching Commands, Printing Labels Reports.

UNIT III: Programming with FoxPro: Memory variables, Creating and running program file, Creating Dimensions (Arrays) , Control structure: If-Endif, Do While – Enddo, Do Case – Endcase, Scan – Endscan, For – Endfor, Text- Endtext, Work areas , procedures , Set Commands, Creating and defining Windows, Manus, Popups, Screen Generation.

4311

Government College(A) Rajahmundry
B.Com II YEAR
Paper I: FoxPro and computer accountancy through Tally
SEMESTER – IV

UNIT I: Computer Accountancy: Using Tally Package. Introduction – Scope-role of computers in accounts.

UNIT II : DTP: What is DTP. Advantages of PageMaker: Tool Box, Page Setup, Preferences, Save, Place, Export, Cut, Paste, Edit, Page views, Insert and Removing the pages, Master page, Tab setting How to use various fonts, Increasing and Decreasing of Font size, Paragraph Margins; Alignments. CorelDraw: Overview Managing files, Manipulating Objects Photo paint.

T. Vyaya

N. Sai

3312

3rd & 4th Semesters

Government College (A) Rajahmundry
II B.COM (COMPUTERS)
PAPER II : Structured programming through ' C '

Semester-III

Unit-I : Problem solving and algorithm:

The problem solving aspect- Top down design-step wise refinements – implementation of algorithms – efficiency of algorithms – Desirable program characteristics.

Unit-II:Exchange of two variables, summation of set numbers – factorial computation –Generation of Fibonacci series – reversing of digits of integers – GCD – Generation of Prime numbers.

Unit III : 'C 'Programming:

Basics: Importance of C language – structure of C language – variables – constants – Expressions – operators, simple I/O functions control statements – storage classes. Programs using all the operators.

Unit IV : Functions: concept of functions – parameter passing – recursion - comparison of iteration and recursion – scope and extent of variables. Programs using recursive and non recursive functions.

Government College (A) Rajahmundry
II B.COM (COMPUTERS)
PAPER II : Structured programming through ' C '

4312

Semester-IV

Unit –I Arrays and Strings: Single and multi dimensional arrays. Character arrays as a string – functions of strings. Programs using arrays and for string manipulation.

Unit II :Pointers: Definition and usage of pointers – address operator – pointer variables. Problems using Pointers.

Unit III :Structures and Unions: Declaring and using Structures – operations on structures –arrays of structures – user defined data types, passing structures to functions. Unions, difference between structures and Unions. Scope of unions.

Data files: opening and closing a file creating a data file, processing a data file.

N. Sai

5321
(EH & TH)

Government College (A), Rajahmundry
III B.Com., Degree Examination
(At the end of Fifth Semester)
CORPORATE ACCOUNTING

Paper: I 301 Max Marks : 75+25

OBJECTIVES :
1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Accounting Standards - Valuation of Goodwill and Shares

Accounting Standards - Need and importance - An overview of Indian Accounting Standards.

Valuation of Goodwill - Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method

Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method.

UNIT –II : Company final accounts - issue of Bonus shares and Profits Prior to Incorporation.

Preparation of Final Accounts – Provisions relating to preparation of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers.

Issue of bonus shares-Provisions of company's Act and SEBI guide lines. Acquisition of business and profits prior to incorporation. – Accounting treatment.

UNIT-III: Bank Accounts

Bank Accounts –Books and Registers to be maintained by banks-Slip system of posting-rebate on bills discounted-Schedule of advances –Non performing assets - Legal provisions relating to Preparation of final accounts – Preparation of bank final Accounts using computers

Additional Input under autonomy

Concept of Inflation Accounting

Suggested Readings:

1.Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
2. Accountancy – III Tulasian Tata Mcgraw Hill Co
2.Accountancy - IIIS.P. Jain & K.L Narang Kalyani Publishers
3.Financial Accounting Dr.V.K.Goyal Excel Books
4.Introduction to Accountancy T.S.Grewal S.Chand and CO

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6321

Government College (A), Rajahmundry
III B.Com., Degree Examination
(At the end of SIXTH Semester)
CORPORATE ACCOUNTING

Paper: 1 ~~3BD~~ 301 Max Marks : 75+25

OBJECTIVES :
1. To provide the knowledge relating to the Accounting Standards.
2.To enable students to company final accounts using computers
3.To enable the students to prepare financial statements of Insurance and Bank companies

UNIT-I: Amalgamation

Amalgamation -- In the nature of merger and purchase – Calculation of purchase consideration -Treatment in the books of transferor and transferee (as per Accounting Standard 14, excluding inter- company holdings) Recording of transactions relating to mergers using computers.

UNIT II

Internal Reconstruction - Accounting Treatment– Preparation of final statements after reconstruction.. Recording of transactions relating to Internal Reconstruction using computers

UNIT-III: Accounts of Insurance Companies

Life Insurance Companies –Preparation of Revenue Account, Profi and loss account , Balance Sheet and Valuation Balance Sheet.
General insurance Preparation of final accounts-with special reference to fire&marine insurance only.

Additional Input under autonomy

Liquidation procedure

Suggested Readings:

1.Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
2. Accountancy – III Tulasian Tata Mcgraw Hill Co
2.Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
3.Financial Accounting Dr.V.K.Goyal Excel Books
4.Introduction to Accountancy T.S.Grewal S.Chand and CO
5 Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
6.Advanced Accountancy Arulanandam Himalaya publishers
7.Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Pub co.
8.Advanced Accountancy: Shukla and Grewal S.Chand & Co
9. Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
10. Corporate Accounting Goyal VK Excel
11.Corporate Accounting Verma KK Excel
12. International Accounting Saudagaran Cengage

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5303
(EM & TM)

Government College (A) Rajahmundry
III B.Com., Degree Examination
(At the end of Fifth Semester)
COST AND MANAGEMENT ACCOUNTING

Paper: 2 302 Max Marks:75+25

OBJECTIVES:

1.To impart conceptual knowledge of costing and management accounting
2. To train the students in finding the cost of products using different methods of costing.

Unit-I: Introduction.

Cost Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Cost Accounting Vs Financial Accounting,
Cost concepts-Cost classification -preparation of cost sheet. Relationship of costing department with other departments. (Theory only)

Unit-II: Elements of Costs.

Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ,ABC analysis. Issue of materials to production - pricing methods - FIFO, LIFO with base stock, average methods.
Labor cost: direct and indirect labor cost- methods of payment of wages including incentive plans –Halsey and Rowan plans, Taylor's Piece Rate method.
Overheads: features, classification, methods of allocation and apportionment of overheads.

Unit-III Methods of Costing.

Single or Output Costing, job and contract costing : Features, costing process- computation of cost
Process Costing: features, treatment of normal and abnormal losses, preparation of process cost accounts (excluding equivalent products and inter process profits)

Additional Input under autonomy

Operating costing

Main problem carrying 15 marks each which are come under **Section – I** may be set as stated below.

1 problem from the topic of Issue of Materials or payment of wages
2 problem from the topic of Allocation and apportionment of overheads
3. problem from the topic of Quotation cost sheet
4. problem from the topic of Process costing

Suggested Readings:

1.Cost and Management Accounting : Jain and Narang Kalyani Publishers
2.Cost and Management Accounting : M.N Arora : Himalaya Publishing House
3.Cost accounting : Dutt Pearson Education
4.Management accounting : Sarma and Gupta : kalyani publishers
5. Management accounting : S.P.Guptha : S.Chnad co
6. Management accounting : S.N.maheswari Sultan chand and sons
7.Cost Accounting : Jawaharlal : Tata Mcgraw Hill
8.Cost Accounting Theory and Practice : Banerjee : PHI
9. Management and Cost Accounting : Drury : Cengage

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Government College (A) Rajahmundry
III B.Com., Degree Examination
(At the end of Sixth Semester)
COST AND MANAGEMENT ACCOUNTING Max Marks 75+25

Paper: 2 302

OBJECTIVES:

1.To equip basic skills of analysis of financial information to be useful to the management

Unit - I : Costing Techniques for Decision making:
Management Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Relationship between Cost Accounting

Budgetary Control-Fixed, Flexible Budget

Marginal Costing-Break Even Analysis (Problems on preparation of Break even Chart , Break even Volume, Break even Sales)

Unit – II : Costing Techniques for Decision making:

Standard Costing-Material and labour Variances

Unit - III : Financial Statement analysis:
Financial statements-features, limitations. Need for, Meaning, objectives, and process of financial statement analysis-Methods and techniques of analysis (Theory Only)Funds flow Analysis and Cash flow Analysis (as per AS-3)
Ratio Analysis. Calculation of liquidity, solvency, profitability and turnover ratios-Interpretation of ratios

Additional Input under autonomy
Variance analysis
Main problem carrying 15 marks each which are come under **Section – I** may be set as stated below.

1 problem from the topic of Fixed, Flexible Budget
2 problem from the topic of Break Even Analysis
3. problem from the topic of Funds flow Analysis
4. problem from the topic of Ratio Analysis

Suggested Readings:

1.Cost and Management Accounting	: Jain and Narang	: Kalyani Publishers
2.Cost and Management Accounting	: M.N Arora	: Himalaya Publishing
3.Cost accounting	: Dutt	: Pearson Education
4.Management accounting	: Sarma and Gupta	: kalyani publishers
5. Management accounting	: S.P.Guptha	: S.Chnad co
6. Management accounting	: S.N.maheswari	: Sultan chand and sons
7.Cost Accounting	: Jawaharlal	: Tata Mcgraw Hill

5301
(EM & TM)

Government College (A) Rajahmundry
III B.Com., Degree Examination
(At the end of **Fifth** Semester)
Business Law

Paper: 3 303 **Max Marks: 75+25**

OBJECTIVES:
To make the students learn the basics of business laws and apply them in real life situations, like general contracts and the sale of goods act 1930.

Unit –I: Contract Act :

1. Agreement and Contract: Definition and meaning - Essentials of a valid contract – types of contracts.
2. Offer and Acceptance: Definition – Essentials of a valid offer and acceptance – communication and revocation of offer and acceptance.
3. Consideration: Definition and importance – Essentials of valid consideration – the Doctrines of 'Stranger to Contract' and 'No Consideration – No Contract' – Capacity to contract – special rules regarding minor's agreements.
4. Consent: Free Consent – Flaw in Consent: Coercion – Undue influence – Fraud – Misrepresentation and Mistake.

Unit – II: Discharge of a Contract:

1. Legality of object and consideration:– illegal and immoral agreements – agreements opposed to public policy.
2. Agreements expressly declared to be void – wagering agreements and contingent contracts.
3. Discharge of a contract – various modes of discharge of a contract – performance of contracts.
4. Breach of a contract – types – remedies for breach of a contract

Unit III. Sale of Goods Act:

1. Contract of sale: Definition - features – definition of the term goods – types of goods – rules of transfer of property in goods – differences between sale and agreement to sell.
2. Rights of an unpaid seller.
3. Conditions and warranties – meaning and distinction – express and implied conditions and warrantics – sale by non-owners – auction sale.

Suggested Books:

Kapoor ND	: Mercantile Law,	: Sultan Chand
Kapoor ND	: Company Law,	Sultan Chand
Balachandran V	: Business Law,	Tata
Tulsian :	Mercantile Law,	Tata
Tulsian :	Business Law,	Tata
Gogna :	A Text books of Business and Industrial Law,: S.Chand	
Pillai Bhagavathi	: Business Law, S. Chand	
Gogna :	A Text Book of Mercantile Law, :	S. Chand
Gogna :	A Text Book of Company Law,	S. Chand

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6301
(EM & TM)

Government College (A) Rajahmundry
III B.Com., Degree Examination
(At the end of **Sixth** Semester)
Business Law

Paper: 3 303 **Max Marks: 75+25**

OBJECTIVES:
To Educate the Students about the Consumer Protection Act,1986, I.T Act, 2000 and The Company Law.

UNIT – I : Consumer Protection Act,1986

Definitions of the terms consumer, unfair trade practices, restrictive trade practices and complainant – rights of consumers – consumer protection councils – consumer redressal agencies – penalties for violation.

UNIT – II : Intellectual Property Rights

. Intellectual Property Rights: Meaning - Need and objectives-Meaning of the terms industrial property, literary property, copy right, patents, trade marks, trade names, trade secrets, industrial designs, geographical indications.

UNIT III: Information Technology Act, 2000

Information Technology Act, 2000: aims and objectives – a brief overview of the Act.

Unit –IV: Company Law :

1.Doctrine of ultra vires and its effects – doctrine of constructive notice – doctrine of indoor management – exceptions.

2.Management of companies – directors – qualifications – disqualifications – appointment – removal – rights and duties – company meetings and resolutions - appointment of a company secretary.

3. Winding up of companies – various modes – compulsory winding up- powers and duties of official liquidator – members and creditors voluntary winding up – winding up subject to the supervision of the court –dissolution..

Suggested Books:

Kapoor ND	:	Mercantile Law,	: Sultan Chand
Kapoor ND	:	Company Law,	Sultan Chand
Balachandran V:		Business Law,	Tata
Tulsian	:	Mercantile Law,	Tata
Tulsian	:	Business Law,	: Tata
Gogna	:	A Text books of Business and Industrial Law,: S.Chand	
Pillai Bhagavathi	:	Business Law, S. Chand	
Gogna	:	A Text Book of Mercantile Law,	: S. Chand
Gogna	:	A Text Book of Company Law,	S. Chand

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5311
(EM & TM)

Government College (A), Rajahmundry
III B.Com., Degree Examination
(At the end of Fifth Semester)
AUDITING

Paper: 4 304 Max Marks : 75+25

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Introduction to Auditing

Auditing: Meaning-Definition-Evolution-Objectives-Importance.
Types of audit: Based on ownership (Proprietorship, Partnership, .Companies, Trusts, Cooperative Societies, Government Departments) -Based on time (Interim, Final, Continuous, Balance Sheet)- Based on objectives (Independent, Financial, Internal, Cost, Tax, Government, Secretarial).

Unit II : Planning of Audit and Control
Auditor: Qualifications and disqualifications -- Qualities - Appointment and Reappointment – Remuneration – Removal – Rights – Duties – Liabilities.

Unit III Audit planning: - Engagement letter - Audit programme -Audit note book -Audit papers - Audit work book - Audit contents - Audit markings - Internal check- Internal control –(Sales-Purchases-Fixed assets-Cash-Bank-Pay Roll) - Accounting controls and Sampling in audit.
Lab Work: Preparation of Audit programme for an organization.

Unit IV: Vouching and Verification and Valuation of assets and liabilities:
Vouching: Meaning- Vouching of cash and trading transactions –Investigation, Verification and Valuation of assets and liabilities- Differences between vouching, investigation, verification and valuation.
Lab Work: Vouching of cash book of a local business unit.

Additional Input under autonomy
Types of audit

Reference Books :

1. Contemporary Auditing : Kamal Gupta
2. Practical auditing : Spicer & Pegler
3. Princeples and practices of Auditing : Jagdish Prakash
4. Principles of Auditing : Ghatalia
5. Auditing : N.D.Kapoor
6. Practical Auditing : T.N.Tandon
7. Auditing DinkarPagare
8. Auditing : R.G.Saxena
9. Fundamentals of Auditing Kamal Gupta and Ashok Gupta
10. Auditing Principles and Techniques : Basu SK
11. Auditing Principles & Practice : Kumar Sharma, PHI

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Government College (A), Rajahmundry
III B.Com., Degree Examination
(At the end of **Sixth** Semester)
AUDITING –

Paper: 4 304 Max Marks : 75+25

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Audit of Financial Statements

Audit of Financial Statements: Receipts – Payments – Sales – Purchases -Fixed assets – Investments - Personal ledger – Inventories - Capital and Reserves - Other assets - Other liabilities.

Lab Work: Vouching of cash book of a local business unit.

Unit II: Audit of Institutions

Audit of institutions: Partnership - Manufacturing and Other Companies -Non-trading concerns.

Unit III Audit Report

Audit Report: Contents - Preparation of audit report – Fair report - Qualified report.

Lab Work: Collection of Model Audit Reports from Local Auditor and Preparation of similar reports.

Unit IV: Report Writing

Business Correspondence and Report writing: Basic principles – Business letters. Business reports: Structure – Preparation of Routine reports and special reports.

Lab Work: Drafting of model business letters and Preparation of business reports.

Additional Input under autonomy

Social audit

Reference Books :

1.Contemporary Auditing : Kamal Gupta
2.Practical auditing : Spicer & Pegler
3.Princeples and practices of Auditing : Jagdish Prakash
4.Principles of Auditing :Ghatalia
5.Business correspondence and Report Writing : Tata M.Graw Hill
6.Business correspondence & Report writing : Urmila Rai &S.M. Rai
7 Business communications and Report writing Kalyani Publications
8. Auditing N.D.Kapoor

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5605 (EM & TM)

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

(at the end of Fifth Semester)

ELECTIVE - III : ACCOUNTING - 1

This Elective group for B.Com. General Students only

ADVANCED CORPORATE ACCOUNTING

Time : 3 Hours Marks : 100 (75 + 25)

Unit-I: The Accounts of Holding Companies:

The nature of holding companies - Legal requirements for a holding company - Schedule VI of the Companies Act and subsidiary companies - Preparation of consolidated balance sheet - cancellation of investment account - minority interest - cost of acquiring control or goodwill - capital reserve - preference share capital in subsidiary companies - debentures in subsidiary companies (including problems related to the single subsidiary company)

Lab: Computation of Problems using Excel / Accounting Packages.

Unit-II: Accounts of Electricity Companies (Double - Accounting System) :

Meaning of double-account system - revenue account and net revenue account - capital account (receipts and expenditure on capital account) and general balance sheet. Replacement of an asset. Important provisions of Indian Electricity Act 1910, Electricity supply act 1948 and the Companies Act 1956 - Formats of relevant accounts - calculation of reasonable return and disposal of surplus. Preparation of net revenue account and Balance Sheet (including problems).

Lab: Computation of Problems using Excel / Accounting Packages.

Unit-III: Human Resource Accounting:

Definition, objectives, approaches, assumptions, advantages, limitations of HRA, HRA in India. Historical cost accounting. Replacement cost method, Opportunity cost method. (Theory only).

Suggested Readings :

1. R.L. Gupta, M. Radha Swamy : Corporate Accounting, Sultan Chand
2. Jain & Narang : Corporate Accounting, Kalyani Publications
3. S.M. Shukla : Advanced Accounting, Sahitya Bhavan

BLUE PRINT

Units No.	NAME OF THE TOPIC	PROBLEMS		THEORY		
		Essay Qts. 15 M.	Short Qts. 5 M.	Essay Qts. 15 M.	Short Qts. 5 M.	Very Short Qts. 2 M.
1.	The Accounts of Holding Companies	1	—	1	2	1
2.	The Accounts of Eletricity Companies	2	—	—	2	2
3.	Human Resources Accounting	—	—	1	2	2

NOTE: Main Problem / Theory carrying 15 marks each which are come under section - 'A' may be saet as stated below :

Unit-1: One Essay Question - Theory on procedure for consolidation of Balance Sheet.
One Problem - Preparation of Consolidated Balance Sheet related to single subsidiary company upto inter-co owings and unrealised profit procedure for consolidation only.

Unit-2: First Problem on preparation of Revenue and Net Revenue Accounts.
Second Problem on preparation of capital account and General Balance Sheet.

Unit-3: One Essay Question from these topics : 1) Objectives and approaches of HRA
2) Advantages & Disadvantages of HRA
3) Methods of HRA
4) HRA in India

6605 (EM & TM)

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

(at the end of Sixth Semester)

ELECTIVE - III : ACCOUNTING - 1

This Elective group for B.Com. General Students only

ADVANCED CORPORATE ACCOUNTING

Time : 3 Hours Marks : 100 (75 + 25)

Unit-I: Accounting for price level changes (Inflation Accounting):
introduction, limitations of historical cost accounting, methods of accounting for price level changes – preparation of income statement and balance sheet under current cost accounting (CCA) and CPA method (including problems).
Lab: Computation of Problems using Excel / Accounting Packages.

Unit-II: Liquidation of companies:
Scope, contributory preferential payments, prference dividend. Statement of affairs and deficiency / surplus account. Liquidators final statement of account, liquidators remuneration, receiver for debenture holders, list 'B' contributories (including problems).
Lab: Computation of Problems using Excel / Accounting Packages.

Unit-III: Social Responsibility Accounting:
Meaning, Nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (Theory only).

Suggested Readings :

1. R.L. Gupta, M. Radha Swamy : Corporate Accounting, Sultan Chand
2. Jain & Narang : Corporate Accounting, Kalyani Publications
3. S.M. Shukla : Advanced Accounting, Sahitya Bhavan

BLUE PRINT

Units No.	NAME OF THE TOPIC	PROBLEMS		THEORY		
		Essay Qts. 15 M.	Short Qts. 5 M.	Essay Qts. 15 M.	Short Qts. 5 M.	Very Short Qts. 2 M.
1.	Accounting for price level changes (Inflation Accounting)	1	—	1	2	1
2.	Liquidation of companies	2	—	—	2	2
3.	Social Responsibility Accounting	—	—	1	2	2

NOTE: Main Problem / Theory carrying 15 marks each which are come under section - 'A' may be saet as stated below :

Unit-1: One Essay Question - The concepts and Limitations of Historical Cost Accounting or Methods of Accounting for price level changes.

One Problem - Inflation Accounting under **CPA** method only.

Unit-2: First Problem on preparation of Liquidators Final Statement.
Second Problem on preparation of Statement Affairs and Deficiency / Surplus Account.

Unit-3: One Essay Question from these topics : 1) Need and Objectives of Social Accou
2) Social Cost and Social Benefits
3) Indications of Social Performance

5606
(EM & TM)

GOVERNMENT COLLEGE (A), RAJAHMUNDRY
(at the End of Vth Semester)

ELECTIVE - VII : MARKETING

III B.Com.
Paper-I: PRINCIPLES OF MARKETING

PRINCIPLES OF MARKETING

Paper - E-VII : P-I
P.P.W. : 5(4+1)

Max. Marks : 100(~~70+30~~ 75+25)
Time : 3 Hours

UNIT - I: INTRODUCTION: Nature and scope of marketing; Importance of Marketing as a business function, Importance of marketing in Indian context, Marketing concepts - Selling vs. marketing; Marketing mix; Marketing environment.
Lab: Preparation of reports on Marketing environment of different FMCG's or retailing companies.
UNIT - II: CONSUMER BEHAVIOUR AND MARKET SEGMENTATION: Nature, scope and significance of consumer behavior, consumer behavior theories, Market segmentation concept and importance; Bases for market segmentation.
Lab: A report preparation on changing life styles in different walks of life creating demand for new companies / sectors.
UNIT - III: PRODUCT: Concept of product, Types of products, New product development; packing role and function, Brand name and trademark; After sales services, Product life cycle concept.
Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products.
UNIT - IV :BRAND: Brand name and trademark; After sales services, Product life cycle concept.
Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale, J.d Walker Bruce.J: Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing: Prentice- Hall of India,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategies; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing: Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

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6606
(EM&TM)

GOVERNMENT COLLEGE(A) RAJAHMUNDRY
(at the End of VI Semester)

ELECTIVE - VII : MARKETING

Paper-I: PRINCIPLES OF MARKETING

Paper – E-VII : P-1
P.P.W. : 5(4+1)

Max. Marks : 100(~~70+30~~)
Time : 3 Hours

UNIT - I: PRICE: Importance, price as marketing mix: Factors influencing price determination of a product / service; Discount and rebates.
Lab: Report on factors influencing price fixation for different products in selected sectors in the recessionary period.

UNIT - II: DISTRIBUTION CHANNELS: Distribution channels - concept and role; types of distribution channels; Factors affecting choice of distribution channel; Retailer and wholesaler ; Physical distribution of goods, Transportation ; Warehousing; Inventory control ; Order Processing.

UNIT.III: PHYSICAL DISTRIBUTIONI : Physical distribution of goods, Transportation ; Warehousing; Inventory control ; Order Processing.

UNIT.IV: PROMOTION: Methods of promotion; Optimum promotion mix; Advertising media - their relative merits and limitations.

Lab: Report on promotional mix for different FMCG products.

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing, South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of India.
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A Sherlekhar : Marketing Management, Himalaya.

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5607
(EM & TM)

Government College (A) Rajahmundry
(at the end of Fifth Semester)
This Elective group for B.Com. General & B.Com. Computers students
Elective Paper
MANAGEMENT ACCOUNTING

Paper – E-III-1: P-2
P.P.W: 5(4+1)

Max. Marks: 100 (75 +25)
Time: 3 Hours

UNIT-I: Introduction: Definition, Scope, Objectives of Management Accounting – Management Accounting Vs. Financial Accounting and Cost Accounting. Installation of Management Accounting System – Role of Management Accountant – Controller functions - Management Information System (Theory only).

UNIT-II: Financial Statement Analysis: Meaning, types, uses and limitations of financial statements. Meaning, process and techniques of analysis of financial statements – Comparative, common size statements and trend analysis (including problems).

UNIT-III: Ratio Analysis: Meaning, classification, advantages and limitations of ratio analysis. Computation and interpretation of accounting ratios: Liquidity, Profitability, Activity and Solvency ratios and preparation of Balance Sheet (including problems).
Lab: Using Excel/ Accounting packages computation of problems on Ratio Analysis.

Additional Input under autonomy
C-V-P Analysis

Main problem carrying 15 marks each which are come under **Section – I** may be set as stated below.

1 problem from the topic of Financial Statement Analysis
2 problem from the topic of Financial Statement Analysis
3 problem from the topic of Ratio Analysis
4 problem from the topic of introduction (Theory)
5 problem from the topic of ratio (Theory)

Suggested Readings:

1. Introduction to Management Accounting: Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

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6607
(EM & TM)

Government College (A) Rajahmundry
(at the end of Sixth Semester)
This Elective group for B.Com. General & B.Com. Computers students only
Elective Paper
MANAGEMENT ACCOUNTING

Paper – E-III-1: P-2
P.P.W: 5(4+1)

Max. Marks: 100 (75 +25)
Time: 3 Hours

UNIT-I: Funds Flow & Cash Flow Analyses: Concepts of fund and fund flow – Preparation of funds flow statement.

UNIT-II Concepts of cash and cash flow - Preparation of cash flow statement as per Accounting Standard No.3 – Uses and limitations of funds flow and cash flow analyses (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Cash Flow and fund flow statements.

UNIT-III: Capital Budgeting: Meaning and importance of capital budgeting - Process of capital budgeting – Methods of capital budgeting: Traditional and time- adjusted methods

UNIT-IV: Budgetary Control: Introduction, objectives, essentials, organization of Budgetary control - Classification of budgets: Production budget, Sales budget, Cash budget, Overheads budget, Fixed budget, Flexible Budget – Advantages and limitations of Budgetary control. (including problems)

Additional Input under autonomy

Variance Analysis

Main problem carrying 15 marks each which are come under **Section – I** may be set as stated below.

1 problem from the topic of Fund Flow Analysis
2 problem from the topic of Cash Flow Analysis
3 problem from the topic of budgetary control
4 Theory from the topic of capital budgeting (Theory
5 Theory from Unit and Unit II

Suggested Readings:

1. Introduction to Management Accounting: Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

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5608
(EM & TM)

GOVERNMENT COLLEGE (A) RAJAHMUNDRY
(at the End of Vth Semester)

ELECTIVE –VII MARKETING

Paper – E-VII: P-2 RURAL MARKETING: Max. Marks: 100/70
P.P.W.: 5(4+1) Time: 3 Hours

UNIT - I: RURAL MARKETING:

Definition of rural area, Importance of rural marketing, nature and scope of rural marketing, size of rural market, Distinction between Rural and Urban Marketing.
Lab: A report preparation on the transformation for rural markets in India.

UNIT - II: RURAL MARKETING ENVIRONMENT:

Geographical, economic, Scio-cultural and infrastructural factors. Factors influencing rural marketing operations.
Lab: Preparation of the report on invisible forces influencing the rural markets in India.

UNIT - III: AWARENESS IN RURAL MARKETING :Characteristics, product, brand - Attitude and behavior, Buying patterns and influences:.

Lab: A small survey conducted and report be prepared about the level of Brand Awareness in rural areas about Indian and MNC's branded products.

UNIT - IV: ATTITUDE OF RURAL CONSUMERS: Attitude and behavior of Rural Consumers, buying patterns and influences.

Lab: A survey conducted on attitude and behavior and influence on buying of products of rural product consumers.

UNIT - V: RURAL CONSUMERS: Segmenting Rural Markets.

Lab: A survey report on effect of segmenting rural markets.

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T.P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing ; Raiwat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

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N. Sai

6608
(EM & TM)

GOVERNMENT COLLEGE (A) RAJAHMUNDRY

(at the End of VI Semester)

LECTIVE –VII MARKETING

Paper – E-VII: P-2 **RURAL MARKETING** Max. Marks: 100(70+30)
Time: 3 Hours

UNIT - I: PRODUCT PLANNING : Product Planning for rural marketing, quality and size
Lab: Exercises on redesigning the new products by keeping requirements of rural markets

UNIT - II: PACKING & PROMOTION: packaging and branding decisions. pricing decisions.Media and Advertising copy decisions; Distribution channels and logistics in rural markets.
Lab: A report reparation on logistics management for rural market on existing products in markets.

UNIT - III: BRANDING: Branding decisions.

UNIT - IV: PRICING: Pricing Decisions.

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - V: PROMOTION AND DISTRIBUTION IN RURAL MARKETS: Media and Advertising copy decisions , Distribution channels and logistics in rural markets.

Lab: A report reparation on logistics management for rural market on existing products in markets

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T:P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing : Rawat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi.
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

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5318

Government College (A) Rajahmundry
B.Com III YEAR
PAPER I: ACCOUNTING SOFTWARE APPLICATIONS

SEMESTER V

(The objective of the course is to impart skills in Software usage and applications in the area of accounting)

Theory: 75 marks

Practicals: 25 marks

Unit I: Accounting Software Package – Concept and Scope –Features of a good software Package – Selection of software package (theory only).

Unit II: Accounting applications of Spreadsheet – Budgeting – Preparation of Cash Budget -- Preparation of Production Budget – Preparation of Flexible budget – Budgetary Control reports through spreadsheet. (Theory and practicals).

Unit III:Spreadsheet Application in decision making – pricing decisions – Special order Pricing – Product Addition or Deletion – Make or Buy Decisions – Decision on plant shutdown (theory and practicals).

Government College (A) Rajahmundry

6318

B.Com III YEAR
PAPER I: ACCOUNTING SOFTWARE APPLICATIONS

SEMESTER.VI

Unit I: Spreadsheet Application in Capital budgeting – Discounted Cash method of Evaluating Proposals – Internal Rate of Return – net present value method -- Using probabilities to quantity risk – risk adjusted IRR and NV computation of Excel work sheet (theory and practicals).

Unit II: Practical Exposure to a selected Financial Accounting Package – Installation – Account Head Definition Voucher entry ledger Selection – Display of profit and Loss Account and Balance sheet – Printing reports (Practicals).

Unit III: Electronic Commerce: The frame work of e- commerce – world-wide-web Architecture – Inter-Organizational e-commerce (theory only).

M. Vijayat N. Sal

5319

GOVERNMENT COLLEGE (AUTONOMOUS) : : RAJAHMUNDRY

Department of Commerce

III B. Com Computer Applications (Vocational)

COMPUTER APPLICATIONS IN BANKING

SEMESTER – V

SYLLBUS : Semester - V

Unit- I:

Introduction: Computers and Commercial World – Principles of Computer Science with Reference to Banking Operations Different approaches to mechanization – Security Information system – Audit of Computerization Banking Systems.

Unit – II:

Banking Reconciliation: Approaches to Bank Computerization – Computers in Banks and Indian experiment – Process for with drawing cash – Teller machines at Bank Counters – ATMs in India.

Unit – III:

Electronic Commerce – the Emerging trends – Internet as a Network infrastructure - Business of internet Commercialization – Electronic Commerce and WWW – Consumer – Oriented Electronic Commerce – Electronic payment systems – Advertising and Marketing on the Internet - Software agents.

SEMESTER – VI

SYLLBUS : Semester - VI

6319

Unit – I:

Home Banking – telephone Banking – Computerized Corporate Banking – Electronic Funds Transfer Importance of Cheques clearing – Magnetic ink character.

Unit – II:

Reconciliation (MICR) – Optical Character Recognition (OCR) – Optical Mark Recognition (OMR) – Computer output to Micro Phone (COM) – Facsimile transformation.

Unit – III:

Inter Branch reconciliation – uses in foreign exchanges Documentation, Handling systems – cheques sorting and balancing system MICR and OCK, etc – Document storage and retied systems (Micro films etc) – Documentation Transmission systems(Fax etc).

Unit – IV:

Cash Management Systems in Banks Management Systems and for Statistical analysis Transmission - Magnetic Stripes.

Prescribed Books:

1. Sony & Agarwal Computers and Banking.
2. Indian Institute of Bankers Study material on Introduction to Computers in Banking Industry.
3. Ravi Kalkota & Andrew B. Whinson – Frontiers of Electronic Commerce – Addison – Wesley Publications.

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1303

Government College (A) Rajahmundry
I B.Com., Degree Examination
(At the end of **First** Semester)
FINANCIAL ACCOUNTING

Max Marks:75+25

Paper: Paper 101

Objectives:

1. To make the students acquire the conceptual knowledge of accounting
2. To equip the students with the knowledge of accounting process and preparation of final accounts
3. To develop the skills of recording financial transactions and preparation of reports using computers

.UNIT1: Introduction to Accounting:

Need for Accounting – definition, features, objectives, functions, systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations-basic terminology used- – Accounting concepts and conventions.

Accounting Process-Accounting cycle-Accounting equation-classification of accounts-rules of double entry book keeping – identification of financial transactions- Journalizing –Posting to Ledgers, Balancing of Ledger Accounts – Computerized Accounting: Meaning and Features-Advantages and disadvantages of computerized Accounting Creating of an Organization - Grouping of accounts – Creation of Accounts – creation of inventory-creation of stock groups-,stock categories, units of measurement-stock items-entering of financial transactions-types of vouchers-voucher entry-editing and deleting of vouchers-voucher numbering-customization of vouchers

UNIT 2: Subsidiary Books and Bank Reconciliation Statement

Sub Division of Journal-Preparation of Subsidiary Books including different types of cashbooks- simple cashbook, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book. Preparation of sales register, purchase register, journal proper, debit note register, credit note register, and different cash books including interest and discount transactions using computers.

Bank Reconciliation Statement- Need - Reasons for difference between cash book and pass book balances - problems on favorable and over draft balances - Ascertainment of correct cash book balance. Preparation of bank reconciliation statement using computers

UNIT 3:Trial Balance, Final Accounts; Errors and Rectification.

Trial Balance: meaning, objectives, methods of preparation - Final Accounts: Meaning, features, uses and preparation of Manufacturing, Trading Account, Profit & Loss Account and Balance Sheet-Adjusting and Closing entries. Preparation of trial balance, trading, profit and loss account, processing of year ending and closing the books, adjusting and closing entries and balance sheet using computers

Errors and their Rectification - Types of Errors - Rectification before and after preparations of final Accounts - Suspense Account- Effect of Errors on Profit. Rectification of errors using computers.

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER - II

MODULE – 6 (CORE) **FINANCIAL ACCOUNTING-II**

Hours – 4 T + 2 P , Credits : 4

UNIT- I Consignment and Joint Venture:

Consignment – Features, Terms used Proforma invoice – Account sale Delcredere commission – Accounting treatment in the books of the consignor and the consignee – Valuation of consignment stock – Normal and abnormal Loss – Invoice of goods at a price higher than the cost price.

Joint Venture – features – difference between joint venture and consignment, Accounting Procedure – Methods of keeping records for Joint venture accounts – method of recording in co ventures books – separate set of books method.

UNIT- II Bills of Exchange – depreciation – Provisions and Reserves :

Bills of Exchange – Depreciation – Promissory notes and bills of exchange – Recording of transactions relating to bills – Books of Drawer and Acceptor – Honour and dishonour of bills – Renewal of bills – Retiring of bills under rebate – Accommodation bills.

Meaning of Depreciation – Causes – Objects of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of providing depreciation – Straight line method – Diminishing Balance Method.

Provisions and Reserves – Reserve Fund – Different Types of Provisions and Reserves. Bills of exchange : trade bills and Accommodation bills.

Suggested Books:

Principles and Practice of Accounting - R.L. Gupta & V.K. Gupta Sulthan Chand & sons
Accountancy – I, S.P. Jain & K.L. Narang, Kalyani Publishers
Accountancy – I, Tulasian, Tata Mc-Graw Hill co
Financial Accounting – Dr. V.K. Goyal, Excel Books
Introduction to Accountancy, T.S.Grewal, S.Chand and Co
Accountany-I, Haneef and Mukherjee, Tata-McGraw-Hill Co
Advanced Accountancy – Arulanandam, Himalaya publishers
Advanced Accounting-I, S.N. Maheshwari & V.L. Maheswari, Vikash Publishing Co
Financial Accounting, Ashok Banarjee, Excel
Financial Accounting, Warren, Cengage

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- I

MODULE – 3 (CORE): Business Organization and Management - I

Hours – 6, Credits : 3

Objective: To facilitate the students to learn the concepts of business organization and management

Unit-I : Fundamental Concepts – Forms of Organization, Sole Proprietorship, Partnership and Joint Hindu Family:

Concepts of business, trade, industry and commerce – Business – features of business, Trade – Classification – Aids to Trade – Industry – Classification – Commerce – Relationship between trade, industry and commerce – Business Organization – Functions of Business.

Entrepreneur – Meaning – Characteristics of Entrepreneurs – Types of Entrepreneurs – Functions of an entrepreneur – Steps to start Enterprise – Sources of finance – Long Term – Short Term

Lab Work: The students are expected to go through project reports

Unit- II : Forms of Organization, Sole Proprietorship, Partnership, Joint Hindu Family and Joint Stock Company

Business Organization – Forms of Business Organization – Classification – Factors influencing the choice of suitable form of organization.
Sole Proprietorship – Meaning – Characteristics - Advantages and disadvantages – suitability

Partnership – Meaning – Characteristics – Kinds of partners – Registration of partnership- Parnership deed – Rights and obligations of partners – Joint Hindu Family Business – Characteristics – Advantages and limitations.

Lab Work : The students are expected to go through partnership deed and prepare a simple partnership deed.

Joint Stock Company – Meaning – Characteristics – Advantages – Kinds of Companies – Difference between private and public companies – Promotion of a Company: Promotion – Stages – Promoters – Characteristics – Registration – Capital subscription – Commencement of Business – Preparation of Important documents – Memorandum of Association – Significance – Clauses – Articles of Association – Contents – Prospectus – Contents – Statement in lieu of Prospectus

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- II

MODULE – 7 (CORE): Business Organization and Management- II

Hours – 6, Credits : 4

Unit-I : Management, Planning and Decision Making

Management Meaning – Significance – Management Vs Administration – Functions of management – Levels of Management – Skills of management – Leadership – Leader Vs Manager – Traits of successful Leaders – Scientific Management – features – Fayol's Principles of Management

Planning – Meaning – Significance – Types of Plans – Decision making – Steps in Process Decision making process

Lab Work : The students are expected to prepare a small note of the skills of management required to manage the organization of their choice.

Unit-II : Organizing

Organizing – meaning – Organization – Features – the process of organization – principles of organization – Elements of organizations – organization chart

Delegation of authority – meaning – Elements – Principles – Types – Difficulties in delegation – Guidelines for making delegation effective

Centralization – Decentralization – Meaning – Differences between delegating and decentralization

Lab Work: The students are expected to go through the organization structures of a few organizations and prepare an organization structure for a small unit.

The students are expected to prepare a small project report on how to start a small industry unit of their choice incorporating various aspects learned in this subject

Suggested Books:

Bhatia RC: Business Organization and Management, Ane Books
Tallo : Business Organisation and Management. Tata
RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
CB Gupta : Industrial Organization and Management
Aryasri and Murthy : Industrial Organization and Management, Tata
Govindarajan and Natarajan : Principles of Management, Tata
RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- I

MODULE – 4 (CORE): FUNDAMENTALS OF INFORMATION TECHNOLOGY - I

Hours – 6, Credits : 3

Objective : To impart basic knowledge about computer with application of various packages

Unit-I : Introduction to Computers -Definition , Characteristics and limitations of computers – Elements of Computers – Hardware – CPU – Primary and Secondary Memory – Input and Output devices, IT Enabled Services – BPO, KPO, Call Centers

Modern Communications: (Concept only) – Communications – FAX, Voice Mail, and Information Services – E-Mail – Creation of Email-ID – Group Communication – Tele Conferencing – Video Conferencing – File Exchange – Band width – Modem – Network Topologies – Network Types LAN, MAN, WAN and their Architecture – Dail up Access.

Unit-II : Operating System and Windows - Operating Systems – Meaning, Definition, Functions and Types of Operating Systems – Booting process – Disk Operating System – Internal and External Commands – Wild Card Characters – Computer Virus, Cryptology – Windows Operating System – Desktop , Start Menu, Control Panel, Windows Accessories

Unit- III : MS-Office – MS-Word – Word Processing : Meaning and features of word processing - Advantages and Applications of Word Processing – Parts of MS-Word Application window – Toolbars – Creating, Saving and Closing a document – Opening and Editing a document – Moving and Copying Text – Text and Paragraph formatting, applying Bullets and Numbering – Find and Replace – Insertion of objects, Date and Time, Headers, Footers and Page Breaks – Auto Correct – Spelling and Grammar Checking – Graphics, Templates and wizards – Mail Merge : Meaning, purpose and advantages – Creating merged letters, mailing labels, envelops and catalogs – Working with Tables – Format Painter.

Suggested Books:

Information Technology - Dennis P.Curtin, Mc-Graw Hill International
Fundamentals of Computers - P.Mohan, Himalaya Publishing House
Fundamentals of Computers – Atul Kahate, Tata Mc-Graw Hill
Fundamentals of Computers – V.Srinivas, Kalyani Publications
MS-Office - Sanjay Saxsena
MS-Office - BPB Publications
E-Commerce - CSV Murthy, Himalaya Publishing House
E-Commerce - Efraim Turban, Pearson Education
Fundamentals of the Internet – Raymond Green Law , Tata Mc-Graw Hill

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.
B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015
FIRST YEAR – SEMESTER- II

MODULE –8 (CORE): FUNDAMENTALS OF INFORMATION TECHNOLOGY - II
Hours – 6, Credits : 4

Objective : To impart basic knowledge about computer with application of various packages

Unit- I : MS-EXCEL : Features of MS-Excel – Spread Sheet / Worksheet, workbook, cell, cell pointer, cell address etc., - Parts of MS-Excel Window – Saving, Opening and Closing workbook – Insertion and Deletion of worksheet – Entering and Editing data in worksheet – cell range – Formatting – Auto Fill – Formulas and its Advantages – References: Relative, Absolute and Mixed – Functions : Meaning and Advantages of functions, different types of functions available in Excel – Templates – Charts – Graphs – Macros: Meaning and Advantages of Macros, Creation, Editing and Deletion of Macros – Data Sorting, Filtering, Validation, Consolidation, Grouping, Pivot Table and Pivot Chart Reports.

Unit- II : MS-Access – Data, Information, Database, File, Record, Fields – Features , Advantages and Limitations of MS-Access – Application of MS-Access – Parts of MS-Access Window – Tables, Forms, Queries and Reports – Data Validity Checks – (Theory with simple problems)

MS-PowerPoint : Features, advantages and applications of MS-PowerPoint – Parts of MS-PowerPoint window – Menus and Toolbars – Creating presentations through Auto Content Wizard, Templates and Manually – Slide Show – Saving, Opening and Closing a Presentation – Inserting, Editing and Deleting Slides – Types of Slides – Slide Views – Formatting – Insertion of Objects and Charts in Slides – Custom Animation and Transition. Multimedia: Meaning, purpose, Usage and Application – Image, Graphics, Sounds and Music- Video Presentation Devices – Multimedia on web

Unit-III : Internet & E-Commerce – Services available on Internet – WWW – ISP. E-Commerce : Meaning, Advantages and Limitations, Applications of E-Commerce – Trading stocks online, ordering products / Journals / Books etc., Online, Travel and Tourism Services, Employment placement and job Market, Internet Banking, Auctions, Online Publishing, Advertising – Online Payment System ., (Including Practicals)

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.
MODEL QUESTION PAPER 2014-2015
I B.Com
MODULE – 1 : BUSINESS ECONOMICS - 1
FIRST SEMESTER

Objective : To facilitate the students to learn the concepts of economics and apply them in real life situations

Unit-I : Introduction

Economic and Non-Economic Activities – Business – Meaning – Economics – Definitions – Micro and Macro economics – method of economics – positive and normative – Inductive and deductive approaches – reading of graphs – concept of slope – Utility – Cardinal and ordinal utility – Law of diminishing marginal utility – Law of Equi-marginal Utility – Concept of consumer surplus

Unit-II : Demand, Supply and Market Equilibrium

Demand- meaning – individual demand – Law of demand – properties of demand curve – Income effect and substitution effect – exceptions to the law of demand – individual demand and Market Demand – demand function – determinants of demand and market demand – shift of demand vs. movement along a demand curve – Elasticity of demand – price elasticity - meaning and measurement – income elasticity – classification of goods based on income elasticity – cross elasticity – classification of goods into substitutes and complements – Supply – law of supply – determinants of supply – market equilibrium

Suggested Books:

Aryasri and Murthy : Business Economics , Tata Mc-Graw Hill

Deepashree : General Economics, Tata Mc-Graw Hill

HL Ahuja Business Economics, S.Chand

KPM Sundram : Micro Economics

Mankiw : Principles of Economics, Cengage

Mithani : Fundamentals of Business Economics, Himalaya

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.
MODEL QUESTION PAPER 2014-2015
I B.Com
MODULE – 5 : BUSINESS ECONOMICS - 2
SECOND SEMESTER

Objective : To facilitate the students to learn the concepts of economics and apply them in real life situations

Unit-I : Production and Costs

Production function – law of variable proportion - economies and diseconomies of scale – Cost of production, costs, market structure and factors of production – cost function – Short-run total and average costs – long-run total and average cost – Different types of Revenues – Break even analysis – Market structure – characteristics – perfect competition – Characteristics – equilibrium price – profit maximizing output in the short and long-run – Monopoly – characteristics – profit maximizing output in the short and long run – defects of monopoly – monopolistic competition- characteristics – product differentiation – profit maximizing price and output in the short and long-run – Oligopoly – characteristics – price rigidity – the kinked demand curve – Factors of production – Distribution – Types of distribution – Marginal productivity theory of Distribution – Modern theory of distribution

Unit-II : National Income, Trade Cycles and International Trade

National Income – definition –measurement – GDP – meaning – fiscal deficit – economic systems – socialism – mixed economy system – free market economies – Concepts of Economic Liberalization, Privatization, Globalization – WTO- objectives – agreements – functions – Trade cycles - meaning – phases – consequences – remedies – International Trade – Balance of Payments

Suggested Books:

Aryasri and Murthy : Business Economics , Tata Mc-Graw Hill

Deepashree : General Economics, Tata Mc-Graw Hill

HL Ahuja Business Economics, S.Chand

KPM Sundram : Micro Economics

Mankiw : Principles of Economics, Cengage

Mithani : Fundamentals of Business Economics, Himalaya

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 10 : BUSINESS STATISTICS- 1
III Semester syllabus

MaxMarks:100(75+25)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT1:Iroduction to Statistics:
Meaning ,definition, importance and limitations of statistics .Collection of data .Primary and secondary data –(Sampling-Random-Non Random-Census)- Schedule and questionnaire- Frequency distribution-Tabulation -Diagrammatic and graphic Presentation of data using Computers(Excel).

Unit-2:Measure of central Tendency :
Definition Objectives and Characteristics of Measures of central Tendency -Types of Averages-Arithmetuc Mean, Geometric Mean. Harmonic mean ,Median ,Mode, Deciles .Percentiles .Properties of averages and their applications .Calculation of averages using computers.

Unit-3 : Measures of dispersion and skewness :
Meaning and definition ,Properties of dispersion – Range-quartile Deviation- Mean Deviation-Standard Deviation - Coefficient of Variation –skewness defition - kari Pearsons and Bowley's Measures of skewness-Normal distribution Calculation of Disperson and skewness using Computers.

Unit-4 : Measures of Relation:
Meaning definition and use of correlation – Type of correlation-karipearson's correlation coefficient-Spearman's Rank Correlation-probable's error-Calculation of correlation by using Computers.

Suggested Readings:

1. Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2. Statistics-Problems and solutions — Kappor V.K
3. Fundamentals of Statistics — Elhance D.N
4. Statistical methods — Gupthas S.P
5. Statistics — Gupta.B.N
6. Fundamentals of Statistics — Gupta S.C
7. Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8. Practical BusinessStatistics — Croxton & Crowdorv
9. Statistics and their applications to Commerce — Borddigtion
10. Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11. Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 14 : BUSINESS STATISTICS- 2
IV Semester syllabus

MaxMarks:100(75+25)

P.P.W : 5(4 +1)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

Unit-1:Regression Analysis

Meaning and utility of Regression analysis comparison between correlation and Regression-Regression Equations-interpretation of Regression Co-efficient Calculation of Regression by using computers.

Unit-2:Analysis of Time Series

Meaning and utility of time series Analysis-Components of Time series-Measuresment of trend and Seasonal Variations –Utility of Decomposition of Time Series-decentralization of Data-Caluculation of trend and seasonal variations using computers.

Unit-Index Numbers

Meaning Definition and importance of Index Numbers-Methods of Construction of Index Numbers-Price Index Numbers – Quantity Index Numbers-Tests of Adequacy of Index Numbers-deflating Index Numbers using computers.

Suggested Readings:

1 Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2 Statistics-Problems and solutions — Kappor V.K
3 Fundamentals of Statistics — Elhance D.N
4 Statistical methods — Gupthas S.P
5 Statistics — Gupta.B.N
6 Fundamentals of Statistics — Gupta S.C
7 Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8 Practical BusinessStatistics — Croxton & Crowdorv
9 Statistics and their applications to Commerce — Borddigtion
10 Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11 Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 12 : Financial Services – Banking & Insurance - 1

B.Com II Year : : III Semester syllabus

MaxMarks:100(75+25)

PPW:5

The impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services.

UNIT1:Iroduction to Financial Services:

a. Meaning and financial Services . Structure of Indian Financial System importance of Finacial system for the economic development (Financial and Banking system charts).
b. Definition of Bank ,Functions of Commercial Banks and Reserve Bank of India(Forms of various accounts and deposits)
c. Definition / meaning insurance and reinsurance,principles of insurance. Kinds of insurance,advantages of insurance,globalization of Insurance and insurance sector reforms in india.

Unit-2:Banking Systems and its Regulation :

a. Banking Systems-Branch banking . Unit Banking correspondent banking .Group banking. Deposit banking. Mixed banking and Investment banking .An overview of banking ;Banking sector reforms with special reference to prudential Norms. Capital adequacy norms, Income recognition norms ,classification of assets and NPAs ;innovations in Banking – ATMs.E-Banking Credit cards, On-line & Offshore Banking etc(working and operations) Regional and Rural banks ,cooperative banks, Micro Finance ,priority sector Lending Indigenous banking . Role of NABARD. Development Financial instructions-SFC-SIDBI.

Unit-3 : Banker and Customer :

A Banker and customer definition and their relationship ,types of customers and modes of operations ,procedure and precaution for opening an account, pass book & its features . Rights duties and obligations of the banker(Application forms for opening accounts ,Cheque Books ,pass books requisition slips for withdrawals and deposits ,bank statements, etc)

B Promissory note and bills of exchange and cheque, difference between them ,types of crossing the cheque ,payments of cheque and consequences of wrongful dishonor ,collection of local and upcountry cheques ,responsibilities and liabilities of collecting banker and statutory protection to the collecting banker(Promissory notes. B/E, crossed cheques-various modes).

C Types of loans and advances , principles of sound lending policies credit appraisals of various forms of loans and advances. Modes of creating charges lien , pledge ,mortgage and hypothecation (Documents required for sanction of loans and advances)

Books Recommended :

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA	

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 16 : Financial Services – Banking & Insurance - 2

B.Com II Year : : IV Semester syllabus

Module: **MaxMarks:100(75+25)**

PPW:5

Unit IV : Financial Markets & services :

A Indian money market –characters tics ,structure ,composition(call and notices money ,market ,treasury bills market , CDs CPs short term bill market, MMMF s and DFHI) problems and reforms in Indian money markets (CDs CPs ,Treasury Bills)

B Indian capital market – composition and growth of primary and secondary markets differences between primary and secondary markets, capital market reforms and NBFC s in capital markets ,stock exchanges NSE,OTCE),Online Trading and role of SEBI.

C Financial intermediaries and services : Merchant bankers ,Mutual funds, Leasing companies, Venture capital Funds Fonaiting , Loan / syndication ,Depository participants (Documentation).

Unit V : Types of Insurance and its regulation

A Life Insurance-Practical aspects of Life Insurance , procedure for Issuing a life insurance policy issue of duplicate policies, nomination, surrender value, policy loans assignment, revivals and claim settlement (Forms of types of Insurance)

B Non Life Insurance- types of products and scope of fire Insurance, Marine Insurance, health Insurance ,Social Insurance and Rural Insurance Regulation of Insurance in India – Insurance Act 1938 and IRDA 1999 (Forms of types on Non Life Insurance)

Books Recommended :

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA	

GOVERNMENT COLLEGE(A) Rajahmundry
Module - 11: TAXATION Syllabus - 1
B.Com II Year : : III Semester syllabus

MaxMarks:100(75+25)

PPW:4

Objective: To equip the students with working knowledge of both direct and indirect taxes

UNIT-I :INTRODUCTION
Taxes-Meaning-Need for and Rationale of taxes-Direct and Indirect Taxes-Constitutional Provisions on Taxation –Union List-State List-Tax Rates-Blanket Rate Method-Slab Rate Method-Surcharge-Cess-Progressive v/s Regressive Taxes-An Overview of Taxation System in India.

UNIT-II : INCOME TAX
Income Tax Act 1961-Important Definitions-Residential status –Incidence of Tax-Exempted Income-Agricultural Income-An Overview of five heads of Income-Deduction-Set off and carry Forward of losses-Assessment of individual-Computation of Taxable Income-Return Filling and Assessement there of-Collection and Recovery of Taxes-Tax Deducted at Source-Advance Tax-(Including problems).

Lab Work : Filling Relevant Forms for Individual Assessees
Format and Filling of Forms :16
Format and Filling & Filling of ITR-1 & ITR-2

UNIT-III : Wealth tax Act 1957-Charge of Wealth Tax-Valuation Date-Location of Assets-Assets-Meaning-deemed Assets-Exempted Assets- Net Wealth –Computation of net Wealth-Valuation of Assets-Return of Wealth and Procedure of Assessment-Time Limit for Completion of Assessments.(Including Problems).

Lab Work: Computation of Tax liability.

References :

- Direct Taxes Law and Practices – Vinod K Singhania, Kapil Singhania, Taxmann's
- Direct Taxes Law and Practices –Girish Ahuja, Dr.Ravi Gupta,Bharat's
- Direct Taxes Law and Practices –BB Lal-Pearson's
- Indirect Taxes Law and Practices –V.S.Datay, Taxmann's
- Indirect Taxes – V.Nagarjun, Asia Law Nouse
- Central exercise manual – Law & procedure- P Verra Reddy ,Asia Law house
- Elements of Income Tax- Dr P.V.Raman Rao , DrA.Sudhakar . dr.S Krishnaiah Goud , National publishing House
- Income Tax Law & Practice- Gaur & Narang, Kalyani Publishers
- Income Tax TATA –Tata McGraw Hill
- Income Tax Law and Practice – N hariaharan Tata
- Income taxes : Lala Vashist peerason
- Direct Taxes : Lal Vashist , Pearson

GOVERNMENT COLLEGE(A) Rajahmundry
Module - 15: TAXATION Syllabus - 5
B.Com II Year : : IV Semester syllabus
MaxMarks:100(75+25)

PPW:4

Objective: To equip the students with working knowledge of both direct and indirect taxes

UNIT-IV : SALES TAX & SERVICE TAX

Central Sales Tax – Definitions Dealer , Declare Goods, Place of Business, Sale ,Sale price Turnover – Inter State Trade or Commerce – Computation of Taxable Turnover – Assessment and Returns under CST Act (Including Problems)

APVAT Act 2005 – Statement of Objectives and Reasons – Definitions' : Business Casual Turnover ,turnover Tax-Computation of Taxable Turnover – Registration Procedure (Including problems)

Service Tax Act,1994 – Introduction – Meaning of Service –Classifications of Taxable Services – Valuation of Taxable Services – Registration – Assessment procedure.

UNIT-V : Central Excise & Customs

Central Excise Duty- Definitions – Taxable Event under Central Excise – Types of Duties – Classification – Valuation – Registration procedure – CENVACT Credit.

Customs Duty- important Definitions' – Goods , Import, Export importer, Exporter, Territorial used in Foreign Trade – baggage-Stores- Valuation Rules .

References :

- Direct Taxes Law and Practices – Vinod K Singhania, Kapil Singhania, Taxmann's
- Direct Taxes Law and Practices –Girish Ahuja, Dr.Ravi Gupta,Bharat's
- Direct Taxes Law and Practices –BB Lal-Pearson's
- Indirect Taxes Law and Practices –V.S.Datay, Taxmann's
- Indirect Taxes – V.Nagarjun, Asia Law Nouse
- Central exercise manual – Law & procedure- P Verra Reddy ,Asia Law house
- Elements of Income Tax- Dr P.V.Raman Rao , DrA.Sudhakar . dr.S Krishnaiah Goud , National publishing House
- Income Tax Law & Practice- Gaur & Narang, Kalyani Publishers
- Income Tax TATA –Tata McGraw Hill
- Income Tax Law and Practice – N hariaharan Tata
- Income taxes : Lala Vashist peerason
- Direct Taxes : Lal Vashist , Pearson

Government College(A) Rajahmundry
II.B.Com .,Degree Examination
(At the end of Third Semester)
Module – 9 : ADVANCED ACCOUNTING - 1
Max Marks:75+25

Objectives:

1.To apprise the students about the application of accounting knowledge in special business activities .
2.To impart the skills of properties of final accounts of non-trading concerns, partnership ,organizations.
3.To develop the skills of recording of transactions relating to issue of shares and debentures , branches and departments manually and using computers .

UNIT-I : Accounts from Incomplete Records –Hire purchase and installment purchase system.

Single Entry: Features-books and accounts maintained –Recording of transactions-Ascertainment of Profit.-(Statement of affairs method only).
Hire Purchase System –Features-Accounting Treatment in the Books of Hire Purchaser and Hire Vendor –default and Repossession –Installment Purchase System-Difference between Hire purchase and Installment purchase systems- Accounting Treatment in the books of purchaser and Vendor.

UNIT-II : Partnership Accounts:
Legal provisions in the absence of Partnership Deed-fixed and Fluctuating Capitals-Preparation of final accounts-Accounting Treatment of Goodwill and Admission of a partner.

Accounting treatment of Retirement and death of a Partner- Dissolution of firm(Excluding Sale of firm. Company and Amalgamation)-Recording of partnership transaction and preparation of final accounts using computers.(24 Hours) .

UNIT-III : Accounting of Non-Profit Organizations:
Non-Profit entities –Features of non-profit entities –Accounting process- preparation of summaries –Receipts and payments Account meaning and special features –procedure for preparation –uses and limitations.

Income and Expenditure Account- features-procedure for preparation-preparation of Balance Sheet.

Suggested Readings:

1.Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2.Accountancy-I Tulasian TATA Mcgraw Hill Co
3.Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4.Financial Accounting - Dr.V.K.Goyal Excel Books
5.Intriduction to Accountancy T.S Grewal S.Chand & Co
6.Accountancy-I Haneef and Mukerjee TATA Mcgraw Hill Co
7.Advanced Accountancy Arulanandam Himalaya Publishers
8.Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

Government College(A) Rajahmundry
II.B.Com .,Degree Examination
(At the end of Third Semester)
Module – 13 : ADVANCED ACCOUNTING - 2
Max Marks:75+25

Objectives:

1.To apprise the students about the application of accounting knowledge in special business activities .
2.To impart the skills of properties of final accounts of non-trading concerns, partnership ,organizations.
3.To develop the skills of recording of transactions relating to issue of shares and debentures , branches and departments manually and using computers .

UNIT-I : Branch and Departmental Accounts :

Dependent Branches :Features –Books of accounts –methods accounting of dependent branches –Debtors System, Stock and debtors system-Recording of transaction relating to branch accounts using computers.

Departmental Accounts :need ,features ,Basis for Allocation of Expenses ,treatment of Inter-Departmental Transfer at cost or Selling price –Treatment of Expenses that cannot be allocated –Preparation of departmental profit and loss. (24 Hours).

UNIT-II Company Accounts :

Issue of shares at par, Premium and at discount-Forfeiture and reissue of Shares-rights issue (theory Only)-Recording of transactions relating to issue of shares using computers.
Issue and Redemption of Debentures-Redemption out of profits-sinking fund method.
Recording of transaction relating to issue and redemption of debentures using computers
Underwriting of Issue of shares (Simple Problems) .

Suggested Readings:

1.Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2.Accountancy-I Tulasian TATA Mcgraw Hill Co
3.Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4.Financial Accounting - Dr.V.K.Goyal Excel Books
5.Intriduction to Accountancy T.S Grewal S.Chand & Co
6.Accountancy-I Haneef and Mukerjee TATA Mcgraw Hill Co
7.Advanced Accountancy Arulanandam Himalaya Publishers
8.Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

Module – 20: CORPORATE ACCOUNTING - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES :

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Accounting Standards - Valuation of Goodwill and Shares

Accounting Standards - Need and importance - An overview of Indian Accounting Standards.

Valuation of Goodwill - Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method

Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method.

UNIT –II : Company final accounts - issue of Bonus shares and Profits Prior to Incorporation.

Preparation of Final Accounts – Provisions relating to preparation of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers.

Issue of bonus shares-Provisions of company's Act and SEBI guide lines. Acquisition of business and profits prior to incorporation. – Accounting treatment.

UNIT-III: Bank Accounts

Bank Accounts –Books and Registers to be maintained by banks-Slip system of posting-rebate on bills discounted-Schedule of advances –Non performing assets - Legal provisions relating to Preparation of final accounts – Preparation of bank final Accounts using computers

Additional Input under Autonomy:

Concept of Inflation Accounting

Suggested Readings:

- Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
- Accountancy – III Tulasian Tata Mcgraw Hill Co
- Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
- Financial Accounting Dr.V.K.Goyal Excel Books
- Introduction to Accountancy T.S.Grewal S.Chand and CO
- Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
- Advanced Accountancy Arulanandam Himalaya publishers
- Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
- Advanced Accountancy: Shukla and Grewal S.Chand & Co
- Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
- Corporate Accounting Goyal VK Excel
- Corporate Accounting Verma KK Excel
- International Accounting Saudagaran Cengage

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

Module –28: CORPORATE ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES :

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Amalgamation

Amalgamation -- In the nature of merger and purchase – Calculation of purchase consideration -Treatment in the books of transferor and transferee (as per Accounting Standard 14, excluding inter- company holdings) Recording of transactions relating to mergers using computers.

UNIT-II: internal Reconstruction

Internal Reconstruction - Accounting Treatment– Preparation of final statements after reconstruction.. Recording of transactions relating to Internal Reconstruction using computers

UNIT-III: Accounts of Insurance Companies

Life Insurance Companies –Preparation of Revenue Account, Proft and loss account , Balance Sheet and Valuation Balance Sheet.
General insurance Preparation of final accounts-with special reference to fire &marine insurance only.

Additional Input under Autonomy:

Liquidation procedure

Suggested Readings:

- Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
- Accountancy – III Tulasian Tata Mcgraw Hill Co
- Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
- Financial Accounting Dr.V.K.Goyal Excel Books
- Introduction to Accountancy T.S.Grewal S.Chand and CO
- Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
- Advanced Accountancy Arulanandam Himalaya publishers
- Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
- Advanced Accountancy: Shukla and Grewal S.Chand & Co
- Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
- Corporate Accounting Goyal VK Excel
- Corporate Accounting Verma KK Excel
- International Accounting Saudagaran Cengage

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

Module – 19: COST AND MANAGEMENT ACCOUNTING - 1

P.P.W. :(4+1 hours)

Max. Marks : (75+25)

Objectives:

1.To impart conceptual knowledge of costing and management accounting
2. To train the students in finding the cost of products using different methods of costing

Unit-I: Introduction.

Cost Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Management Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Relationship between cost, management and financial accounting.

Cost concepts-Cost classification -preparation of cost sheet. Relationship of costing department with other departments.

Unit-II: Elements of Costs.

Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ,ABC analysis. Issue of materials to production- pricing methods-FIFO, LIFO with base stock, average methods.

Labor cost: direct and indirect labor cost- methods of payment of wages including incentive plans –Halsey and Rowan plans, Tailors Piece Rate method.

Overheads: features, classification, methods of allocation and apportionment of overheads.

Unit-III Methods of Costing.

Single or Output Costing, job and contract costing : Features, costing process-computation of cost

Process Costing: features, treatment of normal and abnormal losses, preparation of process cost accounts (excluding equivalent products and inter process profits)

Additional Input under Autonomy:

Operating Costing

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Issue of Materials or payment of wages.
2. Problem from the topic of Allocation and Apportionment of overheads.
3. Problem from the topic of Quotation Cost sheet.
4. Problem from the topic of Process Costing

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers
2.Cost and Management Accounting M.N Arora Himalaya Publishing House
3.Cost accounting Dutt pearson Education
4.Management accounting Sarma and Gupta kalyani publishers
5. Management accounting S.P.Guptha S.Chnad co
6. Management accounting S.N.maheswari Sultan chand and sons
7.Cost Accounting Jawaharlal Tata Mcgraw Hill
8.Cost Accounting Theory and Practice Banerjee PHI
9. Management and Cost Accounting Drury Cengage

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

Module – 27:COST AND MANAGEMENT ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1. To equip basic skills of analysis of financial information to be useful to the management

Unit-I: Costing Techniques for Decision making:

Management Accounting: Definitions, Features, Objectives, Functions, Scope, Advantages, and Limitations, Relationship between Cost Accounting.
Budgetary Control-Fixed, Flexible Budget
Marginal Costing-Break Even Analysis
Standard Costing-Material and labour Variances

Unit-II: Cost Techniques for Decision Making:

Standard Costing – Material and Labour Variances.

Unit-III: Financial Statement analysis:

Financial statements-features, limitations. Need for, Meaning, objectives, and process of financial statement analysis-Methods and techniques of analysis (Theory Only)
Fundsflow Analysis and Cashflow Analysis (as per AS-3)
Ratio Analysis. Calculation of liquidity, solvency, profitability and turnover ratios-Interpretation of ratios

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fixed, Flexible Budget
2. Problem from the topic of Break Even Analysis
3. Problem from the topic of Funds Flow Analysis
4. Problem from the topic of Ratio Analysis

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers
2.Cost and Management Accounting M.N Arora Himalaya Publishing House
3.Cost accounting Dutt pearson Education
4.Management accounting Sarma and Gupta kalyani publishers
5. Management accounting S.P.Guptha S.Chnad co
6. Management accounting S.N.maheswari Sultan chand and sons
7.Cost Accounting Jawaharlal Tata Mcgraw Hill
8.Cost Accounting Theory and Practice Banerjee PHI
9. Management and Cost Accounting Drury Cengage

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III B. COM / B.A – V - SEMESTER SYLLABUS

Module – 17: Business Law - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objective: To make the students learn the basics of business laws and apply them in real life situations, like general contracts and the sale of goods act 1930

Unit –I: Contract Act :

1. Agreement and Contract: Definition and meaning - Essentials of a valid contract – types of contracts.
2. Offer and Acceptance: Definition – Essentials of a valid offer and acceptance – communication and revocation of offer and acceptance.
3. Consideration: Definition and importance – Essentials of valid consideration – the Doctrines of 'Stranger to Contract' and 'No Consideration – No Contract' – Capacity to contract – special rules regarding minor's agreements.
4. Consent: Free Consent – Flaw in Consent: Coercion – Undue influence – Fraud – Misrepresentation and Mistake.

Unit – II: Discharge of a Contract:

1. Legality of object and consideration:– illegal and immoral agreements – agreements opposed to public policy.
2. Agreements expressly declared to be void – wagering agreements and contingent contracts.
3. Discharge of a contract – various modes of discharge of a contract – performance of contracts.
4. Breach of a contract – types – remedies for breach of a contract

Unit III. Sale of Goods Act:

1. Contract of sale: Definition - features – definition of the term goods – types of goods – rules of transfer of property in goods – differences between sale and agreement to sell.
2. Rights of an unpaid seller.
3. Conditions and warranties – meaning and distinction – express and implied conditions and warranties – sale by non-owners – auction sale.

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand
Kapoor ND: Company Law, Sultan Chand
Balachandran V: Business Law, Tata
Tulsian: Mercantile Law, Tata
Tulsian: Busiess Law, Tata
Gogna: A Text books of Business and Industrial Law, S.Chand
Pillai Bhagavathi: Business Law, S.Chand
Gogna : A Text Book of Mercantile Law, S. Chand
Gogna: A Text Book of Company Law, S. Chand

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III B. COM / B.A – VI - SEMESTER SYLLABUS

Module – 25: Business Law - 2

P.P.W. :(4+1 hours)

Max. Marks : (75+25)

Objective: To Educate the Students about the Consumer Protection Act 1986, I.T. Act 2000 and the Company Law

Unit I: Consumer Protection Act 1986

Definitions of the terms consumer, unfair trade practices, restrictive trade practices and complainant – rights of consumers – consumer protection councils – consumer redressal agencies – penalties for violation.

Unit II: Intellectual Property Rights

Intellectual Property Rights: Meaning - Need and objectives-Meaning of the terms industrial property, literary property, copy right, patents, trade marks, trade names, trade secrets, industrial designs, geographical indications.

Unit III: Information Technology Act 200

aims and objectives – a brief overview of the Act.

Unit IV: Company Law :

1. Doctrine of ultra vires and its effects – doctrine of constructive notice – doctrine of indoor management – exceptions.
2. Management of companies – directors – qualifications – disqualifications – appointment – removal – rights and duties – company meetings and resolutions - appointment of a company secretary.
3. Winding up of companies – various modes – compulsory winding up- powers and duties of official liquidator – members and creditors voluntary winding up – winding up subject to the supervision of the court –dissolution..

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand
Kapoor ND: Company Law, Sultan Chand
Balachandran V: Business Law, Tata
Tulsian: Mercantile Law, Tata
Tulsian: Busiess Law, Tata
Gogna: A Text books of Business and Industrial Law, S.Chand
Pillai Bhagavathi: Business Law, S.Chand
Gogna : A Text Book of Mercantile Law, S. Chand
Gogna: A Text Book of Company Law, S. Chand

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III B. COM – V - SEMESTER SYLLABUS

Module – 18: AUDITING - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Introduction to Auditing

Auditing: Meaning-Definition-Evolution-Objectives-Importance.

Types of audit: Based on ownership (Proprietorship, Partnership, Companies, Trusts, Cooperative Societies, Government Departments) -Based on time (Interim, Final, Continuous, Balance Sheet)- Based on objectives (Independent, Financial, Internal, Cost, Tax, Government, Secretarial).

Unit II : Planning of Audit and Control

Auditor: Qualifications and disqualifications – Qualities - Appointment and Reappointment – Remuneration – Removal – Rights – Duties – Liabilities.

Unit III : Audit PLaning

Engagement letter - Audit programme -Audit note book -Audit papers - Audit work book - Audit contents - Audit markings - Internal check- Internal control –(Sales-Purchases-Fixed assets-Cash-Bank-Pay Roll) - Accounting controls and Sampling in audit.

Lab Work: Preparation of Audit programme for an organization.

Unit IV: Vouching and Audit of Financial Statements

Vouching: Meaning- Vouching of cash and trading transactions –Investigation, Verification and Valuation of assets and liabilities- Differences between vouching, investigation, verification and valuation.

Lab Work: Vouching of cash book of a local business unit.

Additional under Autonomoy:

Types of Audit

Reference Books :

- Contemporary Auditing : Kamal Gupta
- Practical auditing : Spicer & Pegler
- Princeples and practices of Auditing : Jagdish Prakash
- Principles of Auditing : Ghatalia
- Business correspondence and Report Writing : Tata M.Graw Hill
- Business correspondence & Report writing : Urmila Rai &S.M. Rai
- Business communications and Report writing : Kalyani Publications
- Auditing : N.D.Kapoor
- Practical Auditing : T.N.Tandon
- Auditing : Dinkar Pagare
- Auditing : R.G.Saxena (Himalaya Publications)
- Fundamentals of Auditing : Kamal Gupta and Ashok Gupta
- Auditing Principles and Techniques Basu SK
- Auditing Principles & Practice Kumar Sharma, PHI

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

Module – 26: AUDITING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Audit of Financial Statements

Audit of: Receipts – Payments – Sales – Purchases -Fixed assets – Investments - Personal ledger – Inventories - Capital and Reserves - Other assets - Other liabilities.

Lab Work: Vouching of cash book of a local business unit

Unit II: Audit of Institutions

Audit of institutions: Partnership - Manufacturing and Other Companies -Non-trading concerns.

Unit III: Audit Report

Contents - Preparation of audit report – Fair report - Qualified report.

Lab Work: Collection of Model Audit Reports from Local Auditor and Preparation of similar reports.

Unit IV: Report Writing

Business Correspondence and Report writing: Basic principles – Business letters.
Business reports: Structure – Preparation of Routine reports and special reports.

Lab Work: Drafting of model business letters and Preparation of business reports.

Additional Input under Autonomy:

Social Audit

Reference Books :

- Contemporary Auditing : Kamal Gupta
- Practical auditing : Spicer & Pegler
- Princeples and practices of Auditing : Jagdish Prakash
- Principles of Auditing : Ghatalia
- Business correspondence and Report Writing : Tata M.Graw Hill
- Business correspondence & Report writing : Urmila Rai &S.M. Rai
- Business communications and Report writing : Kalyani Publications
- Auditing : N.D.Kapoor
- Practical Auditing : T.N.Tandon
- Auditing : Dinkar Pagare
- Auditing : R.G.Saxena (Himalaya Publications)
- Fundamentals of Auditing : Kamal Gupta and Ashok Gupta
- Auditing Principles and Techniques Basu SK
- Auditing Principles & Practice Kumar Sharma, PHI

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III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I

Module – 21: ADVANCED CORPORATE ACCOUNTING – 1

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: The Accounts of Holding Companies:

The nature of holding companies – Legal requirements for a holding company – Schedule VI of the Companies Act and subsidiary companies – Preparation of consolidated balance sheet – cancellation of investment account – minority interest – cost of acquiring control or goodwill – capital reserve – preference share capital in subsidiary companies – debentures in subsidiary companies (including problems related to the single subsidiary company).

Lab: Computation of Problems using Excel/Accounting packages.

Unit – II: Accounts of Electricity Companies (Double-Accounting System):

Meaning of double-account system – revenue account and net revenue account – capital account (receipts and expenditure on capital account) and general balance sheet. Replacement of an asset. Important provisions of Indian Electricity Act 1910, Electricity supply act 1948 and the Companies Act 1956 – Formats of relevant accounts – calculation of reasonable return and disposal of surplus. Preparation of net revenue account and Balance sheet (including problems).

Lab: Computation of Problems using Excel/Accounting packages.

Unit - III: Human Resource Accounting:

Definition, objectives, approaches, assumptions, advantages, limitations of HRA, HRA in India. Historical cost accounting, Replacement cost method, Opportunity cost method. (Theory only).

Suggested Readings:

1. R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	The Accounts of Holding Companies	1	--	1	2	1
2	Accounts of Electricity Companies (Double-Accounting System)	2	--	--	2	2
3	Human Resource Accounting	--	--	1	2	2

Note: Main Problem/ Theory carrying 15 Marks each which are come under Section – 'A' may be set as stated below:

Unit-I: One Essay Question - Theory on procedure for consolidation of Balance sheet.
One Problem – Preparation of consolidated Balance sheet related to single subsidiary company upto inter-co owings and unrealized profit procedure for consolidation only.

Unit – II: First Problem on preparation of revenue and Net Revenue Accounts .
Second Problem on preparation of capital account and General Balance sheet

Unit – III: One Essay Question from these topics:
1. Objectives and approaches of HRA.
2. Advantages & Disadvantages of HRA.
3. Methods of HRA.
4. HRA in India.

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III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-III

Module – 29:: ADVANCED CORPORATE ACCOUNTING - 2

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: Accounting for price level changes (Inflation Accounting):

Introduction, limitations of historical cost accounting, methods of accounting for price level changes - preparation of income statement and balance sheet under current cost accounting (CCA). (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – II: Liquidation of companies:

Scope, contributory preferential payments, preference dividend. Statement of affairs and deficiency/surplus account. Liquidators final statement of account, liquidators remuneration, receiver for debenture holders, list 'B' contributories (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – III: Social Responsibility Accounting:

Meaning, Nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (Theory only)

Suggested Readings:

1. . R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Accounting for price level changes (Inflation Accounting)	1	--	1	2	1
2	Liquidation of companies	2	--	--	2	2
3	Social Responsibility Accounting	--	--	1	2	2

Note: Main Problem/ Theory carrying 15 Marks each which are come under Section – 'A' may be set as stated below:

Unit-I: One Essay Question - The concepts and Limitations of Historical Cost Accounting or Methods of Accounting for price level changes..

One Problem – Inflation Accounting under CPA method only.

Unit – II: First Problem on preparation of Liquidators Final Statement. .

Second Problem on preparation of Statement Affairs and Deficiency / Surplus Account.

Unit – III: One Essay Question from these topics:

1. Need and Objectives of Social Accounting.
2. Social Cost and Social Benefits.
3. Indications of Social Performance

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-III:

Module – 30: PRODUCT DEVELOPMENT AND MARKETING

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRICE:

Importance, price as marketing mix; Factors influencing price determination of a product / service; Discount and rebates.

Lab: Report on factors influencing price fixation for different products in selected sectors in the recessionary period.

UNIT - II: DISTRIBUTION CHANNELS:

Distribution channels - concept and role; types of distribution channels; Factors affecting choice of distribution channel; Retailer and wholesaler ;

UNIT - III: PHYSICAL DISTRIBUTION:

Physical distribution of goods, Transportation ; Warehousing; Inventory control ; Order Processing.

UNIT - IV: PROMOTION:

Methods of promotion; Optimum promotion mix; Advertising media - their relative merits and limitations.

Lab: Report on promotional mix for different FMCG products.

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of lndia,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I:

Module – 22: PRINCIPLES OF MARKETING

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: INTRODUCTION:

Nature and scope of marketing; Importance of Marketing as a business function. Importance of marketing in Indian context. Marketing concepts - Selling vs. marketing; Marketing mix: Marketing environment.

Lab: Preparation of reports on Marketing environment of different FMCG's or retailing companies.

UNIT - II: CONSUMER BEHAVIOUR AND MARKET SEGMENTATION:

Nature, scope and significance of consumer behavior, consumer behavior theories, Market segmentation concept and importance; Bases for market segmentation.

Lab: A report preparation on changing life styles in different walks of life creating demand for new companies / sectors.

UNIT - III: PRODUCT:

Concept of product, Types of products, New product development; packing role and function.

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products

UNIT - IV: BRAND:

After sales services, Product life cycle concept.

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products.

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of India,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE - II

Module – 23:MANAGEMENT ACCOUNTING - 1

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Introduction:

Definition, Scope, Objectives of Management Accounting - Management Accounting Vs. Financial Accounting and Cost Accounting. Installation of Management Accounting System - Role of Management Accountant - Controller functions - Management Information System (Theory only).

UNIT-II: Financial Statement Analysis:

Meaning, types, uses and limitations of ratio analysis, Computation and interpretation of accounting ratios; Liquidity, Profitability, Activity and Solvency ratios and preparation of Balance Sheet (including problems)

UNIT-III: Ratio Analysis:

Meaning, classification, advantages and limitations of ratio analysis. Computation and interpretation of accounting ratios: Liquidity, Profitability, Activity and Solvency ratios (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Ratio Analysis.

Additional Input under Autonomy:

C-V-P Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Financial Statement Analysis.
2. Problem from the topic of Financial Statement Analysis
3. Problem from the topic of Ratio Analysis
4. Problem from the topic of Introduction(Theory)
5. Problem from the topic of Ratio (Theory)

Suggested Readings:

1. Introduction to Management Accounting: Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE - IV

Module – 31: MANAGEMENT ACCOUNTING - II

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3

P.P.W: 5 (4+1) Marks: 100 (75+25)

UNIT-I: Funds Flow & Cash Flow Analyses:

Concepts of fund and fund flow – Preparation of funds flow statement.

UNIT-II: Concepts of cash and cash flow:

Preparation of cash flow statement as per Accounting Standard No.3 – Uses and limitations of funds flow and cash flow analyses (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Cash Flow and fund flow statements.

UNIT-III: Capital Budgeting:

Meaning and importance of capital budgeting - Process of capital budgeting – Methods of capital budgeting: Traditional and time- adjusted methods (including problems).

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fund Flow Analysis.
2. Problem from the topic of Cash Flow Analysis
3. Problem from the topic of Budgetary Control
4. Problem from the topic of Capital Budgeting(Theory)
5. Theory from Unit I and II

Suggested Readings:

1. Introduction to Management Accounting: Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-II:

Module – 24: RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: RURAL MARKETING:

Definition of rural area, Importance of rural marketing, nature and scope of rural marketing, size of rural market, Distinction between Rural and Urban Marketing.

Lab: A report preparation on the transformation for rural markets in India.

UNIT - II: RURAL MARKETING ENVIRONMENT:

Geographical, economic, Scio-cultural and infrastructural factors. Factors influencing Rural marketing operations.

Lab: Preparation of the report on invisible forces influencing the rural markets in India.

UNIT - III: AWARENESS IN RURAL MARKETING:

Characteristics, product and brand - Attitude and behavior, Buying patterns and influences;

Lab: A small survey conducted and report be prepared about the level of Brand Awareness in rural areas about Indian and MNC's branded products

UNIT - IV: ATTITUDE OF RURAL CONSUMERS:

Attitude and behavior of rural Consumers, Buying patterns and influences.

Lab: A survey conducted on attitude and behavior and influence on buying of products of rural product consumers

UNIT - V: RURAL CONSUMER :

Segmenting rural markets.

Lab: A survey report on effect of segmenting rural markets

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T.P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing ; Rawat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi.
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-IV:

Module – 32: PRACTICAL RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRODUCT PLANNING:

Product Planning for rural marketing, quality and size; packaging and branding decisions, pricing decisions.

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - II: PACKING AND PROMOTION:

Packing and branding decisions, Pricing decisions, Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

UNIT - III: BRANDING :

Branding Decisions

UNIT - IV: PRICING :

Pricing Decisions

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - V: PROMOTION DISTRIBUTION IN RURAL MARKETS:

Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T.P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing ; Rawat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi.
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- II

MODULE – 5 : (CORE): INFORMATION SYSTEMS THROUGH COBOL - II

Hours – 6, Credits : 3

Unit- I :

Structural Programming
Sequential Files

Unit-II :

Sorting and Merging Files
Data Accessed Files

Unit-III :

Character Handling
Report Writer

Unit-IV:

COBOL Subroutines
Segmentation and Library facility

Suggested Books:

Information Systems through COBOL – M.K.Roy, D.Ghosh Dastidar, Tata Mc-Graw Hill

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 10 : BUSINESS STATISTICS- 1
III Semester syllabus

MaxMarks:100(75+25)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT1:Iroduction to Statistics:
Meaning ,definition, importance and limitations of statistics .Collection of data .Primary and secondary data –(Sampling-Random-Non Random-Census)- Schedule and questionnaire- Frequency distribution-Tabulation -Diagrammatic and graphic Presentation of data using Computers(Excel).

Unit-2:Measure of central Tendency :
Definition Objectives and Characteristics of Measures of central Tendency -Types of Averages-Arithmetuc Mean, Geometric Mean. Harmonic mean ,Median ,Mode, Deciles .Percentiles .Properties of averages and their applications .Calculation of averages using computers.

Unit-3 : Measures of dispersion and skewness :
Meaning and definition ,Properties of dispersion – Range-quartile Deviation- Mean Deviation-Standard Deviation - Coefficient of Variation –skewness defition - kari Pearsons and Bowley's Measures of skewness-Normal distribution Calculation of Disperson and skewness using Computers.

Unit-4 : Measures of Relation:
Meaning definition and use of correlation – Type of correlation-karipearson's correlation coefficient-Spearman's Rank Correlation-probable's error-Calculation of correlation by using Computers.

Suggested Readings:

1. Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2. Statistics-Problems and solutions — Kappor V.K
3. Fundamentals of Statistics — Elhance D.N
4. Statistical methods — Gupthas S.P
5. Statistics — Gupta.B.N
6. Fundamentals of Statistics — Gupta S.C
7. Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8. Practical BusinessStatistics — Croxton & Crowdorv
9. Statistics and their applications to Commerce — Borddigtion
10. Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11. Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 12 : Financial Services – Banking & Insurance - 1

B.Com II Year : : III Semester syllabus

MaxMarks:100(75+25)

PPW:5

The impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services.

UNIT1:Iroduction to Financial Services:

a. Meaning and financial Services . Structure of Indian Financial System importance of Finacial system for the economic development (Financial and Banking system charts).
b. Definition of Bank ,Functions of Commercial Banks and Reserve Bank of India(Forms of various accounts and deposits)
c. Definition / meaning insurance and reinsurance,principles of insurance. Kinds of insurance,advantages of insurance,globalization of Insurance and insurance sector reforms in india.

Unit-2:Banking Systems and its Regulation :

a. Banking Systems-Branch banking . Unit Banking correspondent banking .Group banking. Deposit banking. Mixed banking and Investment banking .An overview of banking ;Banking sector reforms with special reference to prudential Norms. Capital adequacy norms, Income recognition norms ,classification of assets and NPAs ;innovations in Banking – ATMs.E-Banking Credit cards, On-line & Offshore Banking etc(working and operations) Regional and Rural banks ,cooperative banks, Micro Finance ,priority sector Lending Indigenous banking . Role of NABARD. Development Financial instructions-SFC-SIDBI.

Unit-3 : Banker and Customer :

A Banker and customer definition and their relationship ,types of customers and modes of operations ,procedure and precaution for opening an account, pass book & its features . Rights duties and obligations of the banker(Application forms for opening accounts ,Cheque Books ,pass books requisition slips for withdrawals and deposits ,bank statements, etc)

B Promissory note and bills of exchange and cheque, difference between them ,types of crossing the cheque ,payments of cheque and consequences of wrongful dishonor ,collection of local and upcountry cheques ,responsibilities and liabilities of collecting banker and statutory protection to the collecting banker(Promissory notes. B/E, crossed cheques-various modes).

C Types of loans and advances , principles of sound lending policies credit appraisals of various forms of loans and advances. Modes of creating charges lien , pledge ,mortgage and hypothecation (Documents required for sanction of loans and advances)

Books Recommended :

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA	

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 13 : Fox Pro and Computer Accountancy through Tally - 1

B.Com II Year : : III Semester syllabus

PPW:

UNIT-I : DBMS Concepts, Introduction to data base System , Advantages, Data Independence , Role of DBA., Architecture , possible representations of data, Indexing techniques, Tipple Calculus ,Domain Calculus.

UNIT-II : Foxpro : Introduction , database file ,Record and field ,Data types, managing the database , Creating ,adding ,Listing and deleting , operations on Record pointer , conditional clauses ,modifying the database ,Mathematical commands, Functional usage of Memo fields ,Sorting and Indexing, searching Commands ,Printing Labels Reports.

UNIT-III : Programming with FoxPro : Memory variables, creating and running program file ,creating Dimensions (Arrays),Control structure : IF-End if ,Do While – End do , Do Case – End Case, scan-Endscan ,For- End For ,Text-EndText ,Work areas, procedures ,set Commands ,Creating and Defining Windows ,Menus ,Popups , Screen Generation.

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 16 : BUSINESS STATISTICS- 2
IV Semester syllabus

MaxMarks:100(75+25)

P.P.W : 5(4 +1)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

Unit-1:Regression Analysis

Meaning and utility of Regression analysis comparison between correlation and Regression-Regression Equations-interpretation of Regression Co-efficient Calculation of Regression by using computers.

Unit-2:Analysis of Time Series

Meaning and utility of time series Analysis-Components of Time series-Measuresment of trend and Seasonal Variations –Utility of Decomposition of Time Series-decentralization of Data-Caluculation of trend and seasonal variations using computers.

Unit-Index Numbers

Meaning Definition and importance of Index Numbers-Methods of Construction of Index Numbers-Price Index Numbers – Quantity Index Numbers-Tests of Adequacy of Index Numbers-deflating Index Numbers using computers.

Suggested Readings:

1	Business Statistics	Reddy.C.R.Deep Publications,New Delhi
2	Statistics-Problems and solutions	Kappor V.K
3	Fundamentals of Statistics	Elhance D.N
4	Statistical methods	Gupthas S.P
5	Statistics	Gupta.B.N
6	Fundamentals of Statistics	Gupta S.C
7	Statistics-Theory,Methods and applications	Sancheti.D.C & Kapoor V.K
8	Practical BusinessStatistics	Croxton & Crowdorv
9	Statistics and their applications to Commerce	Borddigtion
10	Statistics Concepts & Applications	Nabendu pal & Sahadeb Sarkar
11	Business Statics ,An applied Orientation	P.K.Viswanathan

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 18 : Financial Services – Banking & Insurance - 2

B.Com II Year : : IV Semester syllabus

Module: **MaxMarks:100(75+25)**

PPW:5

Unit IV : Financial Markets & services :

A Indian money market –characters tics ,structure ,composition(call and notices money ,market ,treasury bills market , CDs CPs short term bill market, MMMF s and DFHI) problems and reforms in Indian money markets (CDs CPs ,Treasury Bills)

B Indian capital market – composition and growth of primary and secondary markets differences between primary and secondary markets, capital market reforms and NBFC s in capital markets ,stock exchanges NSE,OTCE),Online Trading and role of SEBI.

C Financial intermediaries and services : Merchant bankers ,Mutual funds, Leasing companies, Venture capital Funds Fonaiting , Loan / syndication ,Depository participants (Documentation).

Unit V : Types of Insurance and its regulation

A Life Insurance-Practical aspects of Life Insurance , procedure for Issuing a life insurance policy issue of duplicate policies, nomination, surrender value, policy loans assignment, revivals and claim settlement (Forms of types of Insurance)

B Non Life Insurance- types of products and scope of fire Insurance, Marine Insurance, health Insurance ,Social Insurance and Rural Insurance Regulation of Insurance in India – Insurance Act 1938 and IRDA 1999 (Forms of types on Non Life Insurance)

Books Recommended :

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA	

GOVERNMENT COLLEGE(A) Rajahmundry

Module – 19 : Fox Pro and Computer Accountancy through Tally - 2

B.Com II Year : : IV Semester syllabus

Module:

PPW:

UNIT-I : Computer Accountancy: Using Tally Paclkage: Introduction – Scope of Computers in accounts.

UNIT-II: DTP : What is DTP. Advantages of pageMaker : Tool Box ,PageSetup ,Prefernces ,Save ,Place ,Export ,Cut , Paste, Edit , Page Views ,Insert and Removing the pages, Master Page, Tab Setting How to use various fonts ,Increasing and decreasing of font size, Paragraph margins, Alignments , CorelDraw : Overview managing files, Manipulating Objects photo paint.

GOVERNMENT COLLEGE(A) Rajahmundry
Module – 20 : Structured Programming Through 'C' - 2
B.Com II Year Computers : : VI Semester Syllabus

UNIT-I : Arrays and Strings: Single and multi dimensional arrays ,character arrays as a string-functions of strings. Programs using arrays and for string manipulation.

UNIT-II : Pointers : Definition and usage of pointers-address operator pointer variables. Problems using pointers.

UNIT-III : Structures and Unions : Declaring and using Structures –operations on structures –arrays of structures-user defined data types ,passing structures to functions. Unions , difference between structures and unions scope of unions.

Data files : operating and closing a file creating a data file ,processing a data file.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I:

Module - 25 : COST ACCOUNTING - 1

This Elective group for B.Com. General & B.Com Computer Application students only

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COST ACCOUNTING

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Introduction:

Nature and scope of Cost Accounting – Cost Accounting Vs. Financial Accounting – Advantages and limitations of cost accounting – Installation of costing systems – Cost concepts – Classifications of cost, preparation of cost sheet (including problems).

Lab: Using Excel, prepare a cost sheet.

UNIT-II: Elements of Cost:

Material Cost – Direct and indirect material cost – Meaning – Need and essentials of requisition for stores – Control – Functions of purchase department – Stores – Records – Issue of material for production – Pricing methods

UNIT-III: Labour Cost:

Labor cost – Direct and indirect labour cost – Labour turnover – Time keeping – Time booking – Idle time – Over time – Methods of payment of wages – Incentive plans (Halsey, Rowan, Merrics Multiple Piece Rate System, Taylors Differential Piece Rate System).

UNIT-IV: Over Heads:

Overheads – Classification – Allocation, apportionment and absorption of overheads (including problems).

Lab: Preparation of stores Ledger, using Excel.

UNIT-V: Methods of Costing:

Single or Output, Job / Contract and Process Costing

Lab: Using Excel, compute problems on contract costing, process costing and operating costing.

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Theory Questions from the topic of Introduction .
2. Problem from the topic of Cost Sheet
3. Problem from the topic of Issue of Materials (FIFO, LIFO and Weighted Average)
4. Problem from the topic of Payment of Wages
5. Theory Questions from the topic of Overheads

Suggested Readings:

1. Cost Accounting: N.K.Prasad
2. Cost Accounting: P.K.Gosh
3. Cost Accounting: Jain and Narang
4. Cost Accounting: S.P.Jyengar
5. Cost Accounting: B.K.Bhar
6. Cost Accounting: M.N.Arora.
7. Cost Accounting: KS Thakur
8. Cost Accounting: Dutta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-III:

Module - 27:ACCOUNTING SOFTWARE APPLICATIONS - 1

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

(The objective of the course is to impart skills in Software usage and applications in the area of Accounting)

UNIT I:

Accounting Software Package – Concept and Scope – Features of a good software package - selection of Software Package (Theory Only)

UNIT II:

Accounting Applications of Spreadsheet – Budgeting – Preparation of Cash Budget – Preparation of Production Budget – Preparation of Flexible Budget – Budgetary Control reports through spreadsheet (Theory and Practicals)

UNIT III:

Spreadsheet Applications in Decision Making – Pricing Decisions – Special order Pricing – Product Addition or Deletion – Make or Buy Decisions – Decision on Plant shutdown(Theory and Practicals)

SUGGESTED READINGS:

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-IV:

Module -28 :COMPUTER APPLICATIONS IN BANKING - 1

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT I: Introduction:

Computers and Commercial world - Principles of Computer science with reference to banking operations - Different approaches to mechanizations - Security information systems - Audit of computerized banking systems.

Lab: A report is to be prepared on approaches to computerization of banking operations in Nationalized and private banks.

UNIT II: Banking reconciliation:

approaches to bank computerization computer in banks and Indian experiment - Process for withdrawing cash Teller machines at Bank counters - A TMS in India

UNIT III: Electronic Commerce:

Electronic Commerce the emerging trends - Internet as a Network Infrastructure - Business of internet commercialization electronic Commerce and WWW consumer Oriented Electronic commerce Electronic Payment Systems - Advertising and Marketing on the internet, Software agents - Working of Credit Cards and Debit Cards in India.

Lab: "E-Commerce powered by E-Banking" be practically studied by selecting Commercial banks in India.

SUGGESTED READINGS:

1. Sony and Agarwal: Computers and Banking.
2. Indian Institute of Bankers study material on 'Introduction to Computers in Banking Industry.
3. Ravi Kalakota & Andre\v B. Whinston: Frontiers of Electronic Commerce Addison Wesley Publications.
4. Dr. M. Sri Nivas: e-Banking Services in India, Himalaya.
5. Vasanth Desai: Bank Management, Himalaya.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-III:

Module - 35:ACCOUNTING SOFTWARE APPLICATIONS - 2

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

(The objective of the course is to impart skills in Software usage and applications in the area of Accounting)

UNIT I:

Spreadsheet Application in Capital Budgeting – Discounted Cash method of Evaluating proposals – Internal Rate of Return – Net Present Value method – Using probabilities to quality risk – risk adjusted IRR and NV computation of Excel work sheet(Theory and Practicals)

UNIT II:

Practical Exposure to a selected Financial Accounting Package – Installation – Account Head Definition Voucher entry ledger selection – Display of Profit and Loss Account and Balance sheet – Printing reports (Practicals)

UNIT III:

Electronic Commerce: The frame work of e-commerce – World Wide Wed architechture- Inter – Organizational e – commerce (Theory only)

SUGGESTED READINGS:

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-IV:

Module -36 :COMPUTER APPLICATIONS IN BANKING - 2

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3
P.P.W: 5 (4+1)

Marks: 100 (75+25)

UNIT I: Home Banking:

Telephone banking - Computerized corporate banking - Electronic funds transfer, importance of cheques clearing Magnetic Ink Character

Lab: Indentifying lapses in security measures & laws- Rules & Regulations for on detection of fake currency.

UNIT II: Reconciliation:

Recognition – RTGT – NFT - Optical Mark Recognition (OMR) - Computer output to Microphone (COM) - Facsimile transformation.

UNIT III: Inter Branch Reconciliation:

Uses in foreign exchanges, documentation handling systems Cheque sorting and balancing systems (MICR arid OCK, etc.)' -Document storage and retrival systems (Micro films, etc.) - Documentation transmission systems (Fax etc.)

UNIT III: Cash management systems in banks:

Investment management Systems - Statistical analysis transmission - Magnetic Stripe.

SUGGESTED READINGS:

1. Sony and Agarwal: Computers and Banking.
2. Indian Institute of Bankers study material on 'Introduction to Computers in Banking Industry.
3. Ravi Kalakota & Andre\v B. Whinston: Frontiers of Electronic Commerce Addison Wesley Publications.
4. Dr. M. Sri Nivas: e-Banking Services in India, Himalaya.
5. Vasanth Desai: Bank Management, Himalaya.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS
(w.e.f THE ADMITTED BATCH OF 2014-2015)
FIRST YEAR – SEMESTER- I **Hours – 6, Credits: 3**

MODULE – 2 (CORE) FINANCIAL ACCOUNTING-I

Objectives :
To make the students acquire the conceptual knowledge of accounting
To equip the students with the knowledge of accounting process and preparation of final accounts.
To develop the skills of recording financial transactions and preparation of reports using computers

UNIT – 1: Introduction to Accounting:

Need for Accounting – definition, features, objectives, functions, systems and bases and scope of accounting – Book keeping and Accounting, Branches of Accounting – Advantages and limitations – basic terminology used – Accounting concepts and conventions.

Accounting Process – Accounting cycle – Accounting equation – classification of accounts – rules of double entry book keeping – identification of financial transactions – Journalizing – Posting to Ledgers, Balancing of Ledger Accounts .
Computer Accounting : Meaning and Features – Advantages and disadvantages of computerized Accounting Creating of an Organization – Grouping of accounts – Creation of Accounts – creation of inventory – creation of stock groups – stock categories, units of measurement – stock items – entering of financial transactions – types of vouchers – voucher entry – editing and deleting of vouchers – voucher numbering – customization of vouchers

Subsidiary Books and Bank Reconciliation Statement

Sub Division of Journal – Preparation of Subsidiary Books including different types of cashbooks – simple cashbook, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book. Preparation of sales register, purchase register, journal proper, debit note register, credit note register, and different cash books including interest and discount transactions using computers

Bank Reconciliation Statement – Need – Reasons for difference between cash book and pass book balances – problems on favorable and over draft balances – Ascertainment of correct cash book balance. Preparation of bank reconciliation statement using computers

UNIT - 2 : Trial Balance, Final Accounts : Errors and Rectification.

Trial Balance : meaning, objectives, methods of preparation – final Accounts: Meaning, features, uses and preparation of Manufacturing, Trading Account, Profit & Loss Account and Balance Sheet – Adjusting and Closing entries. Preparation of trial balance, trading, profit and loss account, processing of year ending and closing the books, adjusting and closing entries and balance sheet using computers.

5. Final Account

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015
FIRST YEAR – SEMESTER - II

MODULE – 6 (CORE) **FINANCIAL ACCOUNTING-II**

Hours – 4 T + 2 P Credits : 4

UNIT- I Consignment and Joint Venture:

Consignment – Features, Terms used Proforma invoice – Account sale Delcredere commission – Accounting treatment in the books of the consignor and the consignee – Valuation of consignment stock – Normal and abnormal Loss – Invoice of goods at a price higher than the cost price.

Joint Venture – features – difference between joint venture and consignment, Accounting Procedure – Methods of keeping records for Joint venture accounts – method of recording in co ventures books – separate set of books method.

UNIT- II Bills of Exchange – depreciation – Provisions and Reserves :

Bills of Exchange – Depreciation – Promissory notes and bills of exchange – Recording of transactions relating to bills – Books of Drawer and Acceptor – Honour and dishonour of bills – Renewal of bills – Retiring of bills under rebate – Accommodation bills.

Meaning of Depreciation – Causes – Objects of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of providing depreciation – Straight line method – Diminishing Balance Method.

Provisions and Reserves – Reserve Fund – Different Types of Provisions and Reserves. Bills of exchange : trade bills and Accommodation bills.

Suggested Books:

Principles and Practice of Accounting - R.L. Gupta & V.K. Gupta Sulthan Chand & sons
Accountancy – I, S.P. Jain & K.L. Narang, Kalyani Publishers
Accountancy – I, Tulasian, Tata Mc-Graw Hill co
Financial Accounting – Dr. V.K. Goyal, Excel Books
Introduction to Accountancy, T.S.Grewal, S.Chand and Co
Accountany-I, Haneef and Mukherjee, Tata-McGraw-Hill Co
Advanced Accountancy – Arulanandam, Himalaya publishers
Advanced Accounting-I, S.N. Maheshwari & V.L. Maheswari, Vikash Publishing Co
Financial Accounting, Ashok Banarjee, Excel
Financial Accounting, Warren, Cengage

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- I

MODULE – 3 (CORE): Business Organization and Management - I

Hours – 6, Credits: 3

Objective: To facilitate the students to learn the concepts of Business Organization and Management

Unit-I: Fundamental Concepts – Forms of Organization, Sole Proprietorship, Partnership and Joint Hindu Family:

Concepts of business, trade, industry and commerce – Business – features of business, Trade – Classification – Aids to Trade – Industry – Classification – Commerce – Relationship between trade, industry and commerce – Business Organization – Functions of Business.

Entrepreneur – Meaning – Characteristics of Entrepreneurs – Types of Entrepreneurs – Functions of an entrepreneur – Steps to start Enterprise – Sources of finance – Long Term – Short Term

Lab Work: The students are expected to go through project reports

Unit- II: Forms of Organization, Sole Proprietorship, Partnership, Joint Hindu Family and Joint Stock Company

Business Organization – Forms of Business Organization – Classification – Factors influencing the choice of suitable form of organization.

Sole Proprietorship – Meaning – Characteristics - Advantages and disadvantages –suitability

Partnership – Meaning – Characteristics – Kinds of partners – Registration of partnership- Parnership deed – Rights and obligations of partners – Joint Hindu Family Business – Characteristics – Advantages and limitations.

Lab Work: The students are expected to go through partnership deed and prepare a simple partnership deed.

Joint Stock Company – Meaning – Characteristics – Advantages – Kinds of Companies – Difference between private and public companies – Promotion of a Company: Promotion – Stages – Promoters – Characteristics – Registration – Capital subscription – Commencement of Business – Preparation of Important documents – Memorandum of Association – Significance – Clauses – Articles of Association – Contents – Prospectus – Contents – Statement in lieu of Prospectus

Lab Work : The students are expected to go through a memorandum of association, articles of association and prospectus. As a group they are expected to prepare a model prospectus.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- II

MODULE – 7 (CORE): Business Organization and Management- II

Hours – 6, Credits : 4

Unit-I : Management, Planning and Decision Making

Management Meaning – Significance – Management Vs Administration – Functions of management – Levels of Management – Skills of management – Leadership – Leader Vs Manager – Traits of successful Leaders – Scientific Management – features – Fayol's Principles of Management

Planning – Meaning – Significance – Types of Plans – Decision making – Steps in Process Decision making process

Lab Work : The students are expected to prepare a small note of the skills of management required to manage the organization of their choice.

Unit-II : Organizing

Organizing – meaning – Organization – Features – the process of organization – principles of organization – Elements of organizations – organization chart

Delegation of authority – meaning – Elements – Principles – Types – Difficulties in delegation – Guidelines for making delegation effective

Centralization – Decentralization – Meaning – Differences between delegating and decentralization

Lab Work: The students are expected to go through the organization structures of a few organizations and prepare an organization structure for a small unit.

The students are expected to prepare a small project report on how to start a small industry unit of their choice incorporating various aspects learned in this subject

Suggested Books:

Bhatia RC: Business Organization and Management, Ane Books
2. Tallo : Business Organisation and Management. Tata
3. RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
4. Aryasri and Murthy : Industrial Organization and Management, Tata
5. Govindarajan and Natarajan : Principles of Management, Tata
6. CB Gupta: Industrial Organization and Management, Sultan Chand
7. Bhushan Y K: Business Organizaation and Management, Sultan Chand
8. Surendar and Madhavi : Industrial Organizaation and Management, Himalaya
9. Sherlekar: Business Organization and Management, Himalaya
10. Robins S P: Management, PHI

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- I

MODULE – 4 (CORE): FUNDAMENTALS OF INFORMATION TECHNOLOGY - I

Hours – 6, Credits : 3

Objective: To impart basic knowledge about computer with application of various packages

Unit-I : Introduction to Computers -Definition , Characteristics and limitations of computers – Elements of Computers – Hardware – CPU – Primary and Secondary Memory – Input and Output devices, IT Enabled Services – BPO, KPO, Call Centers

Modern Communications: (Concept only) – Communications – FAX, Voice Mail, and Information Services – E-Mail – Creation of Email-ID – Group Communication – Tele Conferencing – Video Conferencing – File Exchange – Band width – Modem – Network Topologies – Network Types LAN, MAN, WAN and their Architecture – Dail up Access.

Unit-II : Operating System and Windows - Operating Systems – Meaning, Definition, Functions and Types of Operating Systems – Booting process – Disk Operating System – Internal and External Commands – Wild Card Characters – Computer Virus, Cryptology – Windows Operating System – Desktop , Start Menu, Control Panel, Windows Accessories

Unit- III : MS-Office – MS-Word – Word Processing : Meaning and features of word processing - Advantages and Applications of Word Processing – Parts of MS-Word Application window – Toolbars – Creating, Saving and Closing a document – Opening and Editing a document – Moving and Copying Text – Text and Paragraph formatting, applying Bullets and Numbering – Find and Replace – Insertion of objects, Date and Time, Headers, Footers and Page Breaks – Auto Correct – Spelling and Grammar Checking – Graphics, Templates and wizards – Mail Merge : Meaning, purpose and advantages – Creating merged letters, mailing labels, envelops and catalogs – Working with Tables – Format Painter.

Suggested Books:

1. Information Technology - Dennis P.Curtin, Mc-Graw Hill International
2. Fundamentals of Computers - P.Mohan, Himalaya Publishing House
3. Fundamentals of Computers – Atul Kahate, Tata Mc-Graw Hill
4. Fundamentals of Computers – V.Srinivas, Kalyani Publications
5. MS-Office - Sanjay Saxsena
6. MS-Office - BPB Publications
7. E-Commerce - CSV Murthy, Himalaya Publishing House
8. E-Commerce - Efraim Turban, Pearson Education
9. Fundamentals of the Internet – Raymond Green Law , Tata Mc-Graw Hill

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B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- II

MODULE –8 (CORE): FUNDAMENTALS OF INFORMATION TECHNOLOGY - II

Hours – 6, Credits: 4

Objective : To impart basic knowledge about computer with application of various packages

Unit- I : MS-EXCEL : Features of MS-Excel – Spread Sheet / Worksheet, workbook, cell, cell pointer, cell address etc., - Parts of MS-Excel Window – Saving, Opening and Closing workbook – Insertion and Deletion of worksheet – Entering and Editing data in worksheet – cell range – Formatting – Auto Fill – Formulas and its Advantages – References: Relative, Absolute and Mixed – Functions : Meaning and Advantages of functions, different types of functions available in Excel – Templates – Charts – Graphs – Macros: Meaning and Advantages of Macros, Creation, Editing and Deletion of Macros – Data Sorting, Filtering, Validation, Consolidation, Grouping, Pivot Table and Pivot Chart Reports.

Unit- II : **MS-Access** – Data, Information, Database, File, Record, Fields – Features , Advantages and Limitations of MS-Access – Application of MS-Access – Parts of MS-Access Window – Tables, Forms, Queries and Reports – Data Validity Checks – (Theory with simple problems)

MS-PowerPoint : Features, advantages and applications of MS-PowerPoint – Parts of MS-PowerPoint window – Menus and Toolbars – Creating presentations through Auto Content Wizard, Templates and Manually – Slide Show – Saving, Opening and Closing a Presentation – Inserting, Editing and Deleting Slides – Types of Slides – Slide Views – Formatting – Insertion of Objects and Charts in Slides – Custom Animation and Transition. Multimedia: Meaning, purpose, Usage and Application – Image, Graphics, Sounds and Music- Video Presentation Devices – Multimedia on web

Unit-III : Internet & E-Commerce – Services available on Internet – WWW – ISP.
E-Commerce : Meaning, Advantages and Limitations, Applications of E-Commerce – Trading stocks online, ordering products / Journals / Books etc., Online, Travel and Tourism Services, Employment placement and job Market, Internet Banking, Auctions, Online Publishing, Advertising – Online Payment System ., (Including Practicals)

Lab Work:
MS-DOS
MS-Windows
MS-Word
MS-Excel
MS-PowerPoint
MS-Access
Internet and E-Commerce Practicals

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.
MODEL QUESTION PAPER 2014-2015
I B.Com
MODULE – 1 : BUSINESS ECONOMICS - 1
FIRST SEMESTER

Objective: To facilitate the students to learn the concepts of economics and apply them in real life situations

Unit-I : Introduction

Economic and Non-Economic Activities – Business – Meaning – Economics – Definitions – Micro and Macro economics – method of economics – positive and normative – Inductive and deductive approaches – reading of graphs – concept of slope – Utility – Cardinal and ordinal utility – Law of diminishing marginal utility – Law of Equi-marginal Utility – Concept of consumer surplus

Unit-II : Demand, Supply and Market Equilibrium

Demand- meaning – individual demand – Law of demand – properties of demand curve – Income effect and substitution effect – exceptions to the law of demand – individual demand and Market Demand – demand function – determinants of demand and market demand – shift of demand vs. movement along a demand curve – Elasticity of demand – price elasticity - meaning and measurement – income elasticity – classification of goods based on income elasticity – cross elasticity – classification of goods into substitutes and complements – Supply – law of supply – determinants of supply – market equilibrium

Suggested Books:

1. Aryasri and Murthy : Business Economics , Tata Mc-Graw Hill
2. Deepashree : General Economics, Tata Mc-Graw Hill
3. HL Ahuja Business Economics, S.Chand
4. KPM Sundram : Micro Economics
5. Mankiw : Principles of Economics, Cengage
6. Mithani : Fundamentals of Business Economics, Himalaya

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.
MODEL QUESTION PAPER 2014-2015
I B.Com
MODULE – 5 : BUSINESS ECONOMICS - 2
SECOND SEMESTER

Objective : To facilitate the students to learn the concepts of economics and apply them in real life situations

Unit-I : Production and Costs

Production function – law of variable proportion - economies and diseconomies of scale – Cost of production, costs, market structure and factors of production – cost function – Short-run total and average costs – long-run total and average cost – Different types of Revenues – Break even analysis – Market structure – characteristics – perfect competition – Characteristics – equilibrium price – profit maximizing output in the short and long-run – Monopoly – characteristics – profit maximizing output in the short and long run – defects of monopoly – monopolistic competition- characteristics – product differentiation – profit maximizing price and output in the short and long-run – Oligopoly – characteristics – price rigidity – the kinked demand curve – Factors of production – Distribution – Types of distribution – Marginal productivity theory of Distribution – Modern theory of distribution

Unit-II : National Income, Trade Cycles and International Trade

National Income – definition –measurement – GDP – meaning – fiscal deficit – economic systems – socialism – mixed economy system – free market economies – Concepts of Economic Liberalization, Privatization, Globalization – WTO- objectives – agreements – functions – Trade cycles - meaning – phases – consequences – remedies – International Trade – Balance of Payments

Suggested Books:

Aryasri and Murthy : Business Economics , Tata Mc-Graw Hill

2. Deepashree : General Economics, Tata Mc-Graw Hill

3. HL Ahuja Business Economics, S.Chand

4. KPM Sundram : Micro Economics

5. Mankiw : Principles of Economics, Cengage

6. Mithani : Fundamentals of Business Economics, Himalaya

GOVERNMNET COLLEGE (A) Rajahmundry

Module – 10: BUSINESS STATISTICS- 1

III Semester Syllabus

MaxMarks:100 (75+25)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT-1: Introduction to Statistics:
Meaning ,definition, importance and limitations of statistics .Collection of data .Primary and secondary data –(Sampling-Random-Non Random-Census)- Schedule and questionnaire- Frequency distribution-Tabulation -Diagrammatic and graphic Presentation of data using Computers(Excel).

Unit-2:Measures of Central Tendency :
Definition Objectives and Characteristics of Measures of central Tendency -Types of Averages-Arithmetuc Mean, Geometric Mean. Harmonic mean ,Median ,Mode, Deciles .Percentiles .Properties of averages and their applications .Calculation of averages using computers.

Unit-3 : Measures of Dispersion and Skewness :
Meaning and definition ,Properties of dispersion – Range-quartile Deviation- Mean Deviation-Standard Deviation - Coefficient of Variation –skewness defition - kari Pearsons and Bowley's Measures of skewness-Normal distribution Calculation of Disperson and skewness using Computers.

Unit-4 : Measures of Relation:
Meaning definition and use of correlation – Type of correlation-karipearson's correlation coefficient-Spearman's Rank Correlation-probable's error-Calculation of correlation by using Computers.

Suggested Readings:

1. Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2. Statistics-Problems and solutions — Kappor V.K
3. Fundamentals of Statistics — Elhance D.N
4. Statistical methods — Gupthas S.P
5. Statistics — Gupta.B.N
6. Fundamentals of Statistics — Gupta S.C
7. Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8. Practical BusinessStatistics — Croxton & Crowdorv
9. Statistics and their applications to Commerce — Borddigtion
10. Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11. Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 16 : BUSINESS STATISTICS- 2
IV Semester syllabus

MaxMarks:100(75+25)

P.P.W : 5(4 +1)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

Unit-1:Regression Analysis

Meaning and utility of Regression analysis comparison between correlation and Regression-Regression Equations-interpretation of Regression Co-efficient Calculation of Regression by using computers.

Unit-2:Analysis of Time Series
Meaning and utility of time series Analysis-Components of Time series-Measuresment of trend and Seasonal Variations –Utility of Decomposition of Time Series-decentralization of Data-Caluculation of trend and seasonal variations using computers.

Unit-3 :Index Numbers
Meaning Definition and importance of Index Numbers-Methods of Construction of Index Numbers-Price Index Numbers – Quantity Index Numbers-Tests of Adequacy of Index Numbers-deflating Index Numbers using computers.

Unit-4: Business Forecasting
Introduction – Role of forecasting in Business – steps in forecasting – Methods of forecasting – Theories of business forecasting.

Suggested Readings:

1 Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2 Statistics-Problems and solutions — Kappor V.K
3 Fundamentals of Statistics — Elhance D.N
4 Statistical methods — Gupthas S.P
5 Statistics — Gupta.B.N
6 Fundamentals of Statistics — Gupta S.C
7 Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8 Practical BusinessStatistics — Croxton & Crowdorv
9 Statistics and their applications to Commerce — Borddigtion
10 Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11 Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMENT COLLEGE (A) Rajahmundry
Module – 12: Financial Services – Banking & Insurance - 1
B.Com II Year: III Semester syllabus
MaxMarks: 100(75+25)

PPW: 5

The impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services.

UNIT1: Indian Financial System and its Regulations:

a. Indian Financial System – Structure - Objectives and importance of financial system - economic development (Financial and Banking system charts).
b. Financial Markets – Structure – Objectives and Importance
c. Financial Services – Structure – Objectives and importance
d. RBI -Functions of RBI – Role of RBI in Economic Development

Unit-2: Banking Systems and its Regulation:

a. Commercial Banks – Meaning – importance and functions of commercial banks – Indian Banking System – Structure - Banking Systems-Branch banking.- advantages and disadvantages of branch banking and unit banking .

b. An overview of banking; Banking sector reforms with special reference to prudential Norms. Capital adequacy norms, Income recognition norms, classification of assets and NPAs;

c. innovations in Banking –ATMs. E-Banking Credit cards, Mobile Banking, On-line & Offshore Banking etc (working and operations) Internet banking and online frauds in banking

d. Regional and Rural banks, cooperative banks, Micro Finance, priority sector Lending Indigenous banking. Role of NABARD. Development Financial instructions

Unit-3: Banker and Customer Relationship

A. Banker and customer definition and their relationship, types of customers and modes of operations, procedure and precaution for opening an account, pass book & its features. Rights duties and obligations of the banker(Application forms for opening accounts ,Cheque Books ,pass books requisition slips for withdrawals and deposits ,bank statements, etc)

B. Types of loans and advances, principles of sound lending policies credit appraisals of various forms of loans and advances. Modes of creating charges lien, pledge, mortgage and hypothecation (Documents required for sanction of loans and advances)
Definition / meaning insurance and reinsurance, principles of insurance. Kinds of insurance, advantages of insurance, globalization of Insurance and insurance sector reforms in India.

Books Recommended :

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru Swamy Banking Theory and Practice TATA Mc Graw Hill	

GOVERNMENT COLLEGE (A) Rajahmundry
Module – 16 : Financial Services Banking & Insurance - 2
B.Com II Year:: IV Semester syllabus

Module:
PPW:5 **MaxMarks:100(75+25)**

Negotiable Instruments

Promissory note and bills of exchange and cheque, difference between them ,types of crossing the cheque ,payments of cheque and consequences of wrongful dishonor ,collection of local and upcountry Cheques ,responsibilities and liabilities of collecting banker and statutory protection to the collecting banker(Promissory notes. B/E crossed Cheques-various modes).

Unit IV: Financial Markets & services:

A. Indian money market –characters tics, structure, composition (call and notices money, market, treasury bills market, CDs CPs short term bill market, MMMF s and DFHI) problems and reforms in Indian money markets (CDs CPs ,Treasury Bills)

B.Indian capital market – composition and growth of primary and secondary markets - capital market reforms and NBFC s in capital markets, stock exchanges – Functions and trading systems in NSE, OTCE),Online Trading and role of SEBI.

C.Financial intermediaries and services : Merchant bankers ,Mutual funds, Leasing companies, Venture capital Funds Fonaiting , Loan / syndication ,Depository participants (Documentation).

Unit V: Insurance and its regulation

A. Life Insurance-meaning – Principles – types of insurance – insurance sector reforms – Life insurance policies

B.Non Life Insurance- introduction – principles - types of products and scope of fire Insurance, Marine Insurance,- health Insurance and other insurances, IRDA regulations

Books Recommended:

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA Mc Graw Hill	

GOVERNMENT COLLEGE (A) RAJAHMUNDRY
B.Com ..Degree Examination
(At the end of Third Semester)

Module – 9 : ADVANCED ACCOUNTING - I

Max Marks:75+25

Objectives:

1. To apprise the students about the application of accounting knowledge in special business activities .
2. To impart the skills of properties of final accounts of non-trading concerns, partnership organizations.
3. To develop the skills of recording of transactions relating to issue of shares and debentures branches and departments manually and using computers.

UNIT-I : Accounts from Incomplete Records –Hire purchase and installment purchase system.

Single Entry: Features-books and accounts maintained –Recording of transactions-Ascertainment of Profit.-Statement of affairs method. Conversion of single entry into double entry – total debtors account – total creditors account – bills receivable account – bills payable account. Trading and profit and loss account and Balance sheet.

Hire Purchase System –Features-Accounting Treatment in the Books of Hire Purchaser and Hire Vendor –default and Repossession –Installment Purchase System–Difference between Hire purchase and Installment purchase systems- Accounting Treatment in the books of purchaser and Vendor.

UNIT-II: Partnership Accounts:

Legal provisions in the absence of Partnership Deed-fixed and Fluctuating Capitals-Preparation of final accounts-Accounting Treatment of Goodwill and Admission of a partner.

Accounting treatment of Retirement and death of a Partner- Dissolution of firm Excluding Sale of firm. Company and Amalgamation –Recording of partnership transaction and preparation of final accounts using computers.(24 Hours) .

UNIT-III: Accounting of Non-Profit Organizations:

Non-Profit entities –Features of non-profit entities –Accounting process- preparation of summaries –Receipts and payments Account meaning and special features –procedure for preparation –uses and limitations.

Income and Expenditure Account- features-procedure for preparation–preparation of Balance Sheet.

Suggested Readings:

1.Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2.Accountancy-I Tulasian TATA Megraw Hill Co
3.Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4.Financial Accounting - Dr.V.K Goyal Excel Books
5.Introduction to Accountancy T.S Grewal S.Chand & Co
6.Accountancy-I Haneef and Mukerjee TATA Megraw Hill Co
7.Advanced Accountancy Arulanandam Himalaya Publishers
8.Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

Government College(A) Rajahmundry
II.B.Com .,Degree Examination
(At the end of ~~Third~~ Semester) IV
Module – 13: ADVANCED ACCOUNTING - 2
Max Marks:75+25

Objectives:

1. To apprise the students about the application of accounting knowledge in special business activities.
2. To impart the skills of properties of final accounts of non-trading concerns, partnership, organizations.
3. To develop the skills of recording of transactions relating to issue of shares and debentures, branches and departments manually and using computers .

UNIT-I: Branch and Departmental Accounts:

Dependent Branches: Features –Books of accounts –methods accounting of dependent branches –Debtors System, Stock and debtors system-Recording of transaction relating to branch accounts using computers. Accounting for Independent Branches:

Departmental Accounts: need, features, Basis for Allocation of Expenses, treatment of Inter-Departmental Transfer at cost or selling price –Treatment of Expenses that cannot be allocated –Preparation of departmental profit and loss. (24 Hours).

UNIT-II Company Accounts:

Issue of shares at par, Premium and at discount-Forfeiture and reissue of Shares-rights issue (theory Only)-Recording of transactions relating to issue of shares using computers.
Issue and Redemption of Debentures-Redemption out of profits-sinking fund method.
Recording of transaction relating to issue and redemption of debentures using computers
Underwriting of Issue of shares (Simple Problems) .

Suggested Readings:

1. Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2. Accountancy-I Tulasian TATA Mcgraw Hill Co
3. Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4. Financial Accounting - Dr.V.K.Goyal Excel Books
5. Introduction to Accountancy T.S Grewal S.Chand & Co
6. Accountancy-I Haneef and Mukerjee TATA Mcgraw Hill Co
7. Advanced Accountancy Arulanandam Himalaya Publishers
8. Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

Module – 20: CORPORATE ACCOUNTING - 1

Max. Marks: (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES:

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Accounting Standards - Valuation of Goodwill and Shares

Accounting Standards - Need and importance - An overview of Indian Accounting Standards.

Valuation of Goodwill - Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method

Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method.

UNIT –II : Company final accounts - issue of Bonus shares and Profits Prior to Incorporation.

Preparation of Final Accounts – Provisions relating to preparation of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers.

Issue of bonus shares-Provisions of company's Act and SEBI guide lines. Acquisition of business and profits prior to incorporation. – Accounting treatment.

UNIT-III: Bank Accounts

Bank Accounts –Books and Registers to be maintained by banks-Slip system of posting-rebate on bills discounted-Schedule of advances –Non performing assets - Legal provisions relating to Preparation of final accounts – Preparation of bank final Accounts using computers

Additional Input under Autonomy:

Concept of Inflation Accounting

Suggested Readings:

- Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
- Accountancy – III Tulasian Tata Mcgraw Hill Co
- Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
- Financial Accounting Dr.V.K.Goyal Excel Books
- Introduction to Accountancy T.S.Grewal S.Chand and CO
- Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
- Advanced Accountancy Arulanandam Himalaya publishers
- Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
- Advanced Accountancy: Shukla and Grewal S.Chand & Co
- Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
- Corporate Accounting Goyal VK Excel
- Corporate Accounting Verma KK Excel
- International Accounting Saudagaran Cengage

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Module –28: CORPORATE ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES :

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Amalgamation

Amalgamation -- In the nature of merger and purchase – Calculation of purchase consideration -Treatment in the books of transferor and transferee (as per Accounting Standard 14, excluding inter- company holdings) Recording of transactions relating to mergers using computers.

UNIT-II: internal Reconstruction

Internal Reconstruction - Accounting Treatment– Preparation of final statements after reconstruction.. Recording of transactions relating to Internal Reconstruction using computers

UNIT-III: Accounts of Insurance Companies

Life Insurance Companies –Preparation of Revenue Account, Proft and loss account , Balance Sheet and Valuation Balance Sheet.
General insurance Preparation of final accounts-with special reference to fire &marine insurance only.

Additional Input under Autonomy:

Liquidation procedure

Suggested Readings:

- Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
- Accountancy – III Tulasian Tata Mcgraw Hill Co
- Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
- Financial Accounting Dr.V.K.Goyal Excel Books
- Introduction to Accountancy T.S.Grewal S.Chand and CO
- Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
- Advanced Accountancy Arulanandam Himalaya publishers
- Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
- Advanced Accountancy: Shukla and Grewal S.Chand & Co
- Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
- Corporate Accounting Goyal VK Excel
- Corporate Accounting Verma KK Excel
- International Accounting Saudagaran Cengage

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Module – 19: COST AND MANAGEMENT ACCOUNTING - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1. To impart conceptual knowledge of costing and management accounting
2. To train the students in finding the cost of products using different methods of costing

Unit-I: Introduction.

Cost Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Management Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Relationship between cost, management and financial accounting. Cost concepts-Cost classification -preparation of cost sheet. Relationship of costing department with other departments.

Unit-II: Elements of Costs.

Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ,ABC analysis. Issue of materials to production- pricing methods-FIFO, LIFO with base stock, average methods.

Labor cost: direct and indirect labor cost- methods of payment of wages including incentive plans –Halsey and Rowan plans, Tailors Piece Rate method.

Overheads: features, classification, methods of allocation and apportionment of overheads.

Unit-III Methods of Costing.

Single or Output Costing, job and contract costing : Features, costing process- computation of cost

Process Costing: features, treatment of normal and abnormal losses, preparation of process cost accounts (excluding equivalent products and inter process profits)

Additional Input under Autonomy:

Operating Costing

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Issue of Materials or payment of wages.
2. Problem from the topic of Allocation and Apportionment of overheads.
3. Problem from the topic of Quotation Cost sheet.
4. Problem from the topic of Process Costing

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers
2.Cost and Management Accounting M.N Arora Himalaya Publishing House
3.Cost accounting Dutt pearson Education
4.Management accounting Sarma and Gupta kalyani publishers
5. Management accounting S.P.Guptha S.Chnad co
6. Management accounting S.N.maheswari Sultan chand and sons
7.Cost Accounting Jawaharlal Tata Mcgraw Hill
8.Cost Accounting Theory and Practice Banerjee PHI
9. Management and Cost Accounting Drury Cengage

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Module – 27:COST AND MANAGEMENT ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1. To equip basic skills of analysis of financial information to be useful to the management

Unit-I: Costing Techniques for Decision making:

Management Accounting: Definitions, Features, Objectives, Functions, Scope, Advantages, and Limitations, Relationship between Cost Accounting.
Budgetary Control-Fixed, Flexible Budget
Marginal Costing-Break Even Analysis
Standard Costing-Material and labour Variances

Unit-II: Cost Techniques for Decision Making:

Standard Costing – Material and Labour Variances.

Unit-III: Financial Statement analysis:

Financial statements-features, limitations. Need for, Meaning, objectives, and process of financial statement analysis-Methods and techniques of analysis (Theory Only)
Fundsflow Analysis and Cashflow Analysis (as per AS-3)
Ratio Analysis. Calculation of liquidity, solvency, profitability and turnover ratios-Interpretation of ratios

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fixed, Flexible Budget
2. Problem from the topic of Break Even Analysis
3. Problem from the topic of Funds Flow Analysis
4. Problem from the topic of Ratio Analysis

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers
2.Cost and Management Accounting M.N Arora Himalaya Publishing House
3.Cost accounting Dutt pearson Education
4.Management accounting Sarma and Gupta kalyani publishers
5. Management accounting S.P.Guptha S.Chnad co
6. Management accounting S.N.maheswari Sultan chand and sons
7.Cost Accounting Jawaharlal Tata Mcgraw Hill
8.Cost Accounting Theory and Practice Banerjee PHI
9. Management and Cost Accounting Drury Cengage

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Module – 17: Business Law - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objective: To make the students learn the basics of business laws and apply them in real life situations, like general contracts and the sale of goods act 1930

Unit –I: Contract Act :

1. Agreement and Contract: Definition and meaning - Essentials of a valid contract – types of contracts.
2. Offer and Acceptance: Definition – Essentials of a valid offer and acceptance – communication and revocation of offer and acceptance.
3. Consideration: Definition and importance – Essentials of valid consideration – the Doctrines of 'Stranger to Contract' and 'No Consideration – No Contract' – Capacity to contract – special rules regarding minor's agreements.
4. Consent: Free Consent – Flaw in Consent: Coercion – Undue influence – Fraud – Misrepresentation and Mistake.

Unit – II: Discharge of a Contract:

1. Legality of object and consideration:– illegal and immoral agreements – agreements opposed to public policy.
2. Agreements expressly declared to be void – wagering agreements and contingent contracts.
3. Discharge of a contract – various modes of discharge of a contract – performance of contracts.
4. Breach of a contract – types – remedies for breach of a contract

Unit III. Sale of Goods Act:

1. Contract of sale: Definition - features – definition of the term goods – types of goods – rules of transfer of property in goods – differences between sale and agreement to sell.
2. Rights of an unpaid seller.
3. Conditions and warranties – meaning and distinction – express and implied conditions and warranties – sale by non-owners – auction sale.

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand
Kapoor ND: Company Law, Sultan Chand
Balachandran V: Business Law, Tata
Tulsian: Mercantile Law, Tata
Tulsian: Busiess Law, Tata
Gogna: A Text books of Business and Industrial Law, S.Chand
Pillai Bhagavathi: Business Law, S.Chand
Gogna : A Text Book of Mercantile Law, S. Chand
Gogna: A Text Book of Company Law, S. Chand

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Module – 25: Business Law - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objective: To Educate the Students about the Consumer Protection Act 1986, I.T. Act 2000 and the Company Law

Unit I: Consumer Protection Act 1986

Definitions of the terms consumer, unfair trade practices, restrictive trade practices and complainant – rights of consumers – consumer protection councils – consumer redressal agencies – penalties for violation.

Unit II: Intellectual Property Rights

Intellectual Property Rights: Meaning - Need and objectives-Meaning of the terms industrial property, literary property, copy right, patents, trade marks, trade names, trade secrets, industrial designs, geographical indications.

Unit III: Information Technology Act 200

aims and objectives – a brief overview of the Act.

Unit IV: Company Law :

1. Doctrine of ultra vires and its effects – doctrine of constructive notice – doctrine of indoor management – exceptions.
2. Management of companies – directors – qualifications – disqualifications – appointment – removal – rights and duties – company meetings and resolutions - appointment of a company secretary.
3. Winding up of companies – various modes – compulsory winding up- powers and duties of official liquidator – members and creditors voluntary winding up – winding up subject to the supervision of the court –dissolution..

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand
Kapoor ND: Company Law, Sultan Chand
Balachandran V: Business Law, Tata
Tulsian: Mercantile Law, Tata
Tulsian: Busiess Law, Tata
Gogna: A Text books of Business and Industrial Law, S.Chand
Pillai Bhagavathi: Business Law, S.Chand
Gogna : A Text Book of Mercantile Law, S. Chand
Gogna: A Text Book of Company Law, S. Chand

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Module – 18: AUDITING - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Introduction to Auditing

Auditing: Meaning-Definition-Evolution-Objectives-Importance.
Types of audit: Based on ownership (Proprietorship, Partnership, Companies, Trusts, Cooperative Societies, Government Departments) -Based on time (Interim, Final, Continuous, Balance Sheet)- Based on objectives (Independent, Financial, Internal, Cost, Tax, Government, Secretarial).

Unit II : Planning of Audit and Control

Auditor: Qualifications and disqualifications – Qualities - Appointment and Reappointment – Remuneration – Removal – Rights – Duties – Liabilities.

Unit III : Audit PLaning

Engagement letter - Audit programme -Audit note book -Audit papers - Audit work book - Audit contents - Audit markings - Internal check- Internal control –(Sales-Purchases-Fixed assets-Cash-Bank-Pay Roll) - Accounting controls and Sampling in audit.

Lab Work: Preparation of Audit programme for an organization.

Unit IV: Vouching and Audit of Financial Statements

Vouching: Meaning- Vouching of cash and trading transactions –Investigation, Verification and Valuation of assets and liabilities- Differences between vouching, investigation, verification and valuation.

Lab Work: Vouching of cash book of a local business unit.

Additional under Autonomoy:

Types of Audit

Reference Books :

- Contemporary Auditing: Kamal Gupta
- Practical auditing: Spicer & Pegler
- Princeples and practices of Auditing : Jagdish Prakash
- Principles of Auditing, Ghatalia
- Business correspondence and Report Writing : Tata M.Graw Hill
- Business correspondence & Report writing : Urmila Rai &S.M. Rai
- Business communications and Report writing : Kalyani Publications
- Auditing N.D.Kapoor
- Practical Auditing T.N.Tandon
- Auditing: Dinkar Pagare
- Auditing R.G.Saxena (Himalaya Publications)
- Fundamentals of Auditing : Kamal Gupta and Ashok Gupta
- Auditing Principles and Techniques Basu SK
- Auditing Principles & Practice Kumar Sharma, PHI

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Module – 26: AUDITING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives: i) To impart knowledge pertaining to basic concepts of auditing.
ii) To acquaint oneself with auditing procedure and report Writing.

Unit I: Audit of Financial Statements

Audit of: Receipts – Payments – Sales – Purchases -Fixed assets – Investments - Personal ledger – Inventories - Capital and Reserves - Other assets - Other liabilities.

Lab Work: Vouching of cash book of a local business unit

Unit II: Audit of Institutions

Audit of institutions: Partnership - Manufacturing and Other Companies -Non-trading concerns.

Unit III: Audit Report

Contents - Preparation of audit report – Fair report - Qualified report.

Lab Work: Collection of Model Audit Reports from Local Auditor and Preparation of similar reports.

Unit IV: Report Writing

Business Correspondence and Report writing: Basic principles – Business letters.

Business reports: Structure – Preparation of Routine reports and special reports.

Lab Work: Drafting of model business letters and Preparation of business reports.

Additional Input under Autonomy:Social Audit

Reference Books :

- Contemporary Auditing : Kamal Gupta
- Practical auditing : Spicer & Pegler
- Princeples and practices of Auditing : Jagdish Prakash
- Principles of Auditing : Ghatalia
- Business correspondence and Report Writing : Tata M.Graw Hill
- Business correspondence & Report writing : Urmila Rai &S.M. Rai
- Business communications and Report writing : Kalyani Publications
- Auditing : N.D.Kapoor
- Practical Auditing : T.N.Tandon
- Auditing : Dinkar Pagare
- Auditing : R.G.Saxena (Himalaya Publications)
- Fundamentals of Auditing : Kamal Gupta and Ashok Gupta
- Auditing Principles and Techniques Basu SK
- Auditing Principles & Practice Kumar Sharma, PHI

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III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I

Module – 21: ADVANCED CORPORATE ACCOUNTING – I

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: The Accounts of Holding Companies:

The nature of holding companies – Legal requirements for a holding company – Schedule VI of the Companies Act and subsidiary companies – Preparation of consolidated balance sheet – cancellation of investment account – minority interest – cost of acquiring control or goodwill – capital reserve – preference share capital in subsidiary companies – debentures in subsidiary companies (including problems related to the single subsidiary company).

Lab: Computation of Problems using Excel/Accounting packages.

Unit – II: Accounts of Electricity Companies (Double-Accounting System):

Meaning of double-account system – revenue account and net revenue account – capital account (receipts and expenditure on capital account) and general balance sheet. Replacement of an asset. Important provisions of Indian Electricity Act 1910, Electricity supply act 1948 and the Companies Act 1956 – Formats of relevant accounts – calculation of reasonable return and disposal of surplus. Preparation of net revenue account and Balance sheet (including problems).

Lab: Computation of Problems using Excel/Accounting packages.

Unit - III: Human Resource Accounting:

Definition, objectives, approaches, assumptions, advantages, limitations of HRA, HRA in India. Historical cost accounting, Replacement cost method, Opportunity cost method. (Theory only).

Suggested Readings:

1. R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	The Accounts of Holding Companies	1	--	1	2	1
2	Accounts of Electricity Companies (Double-Accounting System)	2	--	--	2	2
3	Human Resource Accounting	--	--	1	2	2

Note: Main Problem/ Theory carrying 15 Marks each which are come under Section – 'A' may be set as stated below:

Unit-I: One Essay Question - Theory on procedure for consolidation of Balance sheet.
One Problem – Preparation of consolidated Balance sheet related to single subsidiary company upto inter-co owings and unrealized profit procedure for consolidation only.

Unit – II: First Problem on preparation of revenue and Net Revenue Accounts .
Second Problem on preparation of capital account and General Balance sheet

Unit – III: One Essay Question from these topics:
1. Objectives and approaches of HRA.
2. Advantages & Disadvantages of HRA.
3. Methods of HRA.
4. HRA in India.

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ELECTIVE-III

Module – 29:: ADVANCED CORPORATE ACCOUNTING - 2

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: Accounting for price level changes (Inflation Accounting):

Introduction, limitations of historical cost accounting, methods of accounting for price level changes - preparation of income statement and balance sheet under current cost accounting (CCA). (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – II: Liquidation of companies:

Scope, contributory preferential payments, preference dividend. Statement of affairs and deficiency/surplus account. Liquidators final statement of account, liquidators remuneration, receiver for debenture holders, list 'B' contributories (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – III: Social Responsibility Accounting:

Meaning, Nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (Theory only)

Suggested Readings:

1. . R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Accounting for price level changes (Inflation Accounting)	1	--	1	2	1
2	Liquidation of companies	2	--	--	2	2
3	Social Responsibility Accounting	--	--	1	2	2

Note: Main Problem/ Theory carrying 15 Marks each which are come under Section – 'A' may be set as stated below:

Unit-I: One Essay Question - The concepts and Limitations of Historical Cost Accounting or Methods of Accounting for price level changes..

One Problem – Inflation Accounting under CPA method only.

Unit – II: First Problem on preparation of Liquidators Final Statement. .

Second Problem on preparation of Statement Affairs and Deficiency / Surplus Account.

Unit – III: One Essay Question from these topics:

1. Need and Objectives of Social Accounting.
2. Social Cost and Social Benefits.
3. Indications of Social Performance

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ELECTIVE-I:

Module – 22: PRINCIPLES OF MARKETING

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: INTRODUCTION:

Nature and scope of marketing; Importance of Marketing as a business function, Importance of marketing in Indian context, Marketing concepts - Selling vs. marketing; Marketing mix; Marketing environment.

Lab: Preparation of reports on Marketing environment of different FMCG's or retailing companies.

UNIT - II: CONSUMER BEHAVIOUR AND MARKET SEGMENTATION:

Nature. scope and significance of consumer behavior, consumer behavior theories, Market segmentation concept and importance; Bases for market segmentation.

Lab: A report preparation on changing life styles in different walks of life creating demand for new companies / sectors.

UNIT - III: PRODUCT:

Concept of product, Types of products, New product development; packing role and function,

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products

UNIT - IV: BRAND:

After sales services, Product life cycle concept.

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products.

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of lndia,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

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ELECTIVE-III:

Module – 30: PRODUCT DEVELOPMENT AND MARKETING

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRICE:

Importance, price as marketing mix; Factors influencing price determination of a product / service; Discount and rebates.

Lab: Report on factors influencing price fixation for different products in selected sectors in the recessionary period.

UNIT - II: DISTRIBUTION CHANNELS:

Distribution channels - concept and role; types of distribution channels; Factors affecting choice of distribution channel; Retailer and wholesaler ;

UNIT - III: PHYSICAL DISTRIBUTION:

Physical distribution of goods, Transportation ; Warehousing; Inventory control ; Order Processing.

UNIT - IV: PROMOTION:

Methods of promotion; Optimum promotion mix; Advertising media - their relative merits and limitations.

Lab: Report on promotional mix for different FMCG products.

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of lndia,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

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ELECTIVE - II

Module – 23: MANAGEMENT ACCOUNTING - 1

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Introduction:

Definition, Scope, Objectives of Management Accounting - Management Accounting Vs. Financial Accounting and Cost Accounting. Installation of Management Accounting System - Role of Management Accountant - Controller functions - Management Information System (Theory only).

UNIT-II: Financial Statement Analysis:

Financial statements: Features, Limitations, need for, meaning, objectives, and process of financial statement Analysis – methods and techniques of analysis.

UNIT-III: Ratio Analysis:

Meaning, classification, advantages and limitations of ratio analysis. Computation and interpretation of accounting ratios: Liquidity, Profitability, Activity and Solvency ratios (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Ratio Analysis.

Working Capital Management: Nature – determinants of Working Capital Management – Estimation of working capital requirements - Management of Inventory, Management of Debtors, Cash budgets

Additional Input under Autonomy:

C-V-P Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Financial Statement Analysis.
2. Problem from the topic of Financial Statement Analysis
3. Problem from the topic of Ratio Analysis
4. Problem from the topic of Introduction(Theory)
5. Problem from the topic of Ratio (Theory)

Suggested Readings:

1. Introduction to Management Accounting:Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

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ELECTIVE - IV

Module – 31: MANAGEMENT ACCOUNTING - II

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Funds Flow & Cash Flow Analyses:

Concepts of fund and fund flow – Preparation of funds flow statement.

UNIT-II: Concepts of Cash and Cash Flow:

Preparation of cash flow statement as per Accounting Standard No.3 – Uses and limitations of funds flow and cash flow analyses (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Cash Flow and fund flow statements.

UNIT-III: Capital Budgeting:

Meaning and importance of capital budgeting - Process of capital budgeting – Methods of capital budgeting: Traditional and time- adjusted methods (including problems).

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fund Flow Analysis.
2. Problem from the topic of Cash Flow Analysis
3. Problem from the topic of Budgetary Control
4. Problem from the topic of Capital Budgeting(Theory)
5. Theory from Unit I and II

Suggested Readings:

1. Introduction to Management Accounting: Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-II:

Module – 24: RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: RURAL MARKETING:

Definition of rural area, Importance of rural marketing, nature and scope of rural marketing, size of rural market, Distinction between Rural and Urban Marketing.

Lab: A report preparation on the transformation for rural markets in India.

UNIT - II: RURAL MARKETING ENVIRONMENT:

Geographical, economic, Scio-cultural and infrastructural factors. Factors influencing Rural marketing operations.

Lab: Preparation of the report on invisible forces influencing the rural markets in India.

UNIT - III: AWARENESS IN RURAL MARKETING:

Characteristics, product and brand - Attitude and behavior, Buying patterns and influences;

Lab: A small survey conducted and report be prepared about the level of Brand Awareness in rural areas about Indian and MNC's branded products

UNIT - IV: ATTITUDE OF RURAL CONSUMERS:

Attitude and behavior of rural Consumers, Buying patterns and influences.

Lab: A survey conducted on attitude and behavior and influence on buying of products of rural product consumers

UNIT - V: RURAL CONSUMER :

Segmenting rural markets.

Lab: A survey report on effect of segmenting rural markets

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T.P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing ; Rawat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi.
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-IV:

Module – 32: PRACTICAL RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRODUCT PLANNING:

Product Planning for rural marketing, quality and size; packaging and branding decisions, pricing decisions.

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - II: PACKING AND PROMOTION:

Packing and branding decisions, Pricing decisions, Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

UNIT - III: BRANDING :

Branding Decisions

UNIT - IV: PRICING :

Pricing Decisions

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - V: PROMOTION DISTRIBUTION IN RURAL MARKETS:

Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

SUGGESTED READINGS:

1. Rajagopal : Management Rural Business; wheeler Publications, New Delhi
2. Neelameghan S : Marketing in India; Cases and Reading; Vikas Publishing House
3. Gopalaswamy T.P .: Rural Marketing; Wheeler Publishers, New Delhi
4. Nayyar H., and Ramaswamy P : Globalization and Agricultural Marketing ; Rawat Publications, Jaipur.
5. Moria CB : Agricultural Marketing: Himalaya Publishing House, New Delhi.
6. K.S. Habibur Rahman: Rural Marketing in India, Himalaya.
7. Krishnamacharyulu: Rural Marketing: Text & Cases, Pearson

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- I

MODULE – 1 : INFORMATION SYSTEMS THROUGH COBOL - I

Hours – 6, Credits : 4

Unit- I :

Introduction to Computer Systems
File Concepts and Program Logic

Unit-II :

Introduction to COBOL
Identification and Environment Division
First Look at Data Division

Unit-III :

Procedure Division and Basic Verbs
Writing Complete Programs
More about Data Division

Unit-IV:

More about Data Movement Verb and Arithmetic verbs
Conditional and Sequential Control Verbs
Table Handling

Suggested Books:

Information Systems through COBOL – M.K.Roy, D.Ghosh Dastidar, Tata Mc-Graw Hill

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2014-2015

FIRST YEAR – SEMESTER- II

MODULE – 5 : (CORE): INFORMATION SYSTEMS THROUGH COBOL - II

Hours – 6, Credits : 3

Unit- I :

Structural Programming
Sequential Files

Unit-II :

Sorting and Merging Files
Data Accessed Files

Unit-III :

Character Handling
Report Writer

Unit-IV:

COBOL Subroutines
Segmentation and Library facility

Suggested Books:

Information Systems through COBOL – M.K.Roy, D.Ghosh Dastidar, Tata Mc-Graw Hill

GOVERNMENT COLLEGE(A),RJAHMUNDRY

Module – 14 : Structured Programming Through 'C' - 1

B.Com II Year Computers : : III Semester Syllabus

UNIT-I : Problems solving and algorithm :
The problem solving aspect- Top down design-step wise refinements- implementation of algorithms-efficiency of algorithms-Desirable program characteristics.

UNIT-II; Exchange of Two variables ,summation of set numbers – factorial computation –Generation of Fibonacci series-reversing of digits of integers-GCD-Generation of Prime Numbers.

UNIT-III : 'C' Programming :

Basics : Importance of C language-Structures of C language-variables-constants –Expressions-operators ,simple I/O functions control statements-storage classes. Programs using all the operators.

UNIT-IV :functions : Concepts of functions-parameter passing- recursion-comparison of interaction and recursion-scope and extent of variables-Programs using recursive and non recursive functions.

GOVERNMENT COLLEGE(A),RJAHMUNDRY

Module – 20 : Structured Programming Through 'C' - 2

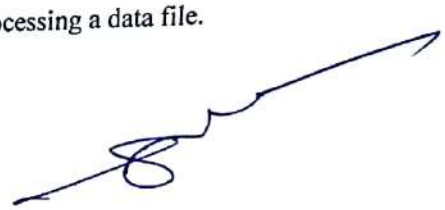
B.Com II Year Computers : : VI Semester Syllabus

UNIT-I : Arrays and Strings: Single and multi dimensional arrays ,character arrays as a string-functions of strings. Programs using arrays and for string manipulation.

UNIT-II : Pointers : Definition and usage of pointers-address operator pointer variables. Problems using pointers.

UNIT-III : Structures and Unions : Declaring and using Structures –operations on structures –arrays of structures-user defined data types ,passing structures to functions. Unions , difference between structures and unions scope of unions.

Data files : operating and closing a file creating a data file ,processing a data file.



GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I:

Module - 25 : COST ACCOUNTING - 1

This Elective group for B.Com. General & B.Com Computer Application students only

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COST ACCOUNTING

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Introduction:

Nature and scope of Cost Accounting – Cost Accounting Vs. Financial Accounting – Advantages and limitations of cost accounting – Installation of costing systems – Cost concepts – Classifications of cost, preparation of cost sheet (including problems).

Lab: Using Excel, prepare a cost sheet.

UNIT-II: Elements of Cost:

Material Cost – Direct and indirect material cost – Meaning – Need and essentials of requisition for stores – Control – Functions of purchase department – Stores – Records – Issue of material for production – Pricing methods

UNIT-III: Labour Cost:

Labor cost – Direct and indirect labour cost – Labour turnover – Time keeping – Time booking – Idle time – Over time – Methods of payment of wages – Incentive plans (Halsey, Rowan, Merrics Multiple Piece Rate System, Taylors Differential Piece Rate System).

UNIT-IV: Over Heads:

Overheads – Classification – Allocation, apportionment and absorption of overheads (including problems).

Lab: Preparation of stores Ledger, using Excel.

UNIT-V: Methods of Costing:

Single or Output, Job / Contract and Process Costing

Lab: Using Excel, compute problems on contract costing, process costing and operating costing.

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Theory Questions from the topic of Introduction .
2. Problem from the topic of Cost Sheet
3. Problem from the topic of Issue of Materials (FIFO, LIFO and Weighted Average)
4. Problem from the topic of Payment of Wages
5. Theory Questions from the topic of Overheads

Suggested Readings:

1. Cost Accounting: N.K.Prasad
2. Cost Accounting: P.K.Gosh
3. Cost Accounting: Jain and Narang
4. Cost Accounting: S.P.Jyengar
5. Cost Accounting: B.K.Bhar
6. Cost Accounting: M.N.Arora.
7. Cost Accounting: KS Thakur
8. Cost Accounting: Dutta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-I:

Module - 33 : COST ACCOUNTING - 2

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Price Costing:

Price Costing (Excluding equipment production and inter-process profits)

UNIT-II: Operating Costing:

Operating Costing (With reference to Transport undertakings only)

UNIT-III: Reconciliation of Costing and Financial Accounts:

Reconciliation of Costing and Financial Accounts – Need for Reconciliation – Reasons for Disagreement in Profit, Preparation of Reconciliation Statement (Including problems)

UNIT-IV: Marginal Costing and Break Even Analysis:

Concept of Marginal costing – Variable and absorption costing – Benefits and limitations of Cost, Volume and Profit analysis – Break-even point – Margin of safety (including problems).

Lab: Using Excel, compute problems on marginal costing.

UNIT-V: Standard Costing and Variance Analysis:

Standard costing and Historical costing – Establishment of cost standards – Steps involved in standard costing – Variance analysis – Material variance –Labour variances & Overhead variances (including problems).

Lab: Using Excel, compute problems on variance analysis.

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Theory Questions from the topic of Marginal Costing/Standard Costing .
2. Problem from the topic of Process Costing/Operating Costing
3. Problem from the topic of Standard Costing
4. Problem from the topic of Reconciliation
5. Theory Questions from the topic of Breakeven Analysis

Suggested Readings:

1. Cost Accounting: N.K.Prasad
2. Cost Accounting: P.K.Gosh
3. Cost Accounting: Jain and Narang
4. Cost Accounting: S.P.Jyengar
5. Cost Accounting: B.K.Bhar
6. Cost Accounting: M.N.Arora.
7. Cost Accounting: KS Thakur
8. Cost Accounting: Dutta

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS
(w.e.f THE ADMITTED BATCH OF 2016-2017)
FIRST YEAR – SEMESTER- I

Hours – 5, Credits: 4

MODULE – 2 (CORE) FUNDAMENTALS OF ACCOUNTING-I

Objectives :

To make the students acquire the conceptual knowledge of accounting

To equip the students with the knowledge of accounting process and preparation of final accounts.

To develop the skills of recording financial transactions and preparation of reports using computers

UNIT1: Introduction to Accounting:

Need for Accounting – definition, features, objectives, functions, systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations-basic terminology used- Accounting concepts and conventions- Accounting cycle - Classification of accounts - Rules of double entry book keeping - Identification of financial transactions - Journal - posting to ledger, balancing of Ledger.

Unit-II Subsidiary Books

Sub Division of Journal-Preparation of Subsidiary Books including different types of cashbooks- simple cashbook, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book. Preparation of sales register, purchase register, journal proper, debit note register, credit note register, and different cash books including interest and discount transactions using computers.

Unit-III: Bank Reconciliation Statement

Bank Reconciliation Statement- Need - Reasons for difference between cash book and pass book balances - problems on favorable and over draft balances - Ascertainment of correct cash book balance. Preparation of bank reconciliation statement.

UNIT-IV: Trial Balance & Rectification of Errors.

Trial Balance: meaning, objectives, methods of preparation - Preparation of trial balance, Errors and their Rectification - Types of Errors - Rectification before and after preparations of final Accounts - Suspense Account- Effect of Errors on Profit.

Unit –V:Final Accounts

Final Accounts: Meaning, features, uses and preparation of Trading Account, Profit & Loss Account and Balance Sheet-preparation of Final Accounts with Adjusting and Closing entries.

Suggested Books:

1. Principles and Practice of Accounting- R.L. Gupta & V.K. Gupta Sulthan Chand & sons

2. Accountancy – I, S.P. Jain & K.L. Narang, Kalyani Publishers

3. Accountancy – I, Tulasian, Tata Mc-Graw Hill co

4. Financial Accounting – Dr. V.K. Goyal, Excel Books

5. Introduction to Accountancy, T.S.Grewal, S.Chand and Co

6. Accountany-I, Haneef and Mukherjee, Tata-McGraw-Hill Co

7. Advanced Accountancy – Arulanandam, Himalaya publishers

8. Advanced Accounting-I, S.N. Maheshwari & V.L. Maheswari, Vikash Publishing Co

9. Financial Accounting, Ashok Banarjee, Excel

10. Financial Accounting, Warren, Cengage

Blue Print					
Units	Name of the Topic	Problem		Theory	
		Essay 8 M	Short 4 M	Essay 8 M	Short 4 M
1	Introduction to Accounting	1	1	1	1
2	Subsidiary Books	2	1	-	1
3	Bank Reconciliation Statement	2		-	1
4	Trial Balance & Rectification of Errors	1	1	1	1
5	Final Accounts	2	-		1

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER- I

MODULE – 3 (CORE): Business Organization

Hours – 6, Credits: 3

Objective: To facilitate the students to learn the concepts of Business Organization and Management

Unit-I – Introduction

Concepts of Business, Trade , Industry and Commerce – Features of Business –Trade Classification - Aids to Trade – Industry – Classification – Relationship of Trade, Industry and Commerce.

Unit II- Business Functions and Entrepreneurship

Functions of Business and their relationship - Factors influencing the choice of suitable form of organization – Meaning of Entrepreneurship – Characteristics of a good entrepreneur - Types – Functions of Entrepreneurship.

Unit –III – Forms of Business Organizations

Sole Proprietorship – Meaning – Characteristics – Advantages and Disadvantages – Partnership - Meaning – Characteristics- Kinds of partners – Advantages and Disadvantages – Partnership Deed – Hindu-undivided Family – Cooperative Societies.

Unit-IV- Joint Stock Company

Joint Stock Company – Meaning – Characteristics –Advantages – Kinds of Companies - Differences between Private Ltd and Public Ltd Companies.

Unit-V- Company Incorporation

Preparation of important Documents for incorporation of Company – Memorandum of Association – Articles of Association – Differences Between Memorandum of Association and Articles of Association - Prospectus and its contents.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	
1	**Introduction**	2	2	
2	**Business Functions and Entrepreneurship**	2	1	
3	**Forms of Business Organizations**	2	2	
4	**Joint Stock Company**	2	1	
5	**Company Incorporation**	2	2	

Suggested Books:

1. Bhatia RC: Business Organization and Management, Ane Books
2. Tallo : Business Organisation and Management. Tata
3. RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
4. Aryasri and Murthy : Industrial Organization and Management, Tata
5. Govindarajan and Natarajan : Principles of Management, Tata
6. CB Gupta: Industrial Organization and Management, Sultan Chand
7. Bhushan Y K: Business Organizaation and Management, Sultan Chand
8. Surendar and Madhavi : Industrial Organizaation and Management, Himalaya
9. Sherlekar: Business Organization and Management, Himalaya
10. Robins S P: Management, PHI
11. Rao VSP : Management, Excel
12. Gupta CB: Entrepreneurship Development in India, Sultan Chand
13. Prasad L M : Management, Sultan Chand
14. Subba Rao P : Management and Organizational Behavior, Himalaya
15. Dubrin : Essentials of Management, Cengage
16. Satyaraju: Management, PHI
17. Moshal: Organization and Management, Galgotia
18. Kumkum Mukhrjee: Principles of Management , Tata
19. Chandra Bose : Principles of Management, PHI
20. James F. Stoneir : Management, PHI

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER- I

MODULE – 7 (CORE): Business Economics

Hours – 6, Credits : 4

Unit-I- Introduction

Meaning and definitions of business Economics-Nature and scope of Business Economics-Micro and Macro economics differences – Cardinal Utility& Ordinal Utility. Role of Business Economist

Unit-II- Demand Analysis

Meaning and definition of demand -Determinants to Demand -- Demand function – Types of Demand- - Individual and Market Demand – Classification of Goods –Law of demand- Demand Curve -Exceptions.

Unit –III- Elasticity of Demand

Meaning and definition of Price Elasticity of demand – types of Price Elasticity of demand – Measurements of price elasticity of demand – total outlay method – Point method – Arc Method. Income Elasticity - Cross Elasticity.

Unit – IV- Cost and Revenue Analysis

Classification or Costs – Total cost- average cost – Marginal Cost and Cost function – Long run – Short run.

Unit-V- Break even Analysis

Type of Costs – Fixed Cost – Semi Variable Cost – Variable Cost– Cost behaviour. Breakeven Analysis uses and limitations.

Additional Inputs under Autonomy:

Role of Business Economist - Types of Demand- - Individual and Market Demand – Classification of Goods - Income Elasticity - Cross Elasticity- Types of Revenues.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 8 M	Short 4 M	
1	**Introduction**	2	2	
2	**Demand Analysis**	2	2	
3	**Elasticity of Demand**	2	2	
4	**Cost and Revenue Analysis**	2	1	
5	**Break even Analysis**	2	1	

Reference Books

1. Dr.S.Sankaran, Business Economics - Margham Publications, Chennai-17.
2. Business Economics - Kalayani Publications.
3. Business Economics – Himalaya Publishing House.
4. Aryasri and Murthy Business Economics , Tata Mcgraw Hill.
5. Business Economics, Maruthi Publications

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER - II

MODULE – 6 (CORE) FUNDAMENTALS OF ACCOUNTING-II

Hours – 4 T + 2 P Credits : 4

Objectives :

To make the students acquire the conceptual knowledge of accounting

To equip the students with the knowledge of accounting process and preparation of final accounts.

UNIT-I Depreciation

Meaning of Depreciation – Causes – Objects of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of providing depreciation – Straight line method – Diminishing Balance Method.

UNIT-II Provisions and Reserves

Meaning – Provision vs. Reserve – Preparation of Bad debts Account – Provision for Bad and doubtful debts – Provision for Discount on Debtors – Provision for discount on creditors - Repairs and Renewals Reserve A/c

UNIT-III: Bills of Exchange:

Meaning of Bill –Features of bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the books of Drawer and Drawee (Problems).

UNIT- IV Consignment Accounts:

Consignment – Features, Terms used Pro-forma invoice – **Account** sale Del-credre commission – Accounting treatment in the books of the consignor and the consignee – Valuation of consignment stock – Normal and abnormal Loss – Invoice of goods at a price higher than the cost price.

UNIT- V: Joint Venture Accounts:

Joint Venture – features – difference between joint venture and consignment, Accounting Procedure – Methods of keeping records for Joint venture accounts – method of recording in co ventures books – separate set of books method.

Suggested Books:

Principles and Practice of Accounting - R.L. Gupta & V.K. Gupta Sulthan Chand & sons
Accountancy – I, S.P. Jain & K.L. Narang, Kalyani Publishers
Accountancy – I, Tulasian, Tata Mc-Graw Hill co
Financial Accounting – Dr. V.K. Goyal, Excel Books
Introduction to Accountancy, T.S.Grewal, S.Chand and Co
Accountany-I, Haneef and Mukherjee, Tata-McGraw-Hill Co
Advanced Accountancy – Arulanandam, Himalaya publishers
Advanced Accounting-I, S.N. Maheshwari & V.L. Maheswari, Vikash Publishing Co
Financial Accounting, Ashok Banarjee, Excel
Financial Accounting, Warren, Cengage

Blue Print					
Units	Name of the Topic	Problem		Theory	
		Essay 8 M	Short 4 M	Essay 8 M	Short 4 M
1	Depreciation	1	1	1	1
2	Provisions and Reserves	1		1	1
3	Bills of Exchange	1		1	1
4	Consignment Accounts	2		-	2
5	Joint Venture Accounts	1	1	1	1

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER- II

MODULE – 7 (CORE): BUSINESS ECONOMICS

Hours – 6, Credits : 4

Unit-I: Production and Costs:

Techniques of Maximization of output, Minimization of costs and Maximization of profit - Scale of production - Economies and Dis-economies of Scale - Costs of Production – Cobb-Douglas Production Function.

Unit-II: Market Structure-I:

Concept of Market - Market structure - Characteristics – Perfect competition -characteristics equilibrium price - profit maximizing output in the short and long run Monopoly- characteristics - Profit maximizing out-put in the short and long run - Defects of Monopoly – Distinction between Perfect competition and Monopoly.

Unit-III: Market Structure-II:

Monopolistic Competition - Characteristics – Product differentiation - Profit maximization - Price and output in the short and long - run – Oligopoly - characteristics - Price rigidity - Kinked Demand Curve - Distribution - Concepts – Marginal Productivity - Theory of Distribution.

Unit-IV National Income And Economic Systems:

National Income - Definition Measurement - GDP - Meaning Fiscal deficit - Economic systems - Socialism - Mixed Economic System - Free Market economy.

Unit-V Structural Reforms:

Concepts of Economic liberalization, Privatization, Globalization - WTO Objectives Agreements - Functions - Trade cycles - Meaning - Phases - Benefits of International Trade - Balance of Trade and Balance of payments.

Additional Inputs under Autonomy:

Inflation – Economic reforms - Monetary Policy – Fiscal Policy (Budget)

Blue Print				
Units	Name of the Topic	Theory		
		Essay 8 M	Short 4 M	
1	Production and Costs	2	1	
2	Market Structure-I	2	2	
3	Market Structure-II	2	2	
4	National Income And Economic Systems	2	1	
5	Structural Reforms	2	2	

GOVERNMENT COLLEGE (A) RAJAHMUNDRY
II.B.Com Degree Examination
(At the end of Third Semester)

Module – 9: ADVANCED ACCOUNTING - 1

Max Marks: 75+25

Objectives:

1. To apprise the students about the application of accounting knowledge in special business activities .
2. To impart the skills of properties of final accounts of non-trading concerns, partnership organizations.
3. To develop the skills of recording of transactions relating to issue of shares and debentures branches and departments manually and using computers.

UNIT-I: Accounts from Incomplete Records –Hire purchase and installment purchase system.

Single Entry: Features-books and accounts maintained –Recording of transactions-Ascertainment of Profit.-Statement of affairs method. Conversion of single entry into double entry – total debtors account – total creditors account – bills receivable account – bills payable account. Trading and profit and loss account and Balance sheet.

Hire Purchase System –Features-Accounting Treatment in the Books of Hire Purchaser and Hire Vendor –default and Repossession –Installment Purchase System-Difference between Hire purchase and Installment purchase systems- Accounting Treatment in the books of purchaser and Vendor.

UNIT-II: Partnership Accounts:

Legal provisions in the absence of Partnership Deed-fixed and Fluctuating Capitals-Preparation of final accounts-Accounting Treatment of Goodwill and Admission of a partner.

Accounting treatment of Retirement and death of a Partner- Dissolution of firm(Excluding Sale of firm. Company and Amalgamation)-Recording of partnership transaction and preparation of final accounts using computers.(24 Hours) .

UNIT-III: Accounting of Non-Profit Organizations:

Non-Profit entities –Features of non-profit entities –Accounting process- preparation of summaries –Receipts and payments Account meaning and special features –procedure for preparation –uses and limitations.

Income and Expenditure Account- features-procedure for preparation-preparation of Balance Sheet.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Single Entry**	1			1	1
2	**Hire Purchase System**	1			1	1
3	**Partnership Accounts**	2	1		1	2
4	**Accounting of Non-Profit Organizations**	1	1		1	1

Suggested Readings:

1.Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2.Accountancy-I Tulasian TATA Mcgraw Hill Co
3.Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4.Financial Accounting - Dr.V.K.Goyal Excel Books
5.Intridunction to Accountancy T.S Grewal S.Chand & Co
6.Accountancy-I Haneef and Mukerjee TATA Mcgraw Hill Co
7.Advanced Accountancy Arulanandam Himalaya Publishers
8.Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

GOVERNMNET COLLEGE (A) Rajahmundry

Module – 10: BUSINESS STATISTICS- 1

III Semester Syllabus

MaxMarks:100 (75+25)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT-1: Introduction to Statistics:
Meaning ,definition, importance and limitations of statistics .Collection of data .Primary and secondary data –(Sampling-Random-Non Random-Census)- Schedule and questionnaire- Frequency distribution-Tabulation -Diagrammatic and graphic Presentation of data using Computers(Excel).

Unit-2 :Measures of Central Tendency :
Definition Objectives and Characteristics of Measures of central Tendency -Types of Averages-Arithmetuc Mean, Geometric Mean. Harmonic mean ,Median ,Mode, Deciles .Percentiles .Properties of averages and their applications .Calculation of averages using computers.

Unit-3 : Measures of Dispersion and Skewness :
Meaning and definition ,Properties of dispersion – Range-quartile Deviation- Mean Deviation-Standard Deviation - Coefficient of Variation –skewness defition - kari Pearsons and Bowley's Measures of skewness-Normal distribution Calculation of Disperson and skewness using Computers.

Unit-4 : Measures of Relation:
Meaning definition and use of correlation – Type of correlation-karipearson's correlation coefficient-Spearman's Rank Correlation-probable's error-Calculation of correlation by using Computers.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Introduction to Statistics**			1	1	2
2	**Measures of Central Tendency**	1	1			1
3	**Measures of Dispersion and Skewness**	2	1		1	1
4	**Measures of Relation**	1	1		1	1
5						

Suggested Readings:

1. Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2. Statistics-Problems and solutions — Kappor V.K
3. Fundamentals of Statistics — Elhance D.N
4. Statistical methods — Gupthas S.P
5. Statistics — Gupta.B.N
6. Fundamentals of Statistics — Gupta S.C
7. Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8. Practical BusinessStatistics — Croxton & Crowdorv
9. Statistics and their applications to Commerce — Borddigtion
10. Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11. Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMENT COLLEGE (A) Rajahmundry
Module – 12: Financial Services – Banking & Insurance - 1
B.Com II Year: III Semester syllabus

Max. Marks: 100(75+25)

PPW: 5

The impart knowledge on Banking and Insurance concepts and to gain an insight on Financial Services.

UNIT1: Indian Financial System and its Regulations:

a. Indian Financial System – Structure - Objectives and importance of financial system - economic development (Financial and Banking system charts).
b. Financial Markets – Structure – Objectives and Importance
c. Financial Services – Structure – Objectives and importance
d. RBI -Functions of RBI – Role of RBI in Economic Development

Unit-2: Banking Systems and its Regulation:

a. Commercial Banks – Meaning – importance and functions of commercial banks – Indian Banking System – Structure - Banking Systems-Branch banking.- advantages and disadvantages of branch banking and unit banking .

b. An overview of banking; Banking sector reforms with special reference to prudential Norms. Capital adequacy norms, Income recognition norms, classification of assets and NPAs;

c. innovations in Banking –ATMs. E-Banking Credit cards, Mobile Banking, On-line & Offshore Banking etc (working and operations) Internet banking and online frauds in banking

d. Regional and Rural banks, cooperative banks, Micro Finance, priority sector Lending Indigenous banking. Role of NABARD. Development Financial instructions

Unit-3: Banker and Customer Relationship

A. Banker and customer definition and their relationship, types of customers and modes of operations, procedure and precaution for opening an account, pass book & its features. Rights duties and obligations of the banker(Application forms for opening accounts ,Cheque Books ,pass books requisition slips for withdrawals and deposits ,bank statements, etc)

B. Types of loans and advances, principles of sound lending policies credit appraisals of various forms of loans and advances. Modes of creating charges lien, pledge, mortgage and hypothecation (Documents required for sanction of loans and advances)

Definition / meaning insurance and reinsurance, principles of insurance. Kinds of insurance, advantages of insurance, globalization of Insurance and insurance sector reforms in India.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**Indian Financial System and its Regulations**	1	2	1
2	**Banking Systems and its Regulation**	2	2	2
3	**Banker and Customer Relationship**	2	2	2
4				
5				

Books Recommended :

1 Maheswari and Paul RR Banking theory law and practice

2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru Swamy Banking Theory and Practice TATA Mc Graw Hill	

Government College(A) Rajahmundry
II B.Com . Degree Examination
(At the end of Fourth Semester)
Module – 13: ADVANCED ACCOUNTING - 2
Max Marks:75+25

Objectives:

1. To apprise the students about the application of accounting knowledge in special business activities.
2. To impart the skills of properties of final accounts of non-trading concerns, partnership, organizations.
3. To develop the skills of recording of transactions relating to issue of shares and debentures, branches and departments manually and using computers .

UNIT-I: Branch and Departmental Accounts:

Dependent Branches: Features –Books of accounts –methods accounting of dependent branches –Debtors System, Stock and debtors system-Recording of transaction relating to branch accounts using computers. Accounting for Independent Branches:

Departmental Accounts: need, features, Basis for Allocation of Expenses, treatment of Inter-Departmental Transfer at cost or selling price –Treatment of Expenses that cannot be allocated – Preparation of departmental profit and loss. (24 Hours).

UNIT-II Company Accounts:

Issue of shares at par, Premium and at discount-Forfeiture and reissue of Shares-rights issue (theory Only)-Recording of transactions relating to issue of shares using computers.

Issue and Redemption of Debentures-Redemption out of profits-sinking fund method. Recording of transaction relating to issue and redemption of debentures using computers Underwriting of Issue of shares (Simple Problems) .

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Branch Accounts**	1	1		1	1
2	**Departmental Accounts**	1			1	1
3	**Company Accounts –Issue of Share**	1	1	1	1	2
4	**Company Accounts –Issue and redemption of debentures**	1			1	1
5						

Suggested Readings:

1. Principles and practice of Accounting R.L Gupta & V.K Gupta Sulthan Chand & Sons.
2. Accountancy-I Tulasian TATA Mcgraw Hill Co
3. Accountancy-I S.P Jain & K.L Narang Kalyani Publishers
4. Financial Accounting - Dr.V.K.Goyal Excel Books
5. Introduction to Accountancy T.S Grewal S.Chand & Co
6. Accountancy-I Haneef and Mukerjee TATA Mcgraw Hill Co
7. Advanced Accountancy Arulanandam Himalaya Publishers
8. Advanced Accountancy –I S.N Maheswari & V.L Maheswari Vikas Publishing

GOVERNMNET COLLEGE(A) Rajahmundry
Module – 16 : BUSINESS STATISTICS- 2
IV Semester syllabus

MaxMarks:100(75+25)

P.P.W : 5(4 +1)

The objective of the paper is to impart knowledge on the application of statistical tools end techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

Unit-1: Regression Analysis

Meaning and utility of Regression analysis comparison between correlation and Regression-Regression Equations-interpretation of Regression Co-efficient Calculation of Regression by using computers.

Unit-2: Analysis of Time Series
Meaning and utility of time series Analysis-Components of Time series-Measuresment of trend and Seasonal Variations –Utility of Decomposition of Time Series-decentralization of Data-Caluculation of trend and seasonal variations using computers.

Unit-3 : Index Numbers
Meaning Definition and importance of Index Numbers-Methods of Construction of Index Numbers-Price Index Numbers – Quantity Index Numbers-Tests of Adequacy of Index Numbers-deflating Index Numbers using computers.

Unit-4: **Business Forecasting**
Introduction – Role of forecasting in Business – steps in forecasting – Methods of forecasting – Theories of business forecasting.

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Regression Analysis**	1	1			1
2	**Analysis of Time Series**	1	1		1	1
3	**Index Numbers**	1	1	1	1	2
4	**Business Forecasting**	1			1	1

Suggested Readings:

1 Business Statistics — Reddy.C.R.Deep Publications,New Delhi
2 Statistics-Problems and solutions — Kappor V.K
3 Fundamentals of Statistics — Elhance D.N
4 Statistical methods — Gupthas S.P
5 Statistics — Gupta.B.N
6 Fundamentals of Statistics — Gupta S.C
7 Statistics-Theory,Methods and applications — Sancheti.D.C & Kapoor V.K
8 Practical BusinessStatistics — Croxton & Crowdorv
9 Statistics and their applications to Commerce — Borddigtion
10 Statistics Concepts & Applications — Nabendu pal & Sahadeb Sarkar
11 Business Statics ,An applied Orientation — P.K.Viswanathan

GOVERNMENT COLLEGE (A) Rajahmundry
Module – 16 : Financial Services Banking & Insurance - 2
B.Com II Year:: IV Semester syllabus

Module: **MaxMarks:100(75+25)**

PPW:5

Unit I: Negotiable Instruments

Promissory note and bills of exchange and cheque, difference between them ,types of crossing the cheque ,payments of cheque and consequences of wrongful dishonor ,collection of local and upcountry Cheques ,responsibilities and liabilities of collecting banker and statutory protection to the collecting banker(Promissory notes. B/E crossed Cheques-various modes).

Unit II: Financial Markets & services:

A. Indian money market –characters tics, structure, composition (call and notices money, market, treasury bills market, CDs CPs short term bill market, MMMF s and DFHI) problems and reforms in Indian money markets (CDs CPs ,Treasury Bills)

B.Indian capital market – composition and growth of primary and secondary markets - capital market reforms and NBFC s in capital markets, stock exchanges – Functions and trading systems in NSE, OTCE),Online Trading and role of SEBI.

C.Financial intermediaries and services : Merchant bankers ,Mutual funds, Leasing companies, Venture capital Funds Fonaiting , Loan / syndication ,Depository participants (Documentation).

Unit III: Insurance and its regulation

A. Life Insurance-meaning – Principles – types of insurance – insurance sector reforms – Life insurance policies

B.Non Life Insurance- introduction – principles - types of products and scope of fire Insurance, Marine Insurance,- health Insurance and other insurances, IRDA regulations.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**Negotiable Instruments**	1	2	1
2	**Financial Markets & services**	2	2	2
3	**Insurance and its regulation**	2	2	2
4				
5				

Books Recommended:

1	Maheswari and Paul RR	Banking theory law and practice
2	Sundaram and Varsheney	Banking theory law and practice
3	Tannans---	Banking law and practice in India
4	Aryasri	Banking and Financial system
5	M Y Khan	Indai Finaicial System
6	P.k.Gupta	Insurance and Risk Management
7	Vijay raghavan Iyengar	Introduction to Banking
8	Guru swamy BankingTheory and Practice TATA Mc Graw Hill	

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

Module – 20: CORPORATE ACCOUNTING - 1

Max. Marks: (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES:

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Accounting Standards

Accounting Standards - Need and importance - An overview of Indian Accounting Standards.

UNIT –II: Valuation of Goodwill and Shares

Valuation of Goodwill - Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method.

Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method.

UNIT –III : Company final accounts

Preparation of Final Accounts – Provisions relating to preparation of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers.

UNIT –IV: Issue of Bonus shares and Profits Prior to Incorporation.

Issue of bonus shares-Provisions of company's Act and SEBI guide lines. Acquisition of business and profits prior to incorporation. – Accounting treatment.

UNIT-V: Bank Accounts

Bank Accounts –Books and Registers to be maintained by banks-Slip system of posting-rebate on bills discounted-Schedule of advances –Non performing assets - Legal provisions relating to Preparation of final accounts – Preparation of bank final Accounts using computers

Additional Input under Autonomy:

Concept of Inflation Accounting

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Accounting Standards	--	--	1	1	1
2	Valuation of Shares	1	-	--	1	-
	Valuation of Goodwill		1			1
3	**Company final accounts**	1	--	-	1	1
4	Profits Prior to Incorporation	1			-	1
	Issue of Bonus shares		1		-	-
5	Bank Accounts (P&L a/c)	1			1	1

Suggested Readings:

- Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons
- Accountancy – III Tulasian Tata Mcgraw Hill Co
- Accountancy – III S.P. Jain & K.L Narang Kalyani Publishers
- Financial Accounting Dr.V.K.Goyal Excel Books
- Introduction to Accountancy T.S.Grewal S.Chand and CO
- Modern Accountancy Vol-II Haneef and Mukherjee Tata Mcgraw Hill co
- Advanced Accountancy Arulanandam Himalaya publishers
- Advanced Accountancy Vol-II S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
- Advanced Accountancy: Shukla and Grewal S.Chand & Co
- Advanced Accountancy: R.L. Gupta and Radhaswamy Sulthan Chand &sons
- Corporate Accounting Goyal VK Excel
- Corporate Accounting Verma KK Excel
- International Accounting Saudagaran Cengage

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM / B.A – V - SEMESTER SYLLABUS

Module – 17: Business Law - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objective: To make the students learn the basics of business laws and apply them in real life situations, like general contracts and the sale of goods act 1930

Unit –I: Contracts :

1. Agreement and Contract: Definition and meaning - Essentials of a valid contract – types of contracts.
2. Offer and Acceptance: Definition – Essentials of a valid offer and acceptance – communication and revocation of offer and acceptance.

Unit- II: Consideration and Consent

1. Consideration: Definition and importance – Essentials of valid consideration – the Doctrines of 'Stranger to Contract' and 'No Consideration – No Contract' – Capacity to contract – special rules regarding minor's agreements.
2. Consent: Free Consent – Flaw in Consent: Coercion – Undue influence – Fraud – Misrepresentation and Mistake.

Unit – III: Discharge of a Contract:

1. Legality of object and consideration:– illegal and immoral agreements – agreements opposed to public policy.
2. Agreements expressly declared to be void – wagering agreements and contingent contracts.
3. Discharge of a contract – various modes of discharge of a contract – performance of contracts.
4. Breach of a contract – types – remedies for breach of a contract

Unit IV. Sale of Goods Act- Introduction:

1. Contract of sale: Definition - features – definition of the term goods – types of goods – rules of transfer of property in goods – differences between sale and agreement to sell.

Unit V: Conditions and Warranties

1. Rights of an unpaid seller.

2. Conditions and warranties – meaning and distinction – express and implied conditions and warranties – sale by non-owners – auction sale.

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand

Kapoor ND: Company Law, Sultan Chand

Balachandran V: Business Law, Tata

Tulsian: Mercantile Law, Tata

Tulsian: Busiess Law, Tata

Gogna: A Text books of Business and Industrial Law, S.Chand

Pillai Bhagavathi: Business Law, S.Chand

Gogna : A Text Book of Mercantile Law, S. Chand

Gogna: A Text Book of Company Law, S. Chand

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	Contracts	1	2	1
2	Consideration and Consent	1	1	1
3	Discharge of a Contract	1	1	1
4	Sale of Goods Act- Introduction	1	1	1
5	Conditions and Warranties	1	1	1

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

Module – 19: COST AND MANAGEMENT ACCOUNTING - 1

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1.To impart conceptual knowledge of costing and management accounting

2. To train the students in finding the cost of products using different methods of costing

Unit-I: Introduction.

Cost Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Management Accounting: definitions, features, objectives, functions, scope, advantages and limitations. Relationship between cost, management and financial accounting Cost concepts-Cost classification -preparation of cost sheet. Relationship of costing department with other departments.

Unit-II: Material Cost.

Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ, ABC analysis. Issue of materials to production- pricing methods-FIFO, LIFO with base stock, average methods.

Unit-III: Labour Cost and Overheads

Labor cost: direct and indirect labor cost- methods of payment of wages including incentive plans –Halsey and Rowan plans, Tailors Piece Rate method.

Overheads: features, classification, methods of allocation and apportionment of overheads.

Unit-IV Job and Contract Costing.

Single or Output Costing, Job and contract costing: Features, costing process-computation of cost

Unit-V: Process Costing

Process Costing: features, treatment of normal and abnormal losses, preparation of process cost accounts (excluding equivalent products and inter process profits)

Additional Input under Autonomy:

Operating Costing

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Issue of Materials or payment of wages.
2. Problem from the topic of Allocation and Apportionment of overheads.
3. Problem from the topic of Quotation Cost sheet.
4. Problem from the topic of Process Costing

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers

2.Cost and Management Accounting M.N Arora Himalaya Publishing House

3.Cost accounting Dutt pearson Education

4.Management accounting Sarma and Gupta kalyani publishers

5. Management accounting S.P.Guptha S.Chnad co

6. Management accounting S.N.maheswari Sultan chand and sons

7.Cost Accounting Jawaharlal Tata Mcgraw Hill

8.Cost Accounting Theory and Practice Banerjee PHI

9. Management and Cost Accounting Drury Cengage

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Introduction**	-	-	1	1	1
2	**Material Cost- Pricing Methods**	1	-	-	-	1
	Material Cost- Ordering Levels		1			
3	**Labour Cost**	-	1	-	1	-
	Overheads	1	-	-	-	1
4	**Contract Costing**	1	-	-	-	1
	Job Costing		-		1	
5	**Process Costing**	1	-	-	1	1

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I

Module – 21: ADVANCED CORPORATE ACCOUNTING – 1

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: The Accounts of Holding Companies:

The nature of Holding Companies – Legal requirements for a holding company – Schedule VI of the Companies Act and subsidiary companies – Preparation of consolidated balance sheet – cancellation of investment account – minority interest – cost of acquiring control or goodwill – capital reserve – preference share capital in subsidiary companies – debentures in subsidiary companies (including problems related to the single subsidiary company).

Lab: Computation of Problems using Excel/Accounting packages.

Unit – II: Accounts of Electricity Companies (Double-Accounting System):

Meaning of double-account system – revenue account and net revenue account – capital account (receipts and expenditure on capital account) and general balance sheet. Replacement of an asset. Important provisions of Indian Electricity Act 1910, Electricity supply act 1948 and the Companies Act 1956 – Formats of relevant accounts – calculation of reasonable return and disposal of surplus. Preparation of net revenue account and Balance sheet (including problems).

Lab: Computation of Problems using Excel/Accounting packages.

Unit - III: Human Resource Accounting:

Definition, objectives, approaches, assumptions, advantages, limitations of HRA, HRA in India. Historical cost accounting, Replacement cost method, Opportunity cost method. (Theory only).

Suggested Readings:

1. R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	The Accounts of Holding Companies	1	--	1	2	1
2	Accounts of Electricity Companies (Double-Accounting System)	2	--	--	2	2
3	Human Resource Accounting	--	--	1	2	2

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-I: **Module – 22: PRINCIPLES OF MARKETING**

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: INTRODUCTION:

Nature and scope of marketing; Importance of Marketing as a business function, Importance of marketing in Indian context, Marketing concepts - Selling vs. marketing; Marketing mix; Marketing environment.

Lab: Preparation of reports on Marketing environment of different FMCG's or retailing companies.

UNIT - II: CONSUMER BEHAVIOUR AND MARKET SEGMENTATION:

Nature. scope and significance of consumer behavior, consumer behavior theories, Market segmentation concept and importance; Bases for market segmentation.

Lab: A report preparation on changing life styles in different walks of life creating demand for new companies / sectors.

UNIT - III: PRODUCT:

Concept of product, Types of products, New product development; packing role and function,

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products

UNIT - IV: BRAND:

After sales services, Product life cycle concept.

Lab: Stages of product life cycle (PLC) for different companies – NPD stages for imaginary products.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**INTRODUCTION**	1	2	1
2	**CONSUMER BEHAVIOUR AND MARKET SEGMENTATION**	2	2	1
3	**PRODUCT**	1	1	1
4	**BRAND**	1	1	2

SUGGESTED READINGS:

1. Philip Kotler: Marketing, Prentice Hall
2. William M. Pride and O.C Ferrell: Marketing; Houghton - Mafflin Boston
3. Stanton W.J., Etzel Michale. J.d Walker Bruce.J; Fundamentals of Marketing, McGraw H
4. Lamb Charless W., Hair Joseph E., and McDaniala Carl: Principles of Marketing; South Western Publishing, Cincinnati, Ohio.
5. Cravens David W, Hills Genrald E., Woodruff Robert B : Marketing Management: Richard D. Irwin, Homewood, Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice- Hall of lndia,
7. Fulmer RM : The New Marketing McMillan, New York
8. McCarthy J.E. Basic Marketing - a Managerial Approach; McGraw Hill, New York.
9. Cundiff, Edward W., and Stiu RR Basic Marketing - Concepts, Decisions and Strategties; Prentice Hall, New Delhi
10. Bushkirk, Richard H : Principles of Marketing; Dryden Pren, Illinois.
11. S.A.Sherlekhar : Marketing Management, Himalaya.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE - II

Module – 23: MANAGEMENT ACCOUNTING - 1

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Introduction:

Definition, Scope, Objectives of Management Accounting - Management Accounting Vs. Financial Accounting and Cost Accounting. Installation of Management Accounting System - Role of Management Accountant - Controller functions - Management Information System (Theory only).

UNIT-II: Financial Statement Analysis:

Meaning, types, uses and limitations of ratio analysis, Computation and interpretation of accounting ratios; Liquidity, Profitability, Activity and Solvency ratios and preparation of Balance Sheet (including problems)

UNIT-III: Ratio Analysis:

Meaning, classification, advantages and limitations of ratio analysis. Computation and interpretation of accounting ratios: Liquidity, Profitability, Activity and Solvency ratios (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Ratio Analysis.

Working Capital Management: Nature – determinants of Working Capital Management – Estimation of working capital requirements - Management of Inventory, Management of Debtors, Cash budgets

Additional Input under Autonomy:

C-V-P Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Financial Statement Analysis.
2. Problem from the topic of Financial Statement Analysis
3. Problem from the topic of Ratio Analysis
4. Problem from the topic of Introduction(Theory)
5. Problem from the topic of Ratio (Theory)

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Introduction**	-	-	1	2	2
2	**Financial Statement Analysis**	1	1	1	-	1
3	**Ratio Analysis**	1	1	-	1	1
	Working Capital Management	1	-	-	1	1

Suggested Readings:

1. Introduction to Management Accounting:Charles T, Horn Gaxy L.Sundem
2. Tools and Technique of Management Accounting: N.Vinayakam
3. Management Accounting: S.P.Gupta
4. Management Accounting: Manmohan & Goyal
5. Management Accounting: V.Krishna Kumar
6. Practical problems in Management Accounting: Dr.Kulsreshtha and Gupta
7. Management Accounting: J.R.Monga & M.Prabhakar Reddy
8. Management Accountancy: H. Premraja, Srihamsarala
9. Management Accountancy: Sudhindra Bhat.
10. Management Accounting: Bhattacharya
11. Management Accounting: Sharma Shashi K. Gupta

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-II:

Module – 24: RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: RURAL MARKETING:

Definition of rural area, Importance of rural marketing, nature and scope of rural marketing, size of rural market, Distinction between Rural and Urban Marketing.

Lab: A report preparation on the transformation for rural markets in India.

UNIT - II: RURAL MARKETING ENVIRONMENT:

Geographical, economic, Scio-cultural and infrastructural factors. Factors influencing Rural marketing operations.

Lab: Preparation of the report on invisible forces influencing the rural markets in India.

UNIT - III: AWARENESS IN RURAL MARKETING:

Characteristics, product and brand - Attitude and behavior, Buying patterns and influences;

Lab: A small survey conducted and report be prepared about the level of Brand Awareness in rural areas about Indian and MNC's branded products

UNIT - IV: ATTITUDE OF RURAL CONSUMERS:

Attitude and behavior of rural Consumers, Buying patterns and influences.

Lab: A survey conducted on attitude and behavior and influence on buying of products of rural product consumers

UNIT - V: RURAL CONSUMER :

Segmenting rural markets.

Lab: A survey report on effect of segmenting rural markets

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**RURAL MARKETING**	1	2	1
2	**RURAL MARKETING ENVIRONMENT**	1	1	1
3	**AWARENESS IN RURAL MARKETING**	1	1	1
4	**ATTITUDE OF RURAL CONSUMERS**	1	1	1
5.	**RURAL CONSUMER**	1	1	1

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

Module –28: CORPORATE ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

OBJECTIVES :
1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers
3. To enable the students to prepare financial statements of Insurance and Bank Companies..

UNIT-I: Amalgamation

Amalgamation -- In the nature of merger and purchase – Calculation of purchase consideration -Treatment in the books of transferor and transferee (as per Accounting Standard 14, excluding inter- company holdings) Recording of transactions relating to mergers using computers.

UNIT-II: Internal Reconstruction

Internal Reconstruction - Accounting Treatment– Preparation of final statements after reconstruction.. Recording of transactions relating to Internal Reconstruction using computers

UNIT-III: Accounts of Insurance Companies

Life Insurance Companies –Preparation of Revenue Account, Proft and loss account , Balance Sheet and Valuation Balance Sheet.

General insurance Preparation of final accounts-with special reference to fire &marine insurance only.

Additional Input under Autonomy:

Liquidation procedure

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Amalgamation	1		1	1	2
2	Internal Reconstruction	1	1		1	1
3	Accounts of Insurance Companies- Life Insurance (Revenue a/c)	1	1		1	2
4	Accounts of Insurance Companies- General Insurance (Revenue a/c)	1			1	
5						

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III B. COM / B.A – VI - SEMESTER SYLLABUS

Module – 25: Business Law - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objective: To Educate the Students about the Consumer Protection Act 1986, I.T. Act 2000 and the Company Law

Unit I: Consumer Protection Act 1986

Definitions of the terms consumer, unfair trade practices, restrictive trade practices and complainant – rights of consumers – consumer protection councils – consumer redressal agencies – penalties for violation.

Unit II: Intellectual Property Rights

Intellectual Property Rights: Meaning - Need and objectives-Meaning of the terms industrial property, literary property, copy right, patents, trade marks, trade names, trade secrets, industrial designs, geographical indications.

Unit III: Information Technology Act 2000

Aims and objectives – a brief overview of the Act.

Unit IV: Company Law :

1. Doctrine of ultra vires and its effects – doctrine of constructive notice – doctrine of indoor management – exceptions.
2. Management of companies – directors – qualifications – disqualifications – appointment – removal – rights and duties – company meetings and resolutions - appointment of a company secretary.

Unit V: Winding up of Company

Winding up of companies – various modes – compulsory winding up- powers and duties of official liquidator – members and creditors voluntary winding up – winding up subject to the supervision of the court –dissolution.

Suggested Books:

Kapoor ND: Mercentile Law, Sultan Chand

Kapoor ND: Company Law, Sultan Chand

Balachandran V: Business Law, Tata

Tulsian: Mercantile Law, Tata

Tulsian: Busiess Law, Tata

Gogna: A Text books of Business and Industrial Law, S.Chand

Pillai Bhagavathi: Business Law, S.Chand

Gogna : A Text Book of Mercantile Law, S. Chand

Gogna: A Text Book of Company Law, S. Chand

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	Consumer Protection Act 1986	1	1	1
2	Intellectual Property Rights	1	1	1
3	Information Technology Act 2000	1	1	1
4	Company Law	1	2	1
5	Winding up of Company	1	1	1

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

Module – 27:COST AND MANAGEMENT ACCOUNTING - 2

Max. Marks : (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1. To equip basic skills of analysis of financial information to be useful to the management

Unit-I: Financial Statement Analysis

Financial Statement Analysis – Meaning- Features- Objectives-Advantages - Limitations- Different Types of Financial Statements – Preparation and Presentation of Financial Statement – Comparative Statements – Common size Statements and Trend Analysis.

Unit-II: Marginal Costing

Marginal Costing – Concept of Marginal Costing – Features-Advantages and Limitations – Cost Volume Profit Analysis – Break- Even-Point- Decision Making.

Unit-III: Budgetary Control

Budgetary Control – Concepts of Budgets – Objectives – Advantages, Limitations and Essentials of Budgets and Budgetary Control – Classification of Budgets – Flexible Budgets – Control Budgets – Organization of Budgetary Control

Unit-IV: Standard Costing

Standard Costing – Meaning – Advantages and Limitations – Preliminaries for Establishing a system of Standard Costing – Variance Analysis – Material Variance – Labour Variance

Unit-V: Funds Flow and Cash Flow Analysis

Funds flow Analysis- meaning of Fund – Flow of Fund – Objectives – Difference between Funds Flow Statement and Income Statement - Transactions that will not Affect the Flow of Fund – Schedules of Changes in Working Capital – Funds from Operation – Funds Flow Statement.

Cash flow Analysis (as per AS-3)- Meaning of Cash Flow Statement – Usefulness of Cash Flow Statement – Limitations of Cash Flow Statement – Preparation of Cash Flow Statement

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fixed, Flexible Budget
2. Problem from the topic of Break Even Analysis
3. Problem from the topic of Funds Flow Analysis
4. Problem from the topic of Ratio Analysis

Suggested Readings:

1.Cost and Management Accounting Jain and Narang Kalyani Publishers

2.Cost and Management Accounting M.N Arora Himalaya Publishing House

3.Cost accounting Dutt pearson Education

4.Management accounting Sarma and Gupta kalyani publishers

5. Management accounting S.P.Guptha S.Chnad co

6. Management accounting S.N.maheswari Sultan chand and sons

7.Cost Accounting Jawaharlal Tata Mcgraw Hill

8.Cost Accounting Theory and Practice Banerjee PHI

9. Management and Cost Accounting Drury Cengage

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Financial Statement Analysis**	1	1	-	-	1
2	**Marginal Costing**	1	-	-	1	1
3	**Budgetary Control**	1		-	1	-
4	**Standard Costing**	1	-	-	-	1
5	**Funds Flow Analysis**	-	1	1	-	1
	Cash Flow Analysis	-		-	2	1

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-III

Module – 29:: ADVANCED CORPORATE ACCOUNTING - 2

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Unit – I: Accounting for price level changes (Inflation Accounting):

Introduction, limitations of historical cost accounting, methods of accounting for price level changes - preparation of income statement and balance sheet under current cost accounting (CCA). (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – II: Liquidation of companies:

Scope, contributory preferential payments, preference dividend. Statement of affairs and deficiency/surplus account. Liquidators final statement of account, liquidators remuneration, receiver for debenture holders, list 'B' contributories (including problems).

Lab: Computation of Problems using Excel/ Accounting packages.

Unit – III: Social Responsibility Accounting:

Meaning, Nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (Theory only)

Suggested Readings:

1. . R.L.Gupta, M.Radha swamy : Corporate Accounting, Sultan chand
2. Jain & Narang : Corporate Accounting, Kalyani publications
3. S.M.Shukla : Advanced Accounting, Sahitya Bhavan.

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Accounting for price level changes (Inflation Accounting)	1	--	1	2	1
2	Liquidation of companies	2	--	--	2	2
3	Social Responsibility Accounting	--	--	1	2	2

Note: Main Problem/ Theory carrying 15 Marks each which are come under Section – 'A' may be set as stated below:

Unit-I: One Essay Question - The concepts and Limitations of Historical Cost Accounting or Methods of Accounting for price level changes..

One Problem – Inflation Accounting under CPA method only.

Unit – II: First Problem on preparation of Liquidators Final Statement. .

Second Problem on preparation of Statement Affairs and Deficiency / Surplus Account.

Unit – III: One Essay Question from these topics:

1. Need and Objectives of Social Accounting.
2. Social Cost and Social Benefits.
3. Indications of Social Performance

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-III:

Module – 30: PRODUCT DEVELOPMENT AND MARKETING

This Elective group for B.Com. General students only

Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRICE:

Importance, price as marketing mix; Factors influencing price determination of a product / service; Discount and rebates.

Lab: Report on factors influencing price fixation for different products in selected sectors in the recessionary period.

UNIT - II: DISTRIBUTION CHANNELS:

Distribution channels - concept and role; types of distribution channels; Factors affecting choice of distribution channel; Retailer and wholesaler ;

UNIT - III: PHYSICAL DISTRIBUTION:

Physical distribution of goods, Transportation ; Warehousing; Inventory control ; Order Processing.

UNIT - IV: PROMOTION:

Methods of promotion; Optimum promotion mix; Advertising media - their relative merits and limitations.

Lab: Report on promotional mix for different FMCG products.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**PRICE**	1	2	1
2	**DISTRIBUTION CHANNELS**	2	1	1
3	**PHYSICAL DISTRIBUTION**	1	1	2
4	**PROMOTION**	1	2	1
5.				

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE - IV

Module – 31: MANAGEMENT ACCOUNTING - II

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT-I: Funds Flow Analyses:

Concepts of fund and fund flow – Preparation of funds flow statement.

UNIT-II: Concepts of Cash and Cash Flow:

Preparation of cash flow statement as per Accounting Standard No.3 – Uses and limitations of funds flow and cash flow analyses (including problems).

Lab: Using Excel/ Accounting packages computation of problems on Cash Flow and fund flow statements.

UNIT-III: Capital Budgeting:

Meaning and importance of capital budgeting - Process of capital budgeting – Methods of capital budgeting: Traditional and time- adjusted methods (including problems).

Additional Input under Autonomy:

Variance Analysis

Main problem carrying 15 Marks each which are come under Section – I may be set as stated below.

1. Problem from the topic of Fund Flow Analysis.
2. Problem from the topic of Cash Flow Analysis
3. Problem from the topic of Budgetary Control
4. Problem from the topic of Capital Budgeting
5. Theory from Unit I and II

Blue Print:						
Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	**Funds Flow Analyses**	1	1	1	1	2
2	**Concepts of Cash and Cash Flow**	1	1		1	1
3	**Capital Budgeting**	1	1	1	1	2

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI - SEMESTER SYLLABUS

ELECTIVE-IV:

Module – 32: PRACTICAL RURAL MARKETING

This Elective group for B.Com. General & B.Com Computer Application students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT - I: PRODUCT PLANNING:

Product Planning for rural marketing, quality and size; packaging and branding decisions, pricing decisions.

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - II: PACKING AND PROMOTION:

Packing and branding decisions, Pricing decisions, Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

UNIT - III: BRANDING :

Branding Decisions

UNIT - IV: PRICING :

Pricing Decisions

Lab: Exercises on redesigning the new products by keeping requirements of rural markets.

UNIT - V: PROMOTION DISTRIBUTION IN RURAL MARKETS:

Media and Advertising copy decisions; Distribution channels and Logistics in Rural Markets.

Lab: A report reparation on logistics management for rural market on existing products and markets

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	PRODUCT PLANNING	1	1	1
2	PACKING AND PROMOTION	1	1	1
3	BRANDING	1	1	1
4	PRICING	1	2	1
5.	PROMOTION DISTRIBUTION IN RURAL MARKETS	1	1	1

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER- I

MODULE – 7 (CORE): Fundamentals of Computers

Hours – 5, Credits : 4

Unit I: Introduction to Computers - Input and Output Devices

Unit II: Computer Memory and Processors - Number Systems and Computer Codes

Unit III: Computer Software - Operating Systems - Database Systems

Unit IV: Introduction to Windows, Desktop, File, Folder, My Computer, My documents, Recycle bin, Internet Explorer, Windows Explorer. **Office Automation**: Organization of an Office, Nature of office work, Need for office automation. **Document Preparation:** Word processing, Various office equipment that help in document preparation, Document storage and retrieval.

Unit V: Word Basics: Starting word, Creating a new document, Opening preexisting document, P a r t s of a word window, Typing text, Selecting text, Deleting text, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut, Copy, Paste – Printing.

Formatting Your Text and Documents: Auto format, Line spacing, Margins, Borders and Shading. **Working with Headers and Footers**: Definition of headers and footers, creating basicheaders and footers, creating different headers and footers for odd and even pages. **Tables:** Creating a simple table, Creating a table using the table menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width. **Graphics**: Importing graphics, Clipart, Insert picture, Clip Art Gallery, using word's drawing features, drawing objects, text in drawing.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 8 M	Short 4 M	
1	Introduction to Computers	2	1	
2	Computer Memory and Processors	2	1	
3	Computer Software	2	2	
4	Introduction to Windows	2	2	
5	Word Basics	2	2	

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.COM. PROGRAMME - (General & Vocational) SYLLABUS EFFECTIVE FROM THE ADMITTED BATCH OF 2016-2017

FIRST YEAR – SEMESTER- II

MODULE – 7 (CORE): OFFICE AUTOMATION TOOL

Hours – 6, Credits : 4

UNIT I

Introduction to Windows, Desktop, File, Folder, My Computer, My documents, Recycle bin, Internet Explorer, Windows Explorer

Office Automation: Organization of an Office, Nature of Office work , The definition and need for office automation. Document Preparation : Word processing , Various office equipment that help in document preparation, Introduction to document storage and retrieval.

UNIT II

Word Basics: Starting word, Creating a new document, Opening preexisting document, The parts of a word window, Typing text, Selecting text, Deleting text, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut, Copy, Paste – Printing.

Formatting Your Text and Documents: Auto format, Line spacing, Margins, Borders and Shading.

Working with Headers and Footers: Definition of headers and footers, creating basic headers and footers, creating different headers and footers for odd and even pages.

Tables: Creating a simple table, Creating a table using the table menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width .

Graphics: Importing graphics, Clipart, Insert picture, Clip Art Gallery, using word's drawing features, drawing objects, text in drawing.

Templates: Template types, using templates, exploring templates, modifying templates.

Macros: Macro, Recording macros, editing macros, running a macro.

Mail Merge: Mail Merge concept, Main document, data sources, merging data source and main document. Overview of word menu options word basic tool bar.

UNIT III

MS Power Point: Introduction, Building a presentation, Outlining the presentation, Creating the text and chart slides, Formatting charts, customizing a presentation, drawing on slides, Creating slide shows

Creating Presentations : Using auto content wizard, Using blank presentation option, Using design template option, Adding slides, Deleting a slide, Importing Images from the outside world, Drawing in power point, Transition and build effects, Deleting a slide, Numbering a slide, Saving presentation, Closing presentation, Printing presentation elements.

UNIT IV

Excel Basics: Overview of Excel features, Getting started, Creating a new worksheet, Selecting cells, Entering and editing text, Entering and editing Numbers, entering and editing Formulas, Referencing cells, moving cells, copying cells, sorting cell data, inserting rows, inserting columns, Inserting cells, Deleting parts of a worksheet, clearing parts of a worksheet.

Formatting: Page setup, changing column widths and Row heights, auto format, changing font sizes and Attributes, centering text across columns, using border buttons and Commands, changing colors and shading, hiding rows and columns.

Introduction to functions: Parts of a functions, Functions Requiring Add-ins, The Function Wizard. Examples functions by category: Data and time functions, Engineering functions, Math and Trig functions, Statistical functions, Text functions.

Excel Charts: Chart parts and terminology, Instant charts with the chard wizard, creation of different types of charts, printing charts, deleting charts – Linking in Excel.

Excel Graphics: Creating and placing graphic objects, Resizing Graphics, Drawing Lines and Shapes

UNIT V: MS Access

Creating a Simple Database and Tables: Creating a contact Databases with the wiz, The Access Table Wizard, Creating Database Tables without the wizard, Field Names, Data Types and Properties, Adding, deleting fields, renaming the fields in a table.

Forms: The Form Wizard, Saving Forms, Modifying Forms

Entering and Editing Data: Adding Records, Duplicating previous entries without Retyping, Undo, Correcting Entries, Global Replacements, Moving from Record to Record in a table.

Finding, Sorting and Displaying Data: Queries and Dynasets, Creating and using select queries, Returning to the Query Design, Multilevel Sorts, Finding incomplete matches, Showing All Records after a Query, Saving Queries, Crosstab Queries.

Printing Reports: Simple table, Form and Database printing, Defining advanced Reports, Manual Reporting, properties in Reports, Saving Reports Relational Databases: Flat Versus Relational, Types of Relationships, Viewing Relationships, Defining and Redefining Relationships, Creating and Deleting Relationships.

MS Outlook: Introduction, Reading and Sending messages, managing the mail box, keeping a contacts list, Scheduling tasks and Meetings.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 8 M	Short 4 M	
1	Introduction to Windows	2	2	
2	**Word Basics**	2	2	
3	**MS Power Point**	2	2	
4	**Excel Basics**	2	1	
5	**MS Access**	2	1	

GOVERNMENT COLLEGE(A),RJAHMUNDRY

Module – 14 : Structured Programming Through 'C' - 1

B.Com II Year Computers: : III Semester Syllabus

UNIT-I : Problems solving and algorithm :

The problem solving aspect- Top down design-step wise refinements- implementation of algorithms-efficiency of algorithms-Desirable program characteristics.

UNIT-II; Exchange of Two variables ,summation of set numbers – factorial computation –Generation of Fibonacci series-reversing of digits of integers-GCD-Generation of Prime Numbers.

UNIT-III : 'C' Programming :

Basics : Importance of C language-Structures of C language-variables-constants –Expressions-operators ,simple I/O functions control statements-storage classes. Programs using all the operators.

UNIT-IV :Functions : Concepts of functions-parameter passing- recursion-comparison of interaction and recursion-scope and extent of variables-Programs using recursive and non recursive functions.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	**Problems solving and algorithm**	1	2	1
2	Exchange of Two variables	1	1	1
3	'C' Programming	2	2	2
4	Functions	1	1	1
5				

GOVERNMENT COLLEGE(A),RJAHMUNDRY

Module – 20 : Structured Programming Through 'C' - 2

B.Com II Year Computers : : VI Semester Syllabus

UNIT-I : Arrays and Strings: Single and multi dimensional arrays ,character arrays as a string-functions of strings. Programs using arrays and for string manipulation.

UNIT-II : Pointers : Definition and usage of pointers-address operator pointer variables. Problems using pointers.

UNIT-III : Structures and Unions : Declaring and using Structures –operations on structures –arrays of structures-user defined data types ,passing structures to functions. Unions , difference between structures and unions scope of unions.

Data files : operating and closing a file creating a data file ,processing a data file.

Blue Print				
Units	Name of the Topic	Theory		
		Essay 15 M	Short 5 M	Very Short 2 M
1	Arrays and Strings	2	2	2
2	Pointers	1	2	1
3	Structures and Unions	2	2	2
4				
5				

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – V - SEMESTER SYLLABUS

ELECTIVE-III:

Module - 27: DATABASE MANAGEMENT SYSTEM - 1

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

Paper-11

DATABASE MANAGEMENT SYSTEM

UNIT- I :

Database Systems – Evolution of File Oriented Systems - Database Models – Database System Components – Database Systems in the Organization – Data sharing Strategic

UNIT- II :

Database Planning - Database and Management Controls – Risks and Costs and Databases – Database development

UNIT- III :

Database design – Principles of Conceptual Database Design – Conceptual Data Models – Aggregation – Modeling conceptual Objects vs. Physical Objects

UNIT- IV :

Relational Data Model – Fundamental Concepts – Normalization – Transforming a Conceptual Model – Relational Model – Relational Database Implementation – Relational Algebra and Calculus.

Prescribed Text Books:

- Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson, 2007.

Reference Text Books:

1. Elimasri/Navathe, Fifth Edition, Fundamentals of Database Systems , Pearson Addison Wesley 2007.
2. Raman A Mata – Toledo/ PanlineK.Cushman, Schaum's Outline series, Database Management Systems, Tata McGraw Hill, 2007

3. C J Date, A.Kannan, S.Swamynathan, Eight Edition, An Introduction to Database Systems, Pearson Education (2006).

3. 4. Michel Kifer, Arthur Bernstein, Philip M. Lewis, Prabin K. Pani Graphi, Database Systems: An application oriented Approach, second edition, Pearson education, (2008).
4. 5. Atul Kahate, Introduction to Database Management Systems, Pearson Education, (2006).
5. 6. Paneer Selvem, Introduction to Database Systems.

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM(VOC) – V - SEMESTER SYLLABUS

ELECTIVE-IV:

Module -28 : OBJECT ORIENTED PROGRAMMING IN JAVA - 1

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT- I :

Fundamentals of Object Oriented Programming – Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP

UNIT- II :

Java Evolution – Java Features – How java differs from C and C++ - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements – Java Environment – Overview of Java Language – Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments

UNIT- III :

Constants – Variables and Data types – Declaration of Variables – Giving Values to variables – Scope of Variables – Symbolic Constants – Type Casting

UNIT- IV :

Operators and Expressions – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity

Prescribed Text Books:

1. E.Balagurusamy, Programming with Java.
2. Herbert Schildt, Java Complete Reference

Reference Text Books:

1. Kathy Sierra and Bert.Bates, Your Brain on Java
2. Chris Batess, Web Programming Building Internet Applications, Second Edition, Wiley, 2007.
3. Bhave, Programming with Java

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM(VOC) – V - SEMESTER SYLLABUS

ELECTIVE-IV:

Module -28 : OBJECT ORIENTED PROGRAMMING IN JAVA - 1

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT- I :

Fundamentals of Object Oriented Programming – Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP

UNIT- II :

Java Evolution – Java Features – How java differs from C and C++ - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements – Java Environment – Overview of Java Language – Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments

UNIT- III :

Constants – Variables and Data types – Declaration of Variables – Giving Values to variables – Scope of Variables – Symbolic Constants – Type Casting

UNIT- IV :

Operators and Expressions – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity

Prescribed Text Books:

3. E.Balagurusamy, Programming with Java.
4. Herbert Schildt, Java Complete Reference

Reference Text Books:

4. Kathy Sierra and Bert.Bates, Your Brain on Java
5. Chris Batess, Web Programming Building Internet Applications, Second Edition, Wiley, 2007.
6. Bhave, Programming with Java

GOVERNMENT COLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B. COM – VI- SEMESTER SYLLABUS

ELECTIVE-IV:

Module -28 : OBJECT ORIENTED PROGRAMMING IN JAVA - 2

This Elective group for B.Com Computer Application (Vocational) students only

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Time: 3 Marks: 100 (75+25)

P.P.W: 5 (4+1)

UNIT- I :

Decision Making and Branching – Decision Making with IF statement – Simple If Statement – If-else Statement – Nested If else Statement –the Else if Ladder – The switch Statement - The ?: operator

UNIT- II :

Decision Making and Looping – The while statement – The do statement – The for statement – Jumps in Loops

UNIT- III :

Class – Objects and Methods – Defining a Class – Fields Declaration –Methods Declaration – Creating Objects – Accessing class members – Constructors

UNIT- IV :

Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility Control.

Prescribed Text Books:

1. E.Balagurusamy, Programming with Java.
2. Herbert Schildt, Java Complete Reference

Reference Text Books:

1. Kathy Sierra and Bert.Bates, Your Brain on Java
2. Chris Batess, Web Programming Building Internet Applications, Second Edition, Wiley, 2007.
3. Bhave, Programming with Java

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
I B.Com. (General/Computers) SYLLABUS
((For Admitted Batch 2017-18)
SEMESTER- I

DSC 1A - ACCOUNTING - I

Hours – 5, Credits: 4

Objectives:
To make the students acquire the conceptual knowledge of accounting
To equip the students with the knowledge of accounting process and preparation of final accounts
To develop the skills of recording financial transactions and preparation of reports using computers

Unit-I – Introduction to Accounting & Subsidiary Books
Need for Accounting – Definition – Objectives, Advantages – Book keeping and accounting – Accounting concepts and conventions - Accounting Cycle - Classification of Accounts and its rules - Double Entry Book-keeping - Journalization - Posting to Ledgers, Balancing of ledger Accounts (problems).
Subsidiary Books: Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty cash Book (Problems).

Unit-II: Trail Balance and Rectification of Errors
Preparation of Trail balance - Errors – Meaning – Types of Errors – Rectification of Errors (Problems)

Unit-III: **Bank Reconciliation Statement**
Need for bank reconciliation - Reasons for difference between Cash Book and Pass Book Balances - Preparation of Bank Reconciliation Statement - Problems on both favorable and unfavourable balances.

Unit – IV: Bills of Exchange
Meaning of Bill – Features of bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (Problems)

Unit -V: Final Accounts
Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with adjustments (Problems).
Additional input under autonomy:
Recording financial transactions and preparation of Reports using MS Excel
Reference Books

1. T.S.Reddy & A. Murthy, Financial Accounting, Margham Publications
2. R L Gupta & V. K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
4. Tulasian, Accountancy -I, Tata McGraw Hill Co.
5. V.K.Goyal, Financial Accounting, Excel Books
6. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications

Blue Print					
Units	**Name of the Topic**	**Problem**		**Theory**	
		Essay 8 M	**Short 4 M**	**Essay 8 M**	**Short 4 M**
1	Introduction to Accounting	1	1	1	1
	Subsidiary Books	1	1	-	1
2	Trial Balance & Rectification of Errors	1	1		1
3	Bank Reconciliation Statement	2	-	-	1
4	Bills of Exchange	1			
5	Final Accounts	2	-	-	1

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
((For Admitted Batch 2017-18)
I B.Com (General/Computers)
I Semester Syllabus

DSC 2A - Business Organization and Management

Hours per week – 5, Credits: 4

Objectives:

To understand the basic concepts and functions of business organisation and management

Unit – I Introduction:

Concepts of Business, Trade, Industry and Commerce – Features of Business – Trade – Classification of Trade – Aids to Trade – Industry – Classification-Relationship among Trade, Industry and Commerce.

Unit-II Forms of Business Organisation

Forms of Business Organisation – Sole Proprietorship, Joint - Hindu Undivided Family firm- Partnership firm - Joint Stock Company – Cooperative Society; Choice of form of organization – Government – Business Interface; Public Sector Enterprises (PSEs) – Multinational Corporations (MNCs)

Unit –III Joint Stock Company

Company Incorporation – Preparation of important Documents for incorporation of Company- Memorandum of Association – Articles of Association – Difference Between Memorandum and Articles of Association – Prospectus and its contents – Companies Act, 2013.

Unit – IV- Management and Organisation

Process of Management – Planning – Decision Making – Organising –Line and Staff organisation – Staffing, Directing and Controlling – Delegation and Decentralisation of Authority.

Unit – V – Functional Areas of Management

Production – Manufacturing – Make in India – Marketing Management: Marketing Concept – Marketing Mix – Product Life Cycle – Pricing Policies and Practices – Financial Management: Objectives, Sources and Forms of Funds – Human Resource Management: Functions.

Additional Input:

Limited Liability partnership. One person Company Management Information system concept and functional information systems.

Suggested Readings:

1. Kaul, V.K., Business Organization and Management, Pearson Education, New

Delhi.
2. Chhabra, T.N., Business Organization and Management, Sun India Publications, New Delhi.
3. Koontz and Weihrich, Essentials of Management, McGraw Hill Education.
4. Basu, C. R., Business Organization and Management, McGraw Hill Education.
5. Jim, Barry, John Chandler, Heather Clark; Organization and Management, Cengage Learning.
6. Allen, L.A., Management and Organization; McGraw Hill, New York.
7. R.K.Sharma and Shashi K Gupta, Business Organization - Kalyani Publications.
8. C.B.Guptha, Industrial Organization and Management, Sultan Chand.
9. Y.K.Bushan, Business organization and Management, Sultan Chand.
10. Sherlekar, Business Organization and Management, Himalaya Publications.

Blue Print			
Units	**Name of the Unit**	**Essays**	**Short Answer**
1	Introduction	2	2
2	Forms of Business Organisation	2	1
3	Joint Stock Company	2	2
4	Management and Organisation	2	1
5	Functional Areas of Management	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
(For Admitted Batch 2017-18)
I B.Com (Computers)
I Semester Syllabus

DSC 3A - COMPUTER FUNDAMENTALS AND PHOTOSHOP

Hours per week – 5, Credits: 4

Course Outcome

To explore basic knowledge on computers and Photoshop's beauty from the practical to the painterly artistic and to understand how Photoshop will help you create your own successful images

UNIT-I: Introduction to computers: characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems :binary, hexa and octal numbering system- **Windows basics**: desktop, start menu, icons.

UNIT-II: Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory.

Unit–III: Introduction to Adobe Photoshop: Getting started with Photoshop, creating and saving a document in Photoshop, page layout and back ground, Photoshop program window-title bar, menu bar, option bar, image window, image title bar, status bar, ruler, pallets, tool box, screen modes, saving files, reverting files, closing files.

Unit –IV: Images: working with images, image size and resolution ,image editing, color modes and adjustments , Zooming & Panning an Image, Rulers, Guides & Grids-
Working with tool box: Practice Sessions.

Unit-V: Layers: Working with layers- layer styles- opacity-adjustment layers
Filters: The filter menu, Working with filters- Editing your photo shoot, presentation –how to create adds, artistic filter, blur filter, brush store filter, distort filters, noise filters, pixelate filters, light effects, difference clouds, sharpen filters, printing.

Additional Inputs under Autonomy:
Cropping & Straightening an Image, Image Backgrounds, Making selections.

Reference Books:

1. Fundamentals of Computers by Reema Thareja from Oxford University Press
2. Adobe Photoshop Class Room in a Book by Adobe Creative Team.

3. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Color Grading & Graphic...19 February 2016 by David Maxwell

Practice Sessions: working with pen tool, save and load selection-working with erasers-working with text and brushes-Colour manipulations: colour modes- Levels – Curves - Seeing Colour accurately - Patch tool – Cropping-Reading your palettes - Dust and scratches- Advanced Retouching- smoothing skin

Blue Print			
Units	**Name of the Topic**	**Short 4 M**	**Essay 8 M**
I	Introduction to Computers	1	2
II	Input and output devices	1	2
III	Introduction to Adobe Photoshop	2	2
IV	Images & Working with tool box	2	2
V	Layers & Filters	2	2

Photo Shop Lab

1. Create your Visiting card
2. Create Cover page for any text book
3. Create a Paper add for advertising of any commercial agency
4. Design a Passport photo
5. Create a Pamphlet for any program to be conducted by an organization
6. Create Broacher for you college
7. Create Titles for any forthcoming film
8. Custom shapes creation
9. Create a Web template for your college
10. Convert color photo to black and white photo
11. Enhance and reduce the given Image size
12. Background changes
13. Design Box package cover
14. Design Texture and patterns
15. Filter effects & Eraser effects

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
I B.Com. (General/Computers) SYLLABUS
((For Admitted Batch 2017-18)
SEMESTER- II

DSC 1B - ACCOUNTING - II

Hours – 5, Credits: 4

Objectives :

To make the students acquire the conceptual knowledge of accounting

To equip the students with the knowledge of accounting process and preparation of final accounts.

UNIT-I Depreciation

Meaning of Depreciation – Methods of depreciation: Straight line – Written down value - Sum of the Years' Digits – Annuity and Depletion (Problems).

UNIT-II Provisions and Reserves

Meaning – Provision vs. Reserve – Preparation of Bad debts Account – Provision for Bad and doubtful debts – Provision for Discount on Debtors – Provision for discount on creditors - Repairs and Renewals Reserve A/c (Problems).

UNIT- III Consignment Accounts

Consignment – Features - Pro-forma invoice – Account sales Del-credre Commission – Accounting treatment in the books of the consignor and the consignee – Valuation of closing stock – Normal and abnormal Losses (Problems)

UNIT- IV: Joint Venture Accounts

Joint Venture – Features – Difference between joint venture and consignment, Accounting Procedure – Methods of keeping records (Problems)

UNIT – V: Non-trading Organizations

Differences between trade and non-trading organizations in Accounting Treatment – Income and Expenditure Account and Receipt and Payments Account with Balance Sheet (Problems).

Additional Input:

Average due date

Suggested Books:

1. R.L. Gupta & V.K. Gupta, Principles and Practice of Accounting, Sultan Chand
2. T. S. Reddy and A. Murthy - Financial Accounting, Margham Publications.
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
4. Tulsan, Accountancy-I, Tata McGraw Hill Co.
5. V.K. Goyal, Financial Accounting, Excel Books

6. T.S. Grewal, Introduction to Accountancy, Sultan Chand & Co.
7. Haneef and Mukherjee, Accountancy-I, Tata McGraw Hill
8. Arulanandam, Advanced Accountancy, Himalaya Publishers
9. S.N.Maheshwari & V.L.Maheswari, Advanced Accountancy-I, Vikas Publishers.

Blue Print					
Units	Name of the Topic	Problem		Theory	
		Essay 8 M	Short 4 M	Essay 8 M	Short 4 M
1	Depreciation	1	1	1	1
2	Provisions and Reserves	1		1	1
3	Consignment Accounts	2		-	2
4	Joint Venture Accounts	1	1	1	1
5	Non-trading organizations	1		1	1

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
(For Admitted Batch 2017-18)
I B.Com (General), II Semester Syllabus
DSC 2B - Business Environment

Hours per week – 5, Credits: 4

Objectives

To understand the environmental factors affecting business and Economic and Monetary policies influence on business decision making.

Unit – I: Overview of Business Environment

Business Environment- Meaning - Micro and Macro Dimensions of Business Environment-Economic-Political –Social –Technological –legal –Ecological – Cultural – Demographic Environment –Changing Scenario and implications – Indian Perspective and Global perspective.

Unit – II: Economic Growth

Meaning of Economic Growth – Factors influencing Development –Balanced Regional Development.

Unit – III: Development and Planning

Rostow's stages of economic development - Meaning - Types of plans – Main objectives of planning in India – NITI Aayog – National Development Council – Five Year Plans.

Unit – IV: Economic Policies

Economic Reforms and New Economic policy – New Industrial Policy - Competition Law – Fiscal Policy – Objectives and Limitations – Union Budget – Structure and importance of union budget – Monetary Policy and RBI.

Unit – V: Social, Political and Legal Environment

Concept of Social Justice – Schemes– Political Stability – Legal Changes.

Additional Input:

Foreign Trade Policy – FDI flows in India – India and WTO, Regional Trading Blocks.

References:

1. Rosy Joshi and Sangam Kapur, Business Environment
2. Francis and Cherunilam, Business Environment
3. S.K. Mishra and V.K. Puri, Economic Environment of Business.
4. K. Aswathappa, Essential of Business Environment

BLUE PRINT			
Units	**Name Of The Unit**	**Essays**	**Short Answer**
1	Overview of Business Environment	**2**	**2**
2	Economic Growth	**2**	**1**
3	Development and Planning	**2**	**2**
4	Economic Policies	**2**	**2**
5	Social, Political and Legal Environment	**2**	**1**

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
(For Admitted Batch 2017-18)
B.Com (Computers), II Semester Syllabus

DSC 3B - ENTERPRISE RESOURCE PLANNING

Hours per week – 5 Credits: 4

Unit-I: Introduction to ERP:
Overview -Benefits of ERP -ERP and Related Technologies -Business Process Reengineering - Data Warehousing – Data Mining -On-line Analytical Processing -Supply Chain Management.

Unit-II: ERP Implementation: Implementation Life Cycle –Implementation Methodology - Hidden Costs - Organizing Implementation - Vendors, Consultants and Users-Contracts-Project Management and Monitoring.

Unit-Ill: Business Modules: Business Modules in an ERP Package-Finance Manufacturing-Human Resource-Plant Maintenance-Materials Management -Quality Management-Sales and Distribution.

Unit-IV: **ERP Market** - ERP Market Place - SAP AG - PeopleSoft-Baan Company –Oracle Corporation.

Unit-V: ERP Present and Future: ERP and E-Commerce-ERP and Internet-Future Directions in ERP.

Additional Input: Oracle and SAP R/3 related issues.

Reference Books:

1. Alexis Leon, "ERP Demystified", Tata McGraw Hill, 1999.
2. Joseph A. Brady, Ellen F. Monk, BretJ. Wangner, "Concepts in Enterprise Resource Planning" , Thomson Learning, 2001.
3. Vinod Kumar Garg and N.K .Venkata Krishnan, "Enterprise Resource Planning - concepts and Planning", Prentice Hall, 1998..

Blue Print

UNIT	Name of the Topic	Theory	
		Essay 8M	Short 4 M
I	Introduction to ERP	2	2
II	ERP Implementation	2	1
III	Business Modules	2	2
IV	ERP Market	2	1
V	ERP Present and Future	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBCS/SEMESTER SYSTEM
II B.Com (General), IV SEMESTER
(For Admitted Batch 2016-17)

DSC 2D - BUSINESS LAWS

Hours per week: 5 Credits: 4

Unit-I: Contract

Meaning and Definition of Contract-Essential elements of valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872.

Unit-II: Offer and Acceptance

Definition of Valid Offer, Acceptance and Consideration -Essential elements of a Valid Offer, Acceptance and Consideration.

Unit-Ill: Capacity of the Parties and Contingent Contract

Rules regarding to Minors contracts - Rules relating to contingent contracts - Different modes of discharge of contracts-Rules relating to remedies to breach of contract.

Unit-IV: Sale of Goods Act 1930

Contract of sale - Sale and agreement to sell - Implied conditions and warranties - Rights of unpaid vendor.

Unit-V: Cyber Law and Contract Procedures - Digital Signature - Safety Mechanisms.

Additional Input:

Consumer Protection Act, 1986 and E-Filing

References:

1. J. Jay^sahlcar, Business Laws, Margham Publication. Chennai-17
2. Ktfpoor ND, Mercentile Law , Sultan Chand
3. Balachandram V, Business law Tata
4. Tulsian, Business Law Tata
5. Pillai Bhagavathi, Business Law , S.Chand
6. Business Laws, Maruthi Publishers

Blue Print

Units	Name of the Topic	Theory	
		Essay 8M	Short 5 M
Unit – I	Contract	2	2
Unit – II	Offer & Acceptance Consideration	2	2
Unit – III	Capacity to Contract & Contingent Contract	2	2
Unit – IV	Sale of Goods Act	2	1
Unit – V	Cyber Law	2	1

RAJAMAHENDRAVARAM

CBCS/ SEMESTER SYSTEN

B.Com. (Computers), IV Semester

(For Admitted Batch 2016-17)

DSC 3D - COMPUTER ACCOUNTING WITH TALLY

Hours: 5, Credits: 4

UNIT I

1. Introduction: Business and Computers, Accounting as an Information System, General Role of Computers in Accounting

2. Accounting System: Accounting, Double Entry Book-keeping System, Journal Entry, The Account Cycle, Important Formulae of Ratio Analysis

3. Inventory Control System: Concept of Inventory**,** Objective of Inventory Control System, Steps in Computerizing Inventory Control System, Inventory Features

4. Payroll System : Introduction, Components of payroll System, Step-1 Setting up Formulae, Step-2 Payroll Processing, step-3 Salary Disbursement, Step-4 Setting up Legal Provisions, Step-5 Setting up Tax Deducted at Source Module, step-6 Setting up Salary Related MIS Reports, Step-7 Setting up Special Reports, Step-8 Host of Standard Reports,

UNIT II

1. Starting with Tally : Introduction to Tally 9, Activating TallySliver for Single-User, Activating TallyGold for Multi-user, New features of Tally, What is Tally, Items Of the Tally Screen, Create a Company, Basic Currency Information, Other Information on the Screen, Accounting features, Inventory Features, Configuring Tally, Number Symbols, Accts/Inv Infor Menu, General, Payment Voucher.

2. Creating Accounts Masters: Creating Account Masters, Accounting Information, Creating a Group Company, Ledgers, Creating a ledger, Advanced Information, Display of Individual Ledger, Buttons on the Screen, Creating Multiple Ledgers, Buttons in Multiple Ledger Creation screen, Alternating Multiple Ledger, Buttons in Alter Ledger screen, Setting Credit Limits.

3. Creating Inventory Masters: Creating Inventory Masters, Stock Groups, Creating a Stock Group, Creating Multiple Stock Groups, Display of Alter a Stock Group, Delete a Stock Group, Creating Stock Categories, Stock Items, Creating a stock Item, Buttons in Single Mode Stock Item Creation, Creating Multiple Stock Items, Advanced Stock Item Creation, Specifying Reorder Levels, Obtain Recorder Levels and Quantities to Order, Alter Recorder Levels and Minimum Quantities, Location/Godowns, Displaying and alternating stock, Unit of Measure, Price Lists, Assigning Ledger accounts to Price Levels, How to Create and Use Price Lists, Price Levels in Voucher Entry-Invoicing, Voucher Types.

4. Entering Accounts Vouchers: Voucher the Main Inputs, Voucher Types, Simple Voucher Entry, The Voucher Entry Screen, How to enter voucher, Buttons in typical Entry Screen, Contra Voucher, Memo Voucher, Optical Voucher, Reversing Journals, sales, Purchase Voucher, Credit Notes.

UNIT III

5. Entering Inventory Vouchers: Entering Inventory Voucher, Sales and Purchase Voucher

Entry, Voucher Classes, Default Accounting Allocation, Types of Calculations, Explanation of Types of Calculation, Pure Inventory Vouchers, Default Voucher Number, Stock Journal, Common Information, Bills of Materials, Alter a Purchase Order, How to Create Sales Orders

6. Introduction to VAT (Value Added Tax): What is VAT?, Concept Of Vat, Vat Rates, VAT classification, VAT Document, VAT Recodes, Statutory Returns, Dealers Status, Composite Dealers

7. Ledgers and VAT:

Ledger Masters, Company Creation/Alteration, Sate, Use Indian VAT, Application Form, VAT TIN NO, Purchase Ledger, Used in VAT Return, Default VAT /Tax Class, Sales Ledger, Duties and Taxes Ledger, Type Of Duty/Tax, Default Vat/Tax Class, Percentage Of Calculations, Method of Calculation, Similarly for output VAT, Default VAT Class, method of Calculation, Direct Expenses /Income Ledger, Vouchers and Transactions, Computation Of VAT.

8. More on VAT: Interstate Sales And Purchases, Interstate Sales, Imports And Exports, Exports, Exempted Purchases and Sales.

UNIT IV

9. VAT Documents and Reports: Documents, Reports, VAT Control Ledger, Group Summary, Sales , Reorganizing VAT Group, VAT Computation, Statutory VAT Returns, Inventory Records, Stock items, Manufacturing accounts

10. Introduction to TDS : Introduction: TDS Accounts, TDS Transactions, Configuring Tally for TDS, Creation of masters, Voucher entry for TDS, Purchase Voucher, Advance Payment, TDS Reports, TDS Computations Report.

11. Display/Reports in Tally: Output Reports, Old Stock Analysis (Ageing Analysis).

12. The Collaborative Tally; Importing Master Data, Export of Data, XML, Tally ODBC, Inward Connectivity, Creating the Client Rule for the Client Mission, Activating the Server Rule from the Server Machine, Synchronizing Back-Dated Vouchers, E-capabilities, Internet Publishing, Web Browser.

UNIT V

13. The Administrative Tally: Security Levels- Types of Security, Users and Passwords, Tally Audit, Tally Vault, Backup, Restore, Split Financial Years, How to Split Financial years, **A. Fundamentals of Accounting:** Introduction, accounting systems, journal accounts, cash Book, Ledger and Ledger accounts, Trial Balance, Trading profit and Loss accounts, Profit and Loss accounts, Balance sheet,

B. Fundamentals of Inventory: Introduction, Market Valuation Method, Reorder Levels, Multiple Price List, Inventory Transactions, Invoice, order, Challans, Inventory Reports, Exception Reports.

Additional Input:

Point of Sales (POS) and Payroll system.

Text Books

1. Computer Accounting With Tally 7.2 , Firewall, Firewall Media, Laxmi Publications
2. Comdex Tally 9 Course Kit by Namrata Agrawal, Dream Tech Press
3. Financial Accounting on Computers Using Tally by Namrata Agrawal, Dreamtech Press, 2000

Reference Books

1. Tally 9 by Dinesh Maidarsani By Firewall Media
2. Tally 9.0 English Edition Google EBook By Computer World
3. Comdex Computer & Financial Accounting With Tally 9.0 by Vikas Gupta, 8177227394, 2007.
4. Tally ERP 9 For Real Time Accounting by Avichi Krishnan, BookGanga
5. Tally.ERP 9 Made Simple Basic Financial Accounting by BPB ISBN-13: 978-81-8333-483-9
6. Tally 9 in Simple Steps, Kogent Solutions Inc., John Wiley & Sons, 2008, 240pages

Blue Print			
Units	**Name of the Topic**	**Short 4 M**	**Essay 8 M**
I	Introduction	1	2
II	Starting with Tally	1	2
III	Entering Inventory Vouchers	2	2
IV	VAT Documents and Reports	2	2
V	Fundamentals of Inventory	2	2

TALLY LAB

1. Create, Modify, Delete Company and Group Company
2. Create, Modify, Delete Accounting Groups and sub Groups
3. Create, Modify, Delete Single Ledger and Multiple Ledgers and their Group Allocation
4. Create, Modify, Delete voucher types
5. Take a simple problem for usage of different accounting vouchers
6. Prepare a final account for ABC Company using below given sample data.

1. Create a Company as "ABC Company " in Tally with inventory management.
2. Pass the following Entries :-

(i). XYZ started "ABC Company" by bringing Capital Rs.3,00,000/- Cash.
(ii) He deposited Rs.1,00,000/- cash at ICICI bank.
(iii) He paid electricity bill for Rs.1,200/- by cash.
(iv) He withdrawn Rs.10,000/- cash for his personal use.
(v) He purchased the following item from Computer Lab. Ltd. on credit with 4% Vat rate.
(a) Computer - 10 Nos. - @20000/- each
(vi) He sold the following item to Pranav Simha Traders in cash with 4% Vat rate.
(a) Computer - 5 Nos. - @27500/- each
(vii) He received Rs.6,000/- as commission from Raj by cash.
(viii) He paid House Rent for Rs.5,000/- by cash.
(ix) He withdrawn Rs.25,000/- cash from ICICI Bank.
(x) He purchased furniture for Rs. 25,000/- by cash for office use.

3. Show the Trial Balance and Balance Sheet of "Sekhar Industries Ltd."
4. Show the Vat Computation report of the above company.
5. Show the Cash Book & Bank Book of the company.
6. Show the Day Book.
7. Backup and restore the company data.

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
III B. Com (General/Computers), V - Semester Syllabus
(For Admitted Batch 2015-16)
INCOME TAX AND AUDITING – 1

Max. Marks: (75+25) **P.P.W. :(4+1 hours)**

Objectives:

1. To impart knowledge pertaining to the concepts of Income Tax.
2. To acquaint oneself with auditing procedure.

Unit-I: Introduction.

Introduction – Basic concepts – Brief History of Income Tax - Legal Frame Work - Definitions – Residential Status (Problem) Income - Scope of Total Income - Types of Income- Indian Income- Foreign- Income- Exempted incomes- Agriculture income- Incidence of Tax (Problem)

Unit –II: Income from Salary

Heads of Income – Income from Salary – Salary – Allowance- fully taxable, partially taxable, fully exempted allowances – Perquisites- taxable in all cases, taxable in certain cases and exempted in all cases – Profit in-lieu of Salary

Unit – III: Income from House Property

Income from House Property-exempted incomes from House Property- computation of Annual Value – different Types of Rental Values – Deductions

Unit- IV: Introduction to Auditing

Meaning – Definition and Objectives of Auditing – Types of Audit – Audit process and Procedure – Audit Planning and Programming.

Unit-V: Internal check and Vouching

Internal Check – Internal Audit and Internal Control – Vouching - Preliminaries in commencing a new audit

Books for Reference:

1. Saha .R. G – Income Tax , Himalaya Publishing House
2. Bhagavathi Prasad, Income Tax - Law & Practice in India.
3. Vinodh K. Singhania, Student Guide to Income Tax.
4. Malhotra, Income Tax Law and Practice.
5. N D Kapoor, Auditing.
6. R G Saxena, Auditing, Himalaya Publications.
7. T N Tandon, Practical Auditing.

Blue Print:

Units	Name of the Topic	Problem		Theory		
		Essay 15 M	Short 5 M	Essay 15 M	Short 5 M	Very Short 2 M
1	Introduction	1	1		1	1
2	Income from Salary	1	1		1	1
3	Income from House Property	1			-	1
4	Introduction to Auditing			1	1	1
5	Internal check and Vouching			1	1	1

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
III B. Com (Computers), V - SEMESTER SYLLABUS
(For Admitted Batch 2015-16)

Elective-I

OBJECT ORIENTED PROGRAMMING IN JAVA – 1

Time: 3 Marks: 100 (75+25) P.P.W: 5 (4+1)

UNIT- I :

Fundamentals of Object Oriented Programming – Object oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP

UNIT- II:

Java Evolution – Java Features – How java differs from C and C++ - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements – Java Environment – Overview of Java Language – Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments

UNIT- III:

Constants – Variables and Data types – Declaration of Variables – Giving Values to variables – Scope of Variables – Symbolic Constants – Type Casting

UNIT- IV :

Operators and Expressions – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity.

Additional Input:

Oops Using C++ programming.

Prescribed Text Books:

1. E.Balagurusamy, Programming with Java.
2. Herbert Schildt, Java Complete Reference

Reference Text Books:

1. Kathy Sierra and Bert.Bates, Your Brain on Java
2. Chris Batess, Web Programming Building Internet Applications, Second Edition, Wiley, 2007.
3. Bhave, Programming with Java

Blue Print				
Units	**Name of the Topic**	**Essay 10 M**	**Short 5 M**	**Very Short 2M**
1	Fundamentals of OOPs	2	2	1
2	Java Evolution	2	2	1
3	Constants – Variables	2	2	1
4	Operators and Expressions	2	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
III B. Com (Computers), V - Semester Syllabus
(For Admitted Batch 2015-16)

Elective-II

DATA BASE MANAGEMENT SYSTEM – 1

Time: 3hrs. Marks: 100 (75+25) P.P.W: 5 (4+1)

UNIT- I :

Database Systems – Evolution of File Oriented Systems - Database Models – Database System Components – Database Systems in the Organization – Data sharing Strategic

UNIT- II :

Database Planning - Database and Management Controls – Risks and Costs and Databases – Database development

UNIT- III :

Database design – Principles of Conceptual Database Design – Conceptual Data Models – Aggregation – Modeling conceptual Objects vs. Physical Objects

UNIT- IV :

Relational Data Model – Fundamental Concepts – Normalization – Transforming a Conceptual Model – Relational Model – Relational Database Implementation – Relational Algebra and Calculus.

Additional Input:

Developer 2000 (D2K) using Oracle.

Prescribed Text Books:

- Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson, 2007.

Reference Text Books:

1. Elimasri/Navathe, Fifth Edition, Fundamentals of Database Systems , Pearson Addison Wesley 2007.
2. Raman A Mata – Toledo/ PanlineK.Cushman, Schaum's Outline series, Database Management Systems, Tata McGraw Hill, 2007
3. C J Date, A.Kannan, S.Swamynathan, Eight Edition, An Introduction to Database Systems, Pearson Education (2006).
4. Michel Kifer, Arthur Bernstein, Philip M. Lewis, Prabin K. Pani Graphi, Database Systems: An application oriented Approach, second edition, Pearson education, (2008).
5. Atul Kahate, Introduction to Database Management Systems, Pearson Education, (2006).
6. Paneer Selvem, Introduction to Database Systems.

Units	Name of the Topic	Essay 10 M	Short 5 M	Very Short 2M
1	Database Systems	2	2	1
2	Database Planning	2	2	1
3	Database design	2	2	1
4	Relational Data Model	2	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
I B.A (E.S.Comm.) I Semester Syllabus
((For Admitted Batch 2017-18)

Business Organization and Management

Hours per week: 5, Credits: 4

Objectives:
To understand the basic concepts and functions of business organisation and management

Unit – I Introduction:
Concepts of Business, Trade, Industry and Commerce – Features of Business – Trade – Classification of Trade – Aids to Trade – Industry – Classification-Relationship among Trade, Industry and Commerce.

Unit-II Forms of Business Organisation
Forms of Business Organisation – Sole Proprietorship, Joint - Hindu Undivided Family firm-Partnership firm - Joint Stock Company – Cooperative Society; Choice of form of organization – Government – Business Interface; Public Sector Enterprises (PSEs) – Multinational Corporations (MNCs)

Unit –III Joint Stock Company
Company Incorporation – Preparation of important Documents for incorporation of Company-Memorandum of Association – Articles of Association – Difference Between Memorandum and Articles of Association – Prospectus and its contents – Companies Act, 2013.

Unit – IV- Management and Organisation
Process of Management – Planning – Decision Making – Organising –Line and Staff organisation – Staffing, Directing and Controlling – Delegation and Decentralisation of Authority.

Unit – V – Functional Areas of Management
Production – Manufacturing – Make in India – Marketing Management: Marketing Concept – Marketing Mix – Product Life Cycle – Pricing Policies and Practices – Financial Management: Objectives, Sources and Forms of Funds – Human Resource Management: Functions.

Additional Input:

Limited Liability partnership. One person Company Management Information system concept and functional information systems.

Suggested Readings:

1. Kaul, V.K., Business Organization and Management, Pearson Education, New Delhi.
2. Chhabra, T.N., Business Organization and Management, Sun India Publications, New Delhi.
3. Koontz and Weihrich, Essentials of Management, McGraw Hill Education.
4. Basu, C. R., Business Organization and Management, McGraw Hill Education.
5. Jim, Barry, John Chandler, Heather Clark; Organization and Management, Cengage Learning.
6. Allen, L.A., Management and Organization; McGraw Hill, New York.
7. R.K.Sharma and Shashi K Gupta, Business Organization - Kalyani Publications.
8. C.B.Guptha, Industrial Organization and Management, Sultan Chand.
9. Y.K.Bushan, Business organization and Management, Sultan Chand.
10. Sherlekar, Business Organization and Management, Himalaya Publications.

Blue Print			
Units	**Name of the Unit**	**Essays**	**Short Answer**
1	Introduction	2	2
2	Forms of Business Organisation	2	1
3	Joint Stock Company	2	2
4	Management and Organisation	2	1
5	Functional Areas of Management	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
III B. Com (Computers), VI - Semester Syllabus
(For Admitted Batch 2015-16)

Elective-IV:

DATABASE MANAGEMENT SYSTEM – 2

Time: 3 Marks: 100 (75+25) P.P.W: 5 (4+1)

UNIT- I :

Introduction to SQL – Data Definition Commands – Data Manipulation Commands – Select Queries, Advanced Data Definition Commands, Advanced Select Queries, Virtual Tables – Joining Database Tables

UNIT- II :

Advanced SQL – Relational Set Operators – SQL Join Operators, Sub queries and correlated queries – SQL functions, Oracle Sequences - Updatable Views and Procedural SQL

UNIT- III :

Database Design – Information System – The System Development Life Cycle – The Database Life Cycle – Database Design Strategies – Centralized Vs Decentralized Design

UNIT- IV :

Distributed Database Management Systems – Evolution of Distributed Database Management System – DDBMS advantages and disadvantages – Distribution Processing and Distribution Databases – Characteristics of Distributed database management systems – DDBMS components

Additional Inputs:

Connecting oracle with Visual Basic as front end.

Prescribed Text Books:

- Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson, 2007.

Reference Text Books:

3. Elimasri/Navathe, Fifth Edition, Fundamentals of Database Systems , Pearson Addison Wesley 2007.
4. Raman A Mata – Toledo/ PanlineK.Cushman, Schaum's Outline series, Database Management Systems, Tata McGraw Hill, 2007
5. C J Date, A.Kannan, S.Swamynathan, Eight Edition, An Introduction to Database Systems, Pearson Education (2006).
6. Michel Kifer, Arthur Bernstein, Philip M. Lewis, Prabin K. Pani Graphi, Database Systems: An application oriented Approach, second edition, Pearson education, (2008).
7. Atul Kahate, Introduction to Database Management Systems, Pearson Education, (2006).
8. Paneer Selvem, Introduction to Database Systems.

Units	Name of the Topic	Essay 10 M	Short 5 M	Very Short 2M
1	Introduction to SQL	2	2	1
2	Advanced SQL	2	2	1
3	Database Design	2	2	1
4	DDBMS	2	2	2

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
CBSE/Semester System
(For Admitted Batch 2017-18)
B.Com (Computers), II Semester Syllabus

DSC 3B - ENTERPRISE RESOURCE PLANNING

Hours per week – 5 Credits: 4

Unit-I: Introduction to ERP:
Overview -Benefits of ERP -ERP and Related Technologies -Business Process Reengineering - Data Warehousing – Data Mining -On-line Analytical Processing -Supply Chain Management.

Unit-II: ERP Implementation: Implementation Life Cycle –Implementation Methodology - Hidden Costs - Organizing Implementation - Vendors, Consultants and Users-Contracts-Project Management and Monitoring.

Unit-Ill: Business Modules: Business Modules in an ERP Package-Finance Manufacturing-Human Resource-Plant Maintenance-Materials Management -Quality Management-Sales and Distribution.

Unit-IV: **ERP Market** - ERP Market Place - SAP AG - PeopleSoft-Baan Company –Oracle Corporation.

Unit-V: ERP Present and Future: ERP and E-Commerce-ERP and Internet-Future Directions in ERP.

Additional Input: Oracle and SAP R/3 related issues.

Reference Books:

1. Alexis Leon, "ERP Demystified", Tata McGraw Hill, 1999.
2. Joseph A. Brady, Ellen F. Monk, BretJ. Wangner, "Concepts in Enterprise Resource Planning" , Thomson Learning, 2001.
3. Vinod Kumar Garg and N.K .Venkata Krishnan, "Enterprise Resource Planning - concepts and Planning", Prentice Hall, 1998..

Blue Print

UNIT	Name of the Topic	Theory	
		Essay 8M	Short 4 M
I	Introduction to ERP	2	2
II	ERP Implementation	2	1
III	Business Modules	2	2
IV	ERP Market	2	1
V	ERP Present and Future	2	2

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./B.sc Paper –III: INDIAN ECONOMY 1

V SEMESTER

SYLLABUS

Module 1: CONCEPTS OF DEVELOPMENT:

Meaning of Economic growth and development – Measures of Economic Development –GNP,PCL,PQLI and HDI , Factors influencing Economic development. Sustainable development, -Inclusive growth

Module 2: STRATEGIES AND METHODS of GROWTH

Balanced growth Strategy and unbalanced growth Strategy – Choice of Techniques Labour intensive and capital intensive methods.- Arthur Lewis model

Module 3: STRUCTURE OF THE INDIAN ECONOMY

Basic features of Indian Economy – Role of Natural Resources in Economic development –Basic demographic features –Occupational distribution – Population Explosion –Problems of over population. National population policy.2011

Module 4: NATIONAL INCOME and New Economic Reforms

National income in India – Trends and Composition – Poverty, Inequalities and unemployment Causes and consequences.- Current Five Year Plan– Objectives, Mobilization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India – Inclusive Growth-India after Globalisation.

(Additional Inputs Underlined)

1. . Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008
2. . Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/ B.sc Paper –III: INDIAN ECONOMY 2

VI SEMESTER

SYLLABUS (w.e.f. 2016-17)

Module 1: INDIAN AGRICULTURE

Nature and importance, Trends in agricultural Production and Productivity: factors determining productivity. Rural Credit – Micro Finance and Self Help Groups (SHGs) Agricultural price policy, Crop insurance, Agricultural Infrastructure and food security. (1) Agricultural Marketing in India, (2) Inspect of Land, informs in India, (3) Provision of Agricultural credit to the tenants.

Module 2: INDIAN INDUSTRY

Structure and Growth of Indian Industry-Industrial policies of 1956 and 1991, Growth and problems of Small Scale Industry. Foreign Exchanges Management Act (FEMA): Disinvestment Policy in India – Foreign Direct Investment.

Module 3: SERVICE SECTORS IN INDIA

Growing important of Service Sector in India – Banking Insurance, Information Technology, Education and Health, Transport and communication

Module 4: ANDHRA PRADESH STATE ECONOMY

GSDP – Sectoral Contribution and Trends; Human Resources – Population Trends, Regional differentials – Demographic Dividend.

Agricultural Sector – Land use and Cropping pattern Impact of hand reforms in A.P. Income and employment in Agricultural sector.

Industrial Sector – Small Scale industries, Investment and employment in industrial sector, SEZs;

Service Sector – Growth of income and employment in the service sector, Information, Technology (IT).

REFERENCES:

1. Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008.
2. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007

5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011

GOVERNMENT COLLEE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./ B.sc Paper –IV(a): INTERNATIONAL ECONOMICS

V SEMESTER

SYLLABUS (2017 – 2018)

Module 1: Introduction

Meaning of Internal Trade and External Trade-Inter– regional and International Trade –Differences between Internal Trade and External Trade -Importance of International Trade – Inter – industry trade.

Module 2: THEORIES OF INTERNATIONAL TRADE

Theory of absolute advantage –Theory of Heberler's opportunity costs and Hecksher –Ohllin modern Theory .Terms of Trade –Gross Barter and Net Bartter and Income terms of Trade

Module 3: Protection And Balance of Payments

Tariffs-Meaning and Definition of Tariffs –Types of Tariffs -a Tariffs and their effects-: Concept of Optimum Tariff – Quotas- Balance of Trade - Balance of Payments -Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments –Measures to correct Disequilibrium-Depreciation.

Module 4: FOREIGN TRADE IN INDIA

Recent trends in the composition of India's forgein trade –Recent EXIM policy –EXIM Bank –Forgein Direct Investment in India - changing role of IMF,IBRD, WTO-Impact on India –Concept of Out sourcing

REFERENCES:

1. J.Bhagavathi "International Trade '' –Selected reading ,
2. B.O. Soderston – "International Economics", Macmillan, 1995.
3. C.P. Kindle Berger – 'International Economics.
4. Telugu Academy Publications.
5. Dr.N Koti Reddy,Dictionary of Economics,Samatha Publications,2011
6. AUSDE – Study Material.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A /B.sc Paper –IV(a): PUBLIC FINANCE

VI SEMESTER

SYLLABUS (w.e.f 2016-17)

Module1: Introduction

Meaning and scope of public finance: Distinction between public and private finance. Principal of Maximum Social Advantage – Public goods vs Private goods, Merit goods –Demerit good-Social goods

Module 2: Public Revenue

Sources of Public revenue –(a) Taxes (b) Administrative Revenues (c) Commercial Revenues (d) Gifts and grants (e) Deficit Finance –Concept of fiscal deficit –Canons of taxation –(Aedam Smith & Modern)-R Impact, Shifting and Incidence of Taxation, Effects of Taxation –The concept of Value added Tax (VAT). Taxes – direct and indirect taxes – merits and demerits , Methods of taxation –Progressive , proportional ,regressive and degressive.

Module 3: Public Expenditure

Meaning and Classification of public expenditure —Reasons for the growth of public expenditure – Wagner's law – Peacock – Wiseman hypothesis – Canons of public Expenditure-effects of Public Expenditure on Production and Employment

Module 4:Public Debt

Public Debt – Classification of Public debt – Methods of debt redemption – Causes and effects of the growth of India's Public Debt.-Monitisation of Public Debt –Limit of Public debt

[Additional Inputs Underlined]

REFERENCES:

1. B.P. Tyagi – "Public Finance", Jai Prakash Nath, 2004.
2. H.D. Bhatia – "Public Finance", Vikas Publishing House, 2006.
3. D.M. Mithani & G.K. Murty – "Fundamentals of Business Economics", Himalaya Publishing House, 2007.
4. Telugu Academy Publications.
5. AUSDE – Study Material.
6. AUSDE-Study material

7. Dr.N Koti Reddy, Dictionary of Economics, Samatha Publications,201

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 1 (OPTIONAL)

V SEMESTER

SYLLABUS (2017– 2018)

Module 1: MATRIX ALGEBRA

Matrices – Types of Matrices Addition, Subtraction, Multiplication and equality of Matrices – Minors, Co-factors of a matrix – Determinants – Properties – Inverse of a matrix – Solution of simultaneous equations by matrix – Inverse method and Cramer's rule – Depiction of inter industry relationship by matrices.

Module 2: CENTRAL TENDENCY AND DISPERSION

Definition , Scope and Importance of Statistics in Economic analysis- Primary and Secondary Data – Graphic and diagrammatic representation of data, Techniques of data collection, Sampling and Census Methods. Measures of Central Tendency – Mean, Median, Mode, Geometric mean and Harmonic Mean.

Module 3:Measures of DISPERSION

Measures of Dispersion,- Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, concept of Skewness.,Coefficient of Skewness

Module 4: CORRELATION AND REGRESSION

Simple Correlation, Coefficient of Correlation: Karl Pearson Coefficient of Correlation and Spearman's Rank Correlation , Coefficient of determination and Coefficient of Alienation

REFERENCES:

1. A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.
2. Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.
3. S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005
4. Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.
5. E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.
6. K Sydsater & P.J.Hammond – 'Mathematics for Economic Analysis", Pearson Education, Delhi, 2002.

G.S.Monga-“Mathematics and Economics “ , Vikas Publishing House pvt L

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 2 (OPTIONAL)

VI SEMESTER

SYLLABUS (w.e.f 2016 – 2017)

Module 1: CALCULUS

Definition of a function – Differentiation of a Function: Maxima and Minima, Elasticities, Equilibrium of a consumer and a firm, Inter relationships among total, marginal and average cost and revenues: Constrained optimization problem: Integration of a function, Consumer and producer surplus.-Minimisation of Cost and Maximisation of Revenue

Module 2: REGRESSION

Regression analysis – Estimation of regression line in a bivariate distribution – Ordinary Least Squares (OLS) Method – Interpretation of regression coefficients – Demand forecasting. –Trasformation to Linearity

Module 3: TIME SERIES

Objectives and Uses Time series analysis–Concept and Components – Determination of Trend, Simple and Compound Growth Rates –Business forecasting

Module 4: INDEX NUMBERS

Index numbers: concept, price relative, quantity relative, value relative, Laspeyer's Paasche's and Fisher's Ideal Index- Time Reversal Test and Factor Reversal Test – Constructing Wholesale Price Index and Consumer Price Index- Uses and Limitations of Index numbers.

[Additional Inputs Underlined]

REFERENCES:

1.A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.

2.Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.

3.S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005

4.Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.

5.E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.

Govt College (A) Rajahmundry

I BSc ECONOMICS - I

I Semester 2013-2014

BSC. ECONOMICS syllubus

Micro Economics Analysis - I

Module : 1 Demand, Production and cost Theories

Introduction

Nature, Definition and Scope of Economics - Methods of Economics - Micro and Macro - Static and Dynamic - Positive and Normative, Partial and General Equilibrium - Choice as an economic problem - The Production Possibility curve

Module : 2 Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi - Marginal Utility - Indifference curves - Properties of Indifference curves - price (Budget) line - Equilibrium of the Consumer with the help of Ic curves - Splitty of Price effect, Hi and

Module : 3 Demand Analysis

Law of Demand - Elasticity of Demand - price income and cross Elasticities, Demand forecasting - Meaning and factors influencing Demand forecasting - Consumer Surplus - Engel curve, Types of utility function

Module : 4 Theory of production and costs

Objectives of a firm - Production function - Cobb-Douglas, Production function - Isoquant - factor substitution - Elasticity of substitution - Law of Variable Proportions, law of Returns to scale - Expansion Path - Revenue and cost concepts - Break-Even analysis. Short run and long run cost function.

[Additional input underlined]

References:

1. R.G. Lipsey and K.A. Chrystal - Economics Oxford University Press 10/e 2004

2. P.A. Samuelson & W.D "Economics" Tata Mc. Graw Hill 18/e 2005

3. H.L Ahuja. 'Advanced Economics theory' Sahand 2004

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

II[nd] B. A. Paper –II: MACRO ECONOMICS

IV SEMESTER

SYLLABUS (w.e.f. 2011 – 2013)

Module 1: MONEY AND THEORIES OF MONEY

Meaning, functions and classification of Money–Gresham's law – R.B.I. Classification of Money – M1, M2, M3, M4 Theories of Money – Fisher's quantity theory of Money, Cambridge approach (Marshall, Pigou, Robertson and Keynes).

Module 2: INFLATION

Inflation – Definition – Types of Inflation – Causes and effects of inflation – Measures to control inflation.

Module 3: BANKING, STOCK MARKET AND INSURANCE

Functions of Commercial banks – The process of credit creation – Concept of Non Banking Finance Companies (NBFCs) – Concept of SEBI Stock Market – Meaning, functions and importance of Stock Market – Primary and Secondary Markets, Concepts of (a) Shares (b) Debentures, Insurance – Types of Insurance – Life Insurance and General Insurance – Functions of the Reserve bank of India – Methods of credit control – Quantitative and Qualitative Methods.

References:

1. G.Ackley – "Macro Economics Theory and Policy" Collier Macmillan, 1978.
2. E.Shapiro – "Macro Economic Analysis" Galgotia Publications, 1999.
3. Central Statistical Organizations – "National Accounts Statistics".
4. R.Dornbush, S. Fisher and R. Startz – "Macro Economics", Tata Mc. Graw Hill, 9/e, 2004.
5. M.L. Seth – "Macro Economics" Lakshmi Narayana Agarwal, 2006.
6. K.P.M. Sundaram – "Money, banking & International Trade" Sultan Chand, 2006.
7. Dillard, D – "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. Telugu Academy Publications.
9. AUSDE – Study Material.
10. M.N. Mish ra & S B Mishra – "Insurance Principles & practice" S Chand 2007.
11. Bharati V. Pathak "The Indian Financial System, Market, Institutions & Services", Perarson 2008.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

IInd B. A. Paper –II: MACRO ECONOMICS

III SEMESTER

SYLLABUS (w.e.f. 2012 – 2013)

Module 1: NATIONAL INCOME

Meaning, Definition and importance of Macro Economics – National Income: Meaning, Definitions: National Income, GNP & NNP, GDP & NDP, Personal Income (PI), Disposable Income (Di), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) – Measurement of National Income in India.

Module 2: THEORIES OF EMPLOYMENT

Classical theory of employment – Say's law of markers – Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate and Rate of Interest and the concept of Multiplier – Accelerator – Applicability of the Keynesian theory to the developing countries.

Module 3: TRADE CYCLE

Trade cycles – Meaning and definition – Phases of a trade cycle

References:

1. G.Ackley – "Macro Economics Theory and Policy" Collier Macmillan, 1978.
2. E.Shapiro – "Macro Economic Analysis" Galgotia Publications, 1999.
3. Central Statistical Organizations – "National Accounts Statistics".
4. R.Dornbush, S. Fisher and R. Startz – "Macro Economics", Tata Mc. Graw Hill, 9/e, 2004.
5. M.L. Seth – "Macro Economics" Lakshmi Narayana Agarwal, 2006.
6. K.P.M. Sundaram – "Money, banking & International Trade" Sultan Chand, 2006.
7. Dillard, D – "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. Telugu Academy Publications.
9. AUSDE – Study Material.
10. M.N. Mish ra & S B Mishra – "Insurance Principles & practice" S Chand 2007.
11. Bharati V. Pathak "The Indian Financial System, Market, Institutions & Services", Perarson 2008.

Govt college (A) Rajahmundry Syllabus

Bsc - Economics - I

II Semester 2013-14

Micro Economic Analysis - II Theories of value and distribution

Module : 1 Market Structure

Market forms - Perfect and im perfect Markets, perfect competition Price Determination and Equilibrium of a firm and Industry under Perfect Competition - optimum firm - Time element in Value Determination

Module : 2 Imperfect Market

Monopoly - Price determination under Monopoly price Dis Crimination - Degrees of discrimination - Monopolistic Competition, Price determination - selling cost - Equilibrium with selling costs Oligopoly (Kinked Demand Curve) - Price leadership - Types

Module : 3 Factor Pricing

Marginal Productivity theory of distribution - Theory of Wage determination - Collective bargaining - Minimum wage - Types of Wage, Rent Concepts - Scarcity Rent, Differential rent - Quasi rent - Interest - Classical, Neo-Classical and Keynesian theories. Profit theory Dynamic, Innovations, Risk and uncertainty theories.

Module : 4 Welfare Economics

Welfare Economics, Pareto optimality, Individual welfare and Social Welfare, Social welfare function.

[Additional input underlined]

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

I[st] B. A. Paper –I: MICRO ECONOMICS

II SEMESTER

SYLLABUS (w.e.f. 2011 – 2013)

Module 1: MARKET STRUCTURE

Market forms – Perfect and Imperfect markets. Price Determination and Equilibrium of a firm and industry under perfect competition – Monopoly – Price determination under monopoly – Price discrimination – Monopolistic competition – Price determination. Oligopoly (Kinked demand curve).

Module 2: FACTOR PRICING

Marginal productivity theory of distribution – Theories of wage determination – Wages and collective bargaining: Minimum Wage – Rent – Scarcity rent, Differential rent – Quasi rent. Interest – Classical, Neo-Classical and Keynesian theories – Profit – Dynamic, Innovations, Risk and Uncertainty theories.

REFERENCE:

1. R.G. Lipsey and K.A. Chrysal – "ECONOMICS" Oxford University Press, 10/e 2004.
2. P.A. Samuelson & W.D. Nordhaus – "ECONOMICS" Tata mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e, 2007.
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2007.
6. D.M. Mithani & G.K. Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007.
7. Telugu Academy Publications
8. AUSDE – Study Material
9. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc. Graw Hill, 1971.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

I[st] B. A. Paper –I: MICRO ECONOMICS

I SEMESTER

SYLLABUS (w.e.f. 2012 – 2015)

Module 1 : INTRODUCTION

Nature, Definition and scope of Economics – Methodology in Economics – Micro and Macro, Static and Dynamic, Normative and Positive – Indicatives and Deductive Analysis – Partial and General Equilibrium – Choice as an economic problem.

Module 2: CONSUMER BEHAVIOUR

Utility Analysis – Cardinal and ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility, Indifference curves – Properties of indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of indifference curves. Demand Analysis – Law of demand – Elasticity of Demand – Price, Income and cross elasticities, Demand forecasting – Meaning and factors influencing demand forecasting – Consumer surplus – Engel curve.

Module 3: THEORY OF PRODUCTION AND COSTS

Objectives of a firm – Production function – Concept of Cobb-Douglas production function – Isoquant – Factor substitution - Law of variable proportions, law of Returns to Scale – Expansion path – Different Concepts – of Revenue and Costs and their interrelation – Equilibrium of the film – Break – Evan analysis.

REFERENCE:

1. R.G. Lipsey and K.A. Chrysal – "ECONOMICS" Oxford University Press, 10/e 2004.
2. P.A. Samuelson & W.D. Nordhaus – "ECONOMICS" Tata mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e, 2007.
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5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2007.
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GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./B.sc Paper –III: INDIAN ECONOMY 1

V SEMESTER

SYLLABUS

Module 1: CONCEPTS OF DEVELOPMENT:

Meaning of Economic growth and development – Measures of Economic Development –GNP,PCL,PQLI and HDI , Factors influencing Economic development. Sustainable development, -Inclusive growth

Module 2: STRATEGIES AND METHODS of GROWTH

Balanced growth Strategy and unbalanced growth Strategy – Choice of Techniques Labour intensive and capital intensive methods.- Arthur Lewis model

Module 3: STRUCTURE OF THE INDIAN ECONOMY

Basic features of Indian Economy – Role of Natural Resources in Economic development –Basic demographic features –Occupational distribution – Population Explosion –Problems of over population. National population policy.2011

Module 4: NATIONAL INCOME and New Economic Reforms

National income in India – Trends and Composition – Poverty, Inequalities and unemployment Causes and consequences.- Current Five Year Plan– Objectives, Mobilization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India – Inclusive Growth- India after Globalisation.

(Additional Inputs Underlined)

1. . Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008
2. . Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/ B.sc Paper –III: INDIAN ECONOMY 2

VI SEMESTER

SYLLABUS (w.e.f. 2016-17)

Module 1: INDIAN AGRICULTURE

Nature and importance, Trends in agricultural Production and Productivity: factors determining productivity. Rural Credit – Micro Finance and Self Help Groups (SHGs) Agricultural price policy, Crop insurance, Agricultural Infrastructure and food security. (1) Agricultural Marketing in India, (2) Inspect of Land, informs in India, (3) Provision of Agricultural credit to the tenants.

Module 2: INDIAN INDUSTRY

Structure and Growth of Indian Industry-Industrial policies of 1956 and 1991, Growth and problems of Small Scale Industry. Foreign Exchanges Management Act (FEMA): Disinvestment Policy in India – Foreign Direct Investment.

Module 3: SERVICE SECTORS IN INDIA

Growing important of Service Sector in India – Banking Insurance, Information Technology, Education and Health, Transport and communication

Module 4: ANDHRA PRADESH STATE ECONOMY

GSDP – Sectoral Contribution and Trends; Human Resources – Population Trends, Regional differentials – Demographic Dividend.

Agricultural Sector – Land use and Cropping pattern Impact of hand reforms in A.P. Income and employment in Agricultural sector.

Industrial Sector – Small Scale industries, Investment and employment in industrial sector, SEZs;

Service Sector – Growth of income and employment in the service sector, Information, Technology (IT).

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1. Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008.
2. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011

GOVERNMENT COLLEE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./ B.sc Paper –IV(a): INTERNATIONAL ECONOMICS

V SEMESTER

SYLLABUS (2017 – 2018)

Module 1: Introduction

Meaning of Internal Trade and External Trade-Inter– regional and International Trade –Differences between Internal Trade and External Trade - Importance of International Trade – Inter – industry trade.

Module 2: THEORIES OF INTERNATIONAL TRADE

Theory of absolute advantage –Theory of Heberler's opportunity costs and Hecksher –Ohllin modern Theory .Terms of Trade –Gross Barter and Net Bartter and Income terms of Trade

Module 3: Protection And Balance of Payments

Tariffs-Meaning and Definition of Tariffs –Types of Tariffs -a Tariffs and their effects-: Concept of Optimum Tariff – Quotas- Balance of Trade - Balance of Payments -Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments –Measures to correct Disequilibrium-Depreciation.

Module 4: FOREIGN TRADE IN INDIA

Recent trends in the composition of India's forgein trade –Recent EXIM policy –EXIM Bank –Forgein Direct Investment in India - changing role of IMF,IBRD, WTO-Impact on India –Concept of Out sourcing

REFERENCES:

1. J.Bhagavathi "International Trade '' –Selected reading ,
2. B.O. Soderston – "International Economics", Macmillan, 1995.
3. C.P. Kindle Berger – 'International Economics.
4. Telugu Academy Publications.
5. Dr.N Koti Reddy,Dictionary of Economics,Samatha Publications,2011
6. AUSDE – Study Material.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A /B.sc Paper –IV(a): PUBLIC FINANCE

VI SEMESTER

SYLLABUS (w.e.f 2016-17)

Module1: Introduction

Meaning and scope of public finance: Distinction between public and private finance. Principal of Maximum Social Advantage – Public goods vs Private goods, Merit goods –Demerit good-Social goods

Module 2: Public Revenue

Sources of Public revenue –(a) Taxes (b) Administrative Revenues (c) Commercial Revenues (d) Gifts and grants (e) Deficit Finance –Concept of fiscal deficit –Canons of taxation –(Aedam Smith & Modern)-R Impact, Shifting and Incidence of Taxation, Effects of Taxation –The concept of Value added Tax (VAT). Taxes – direct and indirect taxes – merits and demerits , Methods of taxation –Progressive , proportional ,regressive and degressive.

Module 3: Public Expenditure

Meaning and Classification of public expenditure —Reasons for the growth of public expenditure – Wagner's law – Peacock – Wiseman hypothesis – Canons of public Expenditure-effects of Public Expenditure on Production and Employment

Module 4:Public Debt

Public Debt – Classification of Public debt – Methods of debt redemption – Causes and effects of the growth of India's Public Debt.-Monitisation of Public Debt –Limit of Public debt

[Additional Inputs Underlined]

REFERENCES:

1. B.P. Tyagi – "Public Finance", Jai Prakash Nath, 2004.
2. H.D. Bhatia – "Public Finance", Vikas Publishing House, 2006.
3. D.M. Mithani & G.K. Murty – "Fundamentals of Business Economics", Himalaya Publishing House, 2007.
4. Telugu Academy Publications.
5. AUSDE – Study Material.
6. AUSDE-Study material
7. Dr.N Koti Reddy, Dictionary of Economics, Samatha Publications,201

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 1 (OPTIONAL)

V SEMESTER

SYLLABUS (2017– 2018)

Module 1: MATRIX ALGEBRA

Matrices – Types of Matrices Addition, Subtraction, Multiplication and equality of Matrices – Minors, Co-factors of a matrix – Determinants – Properties – Inverse of a matrix – Solution of simultaneous equations by matrix – Inverse method and Cramer's rule – Depiction of inter industry relationship by matrices.

Module 2: CENTRAL TENDENCY AND DISPERSION

Definition , Scope and Importance of Statistics in Economic analysis- Primary and Secondary Data – Graphic and diagrammatic representation of data, Techniques of data collection, Sampling and Census Methods. Measures of Central Tendency – Mean, Median, Mode, Geometric mean and Harmonic Mean.

Module 3:Measures of DISPERSION

Measures of Dispersion,- Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, concept of Skewness.,Coefficient of Skewness

Module 4: CORRELATION AND REGRESSION

Simple Correlation, Coefficient of Correlation: Karl Pearson Coefficient of Correlation and Spearman's Rank Correlation , Coefficient of determination and Coefficient of Alienation

REFERENCES:

1. A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.
2. Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.
3. S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005
4. Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.
5. E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.
6. K Sydsater & P.J.Hammond – 'Mathematics for Economic Analysis", Pearson Education, Delhi, 2002.

G.S.Monga-"Mathematics and Economics " , Vikas Publishing House pvt L

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 2 (OPTIONAL)

VI SEMESTER

SYLLABUS (w.e.f 2016 – 2017)

Module 1: CALCULUS

Definition of a function – Differentiation of a Function: Maxima and Minima, Elasticities, Equilibrium of a consumer and a firm, Inter relationships among total, marginal and average cost and revenues: Constrained optimization problem: Integration of a function, Consumer and producer surplus.-Minimisation of Cost and Maximisation of Revenue

Module 2: REGRESSION

Regression analysis – Estimation of regression line in a bivariate distribution – Ordinary Least Squares (OLS) Method – Interpretation of regression coefficients – Demand forecasting. –Trasformation to Linearity

Module 3: TIME SERIES

Objectives and Uses Time series analysis–Concept and Components – Determination of Trend, Simple and Compound Growth Rates –Business forecasting

Module 4: INDEX NUMBERS

Index numbers: concept, price relative, quantity relative, value relative, Laspeyer's Paasche's and Fisher's Ideal Index- Time Reversal Test and Factor Reversal Test – Constructing Wholesale Price Index and Consumer Price Index- Uses and Limitations of Index numbers.

[Additional Inputs Underlined]

REFERENCES:

1.A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.

2.Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.

3.S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005

4.Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.

5.E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

I[st] B. A. Paper –I: MICRO ECONOMICS

I SEMESTER

SYLLABUS (w.e.f. 2012 – 2015)

Module 1 : INTRODUCTION

Nature, Definition and scope of Economics – Methodology in Economics – Micro and Macro, Static and Dynamic, Normative and Positive – Indicatives and Deductive Analysis – Partial and General Equilibrium – Choice as an economic problem.

Module 2: CONSUMER BEHAVIOUR

Utility Analysis – Cardinal and ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility, Indifference curves – Properties of indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of indifference curves. Demand Analysis – Law of demand – Elasticity of Demand – Price, Income and cross elasticities, Demand forecasting – Meaning and factors influencing demand forecasting – Consumer surplus – Engel curve.

Module 3: THEORY OF PRODUCTION AND COSTS

Objectives of a firm – Production function – Concept of Cobb-Douglas production function – Isoquant – Factor substitution - Law of variable proportions, law of Returns to Scale – Expansion path – Different Concepts – of Revenue and Costs and their interrelation – Equilibrium of the film – Break – Evan analysis.

REFERENCE:

1. R.G. Lipsey and K.A. Chrysal – "ECONOMICS" Oxford University Press, 10/e 2004.
2. P.A. Samuelson & W.D. Nordhaus – "ECONOMICS" Tata mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e, 2007.
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2007.
6. D.M. Mithani & G.K. Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007.
7. Telugu Academy Publications
8. AUSDE – Study Material
9. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc. Graw Hill, 1971.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

I[st] B. A. Paper –I: MICRO ECONOMICS

II SEMESTER

SYLLABUS (w.e.f. 2011 – 2012)

Module 1: MARKET STRUCTURE

Market forms – Perfect and Imperfect markets. Price Determination and Equilibrium of a firm and industry under perfect competition – Monopoly – Price determination under monopoly – Price discrimination – Monopolistic competition – Price determination. Oligopoly (Kinked demand curve).

Module 2: FACTOR PRICING

Marginal productivity theory of distribution – Theories of wage determination – Wages and collective bargaining: Minimum Wage – Rent – Scarcity rent, Differential rent – Quasi rent. Interest – Classical, Neo-Classical and Keynesian theories – Profit – Dynamic, Innovations, Risk and Uncertainty theories.

REFERENCE:

1. R.G. Lipsey and K.A. Chrysal – "ECONOMICS" Oxford University Press, 10/e 2004.
2. P.A. Samuelson & W.D. Nordhaus – "ECONOMICS" Tata mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e, 2007.
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2007.
6. D.M. Mithani & G.K. Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007.
7. Telugu Academy Publications
8. AUSDE – Study Material
9. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc. Graw Hill, 1971.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

IInd B. A. Paper –II: MACRO ECONOMICS

III SEMESTER

SYLLABUS (w.e.f. 2011 – 2013)

Module 1: NATIONAL INCOME

Meaning, Definition and importance of Macro Economics – National Income: Meaning, Definitions: National Income, GNP & NNP, GDP & NDP, Personal Income (PI), Disposable Income (Di), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) – Measurement of National Income in India.

Module 2: THEORIES OF EMPLOYMENT

Classical theory of employment – Say's law of markers – Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate and Rate of Interest and the concept of Multiplier – Accelerator – Applicability of the Keynesian theory to the developing countries.

Module 3: TRADE CYCLE

Trade cycles – Meaning and definition – Phases of a trade cycle

References:

1. G.Ackley – "Macro Economics Theory and Policy" Collier Macmillan, 1978.
2. E.Shapiro – "Macro Economic Analysis" Galgotia Publications, 1999.
3. Central Statistical Organizations – "National Accounts Statistics".
4. R.Dornbush, S. Fisher and R. Startz – "Macro Economics", Tata Mc. Graw Hill, 9/e, 2004.
5. M.L. Seth – "Macro Economics" Lakshmi Narayana Agarwal, 2006.
6. K.P.M. Sundaram – "Money, banking & International Trade" Sultan Chand, 2006.
7. Dillard, D – "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. Telugu Academy Publications.
9. AUSDE – Study Material.
10. M.N. Mish ra & S B Mishra – "Insurance Principles & practice" S Chand 2007.
11. Bharati V. Pathak "The Indian Financial System, Market, Institutions & Services", Perarson 2008.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

II[nd] B. A. Paper –II: MACRO ECONOMICS

IV SEMESTER

SYLLABUS (w.e.f. 2011 – 2013)

Module 1: MONEY AND THEORIES OF MONEY

Meaning, functions and classification of Money–Gresham's law – R.B.I. Classification of Money – M1, M2, M3, M4 Theories of Money – Fisher's quantity theory of Money, Cambridge approach (Marshall, Pigou, Robertson and Keynes).

Module 2: INFLATION

Inflation – Definition – Types of Inflation – Causes and effects of inflation – Measures to control inflation.

Module 3: BANKING, STOCK MARKET AND INSURANCE

Functions of Commercial banks – The process of credit creation – Concept of Non Banking Finance Companies (NBFCs) – Concept of SEBI Stock Market – Meaning, functions and importance of Stock Market – Primary and Secondary Markets, Concepts of (a) Shares (b) Debentures, Insurance – Types of Insurance – Life Insurance and General Insurance – Functions of the Reserve bank of India – Methods of credit control – Quantitative and Qualitative Methods.

References:

1. G.Ackley – "Macro Economics Theory and Policy" Collier Macmillan, 1978.
2. E.Shapiro – "Macro Economic Analysis" Galgotia Publications, 1999.
3. Central Statistical Organizations – "National Accounts Statistics".
4. R.Dornbush, S. Fisher and R. Startz – "Macro Economics", Tata Mc. Graw Hill, 9/e, 2004.
5. M.L. Seth – "Macro Economics" Lakshmi Narayana Agarwal, 2006.
6. K.P.M. Sundaram – "Money, banking & International Trade" Sultan Chand, 2006.
7. Dillard, D – "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. Telugu Academy Publications.
9. AUSDE – Study Material.
10. M.N. Mish ra & S B Mishra – "Insurance Principles & practice" S Chand 2007.
11. Bharati V. Pathak "The Indian Financial System, Market, Institutions & Services", Perarson 2008.

Govt College (A) Rajahmundry

I BSc ECONOMICS - I

I Semester 2013-2014

Micro Economics Analysis - I

BSC. ECONOMICS syllubus

Module : 1 Demand, Production and cost Theories

Introduction

Nature, Definition and Scope of Economics - Methods of Economics - Micro and Macro - Static and Dynamic - Positive and Normative, Partial and General Equilibrium - Choice as an economic problem - The Production Possibility Curve

Module : 2 Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi-Marginal Utility - Indifference Curves - Properties of Indifference Curves - Price (Budget) line - Equilibrium of the Consumer with the help of Ic Curves - Splitty of Price effect, Hi and

Module : 3 Demand Analysis

Law of Demand - Elasticity of Demand - Price income and cross Elasticities, Demand forecasting - Meaning and factors influencing Demand forecasting - Consumer Surplus - Engel curve, Types of utility function

Module : 4 Theory of production and costs

Objectives of a firm - Production function - Cobb-Douglas, Production function - Isoquant - factor Substitution - Elasticity of Substitution - Law of Variable Proportions, law of Returns to Scale - Expansion Path - Revenue and cost concepts - Break-Even analysis. Short run and long run cost function.

[Additional input underlined]

References :

1. R.G. Lipsey and K.A. Chrystal - Economics Oxford University Press 10/e 2004

2. P.A. Samuelson & W.D "Economics" Tata Mc. Graw Hill 18/e 2005

3. H L Ahuja. 'Advanced Economics theory' Schand 2004

Govt college (A) Rajahmundry Syllabus

Bsc - Economics - I

II Semester 2013-14

Micro Economic Analysis - II Theories of value and distribution

Module : 1 Market Structure

Market forms - Perfect and im perfect Markets, perfect competition Price Determination and Equilibrium of a firm and Industry under Perfect Competition - optimum firm - Time element in Value Determination ..

Module : 2 Imperfect Market

Monopoly - Price determination under Monopoly price Dis Crimination - Degrees of discrimination - Monopolistic Competition, Price determination - selling cost - Equilibrium with selling costs Oligopoly (Kinked Demand Curve) - price leadership - Types

Module : 3 Factor Pricing

Marginal Productivity theory of distribution - Theory of Wage determination - Collective bargaining - Minimum wage - Types of Wage, Rent Concepts - Scarcity Rent, Differential rent - Quasi rent - Interest - Classical, Neo-Classical and Keynesian theories. Profit theory Dynamic, Innovations, Risk and uncertainty theories.

Module : 4 Welfare Economics

Welfare Economics, Pareto optimality, Individual Welfare and Social Welfare, Social welfare function.

[Additional input underlined]

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.A PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – THIRD SEMESTER

MODULE – 3 (CORE) **TITLE: MACRO – ECONOMICS -1 (INCOME AND EMPLOYMENT)** **Hours:6, Credits:4**

Unit-I: **Introduction**

Micro and Macro Economics, Meaning, Definition and importance of Macro Economics – Types of Macro Economics – Macro Economic variables – Limitations of Macro Economics.

Unit-II: National Income

Meaning, Definitions of National Income – Concepts: GNP & NNP, GDP &NDP, Personal Income (PI), Disposable Income (DI), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) –Measurement of National Income in India – Problems of measurement of National Income.

Unit-III: Theories of Employment

Classical theory of employment – Say's law of markers –Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate of Interest. The concepts of Multiplier and Accelerator – Applicability of the Keynesian theory to the developing countries.

Unit-IV: Trade Cycles

Meaning and definition of Trade Cycles - Characteristics and Phases of a trade cycles – Theories of Trade Cycles – Measures to control Trade Cycles

[**Additional Input Underlined]**

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – FOURTH SEMESTER

MODULE – 4 (CORE) **TITLE: MACRO – ECONOMICS -2 (MONEY AND BANKING)** **Hours:6, Credits:4**

Unit-I: **Money and Theories of Money**

Meaning, functions and classification of Money–Gresham's law – R.B.I. Classification of Money – M1, M2, M3, M4 - Theories of Money – Fisher's quantity theory of Money, Cambridge approach (Marshall, Pigou,Robertson and Keynes).

Unit-II: **Inflation**

Definition – Types of Inflation – Causes and effects of inflation – Measures to control inflation – The Philips curve – Other concepts of Inflation.

Unit-III: Banking

Functions of Commercial banks – The process of credit creation – Concept of Non Banking Finance Companies (NBFCs) – Functions of Reserve Bank of India – Methods of Credit control – Quantitative and Qualitative credit controls – Commercial Banking in India.

Unit-IV: Stock Markets and Insurance

Concept of SEBI Stock Market – Meaning, functions and importance of Stock Market– Primary and Secondary Markets, Concepts of (a) Shares (b) Debentures. Insurance – Types of Insurance – Life Insurance and General Insurance

[Additional Input Underlined]

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./B.sc Paper –III: INDIAN ECONOMY 1

V SEMESTER

SYLLABUS

Module 1: CONCEPTS OF DEVELOPMENT:

Meaning of Economic growth and development – Measures of Economic Development –GNP,PCL,PQLI and HDI , Factors influencing Economic development. Sustainable development, -Inclusive growth

Module 2: STRATEGIES AND METHODS of GROWTH

Balanced growth Strategy and unbalanced growth Strategy – Choice of Techniques Labour intensive and capital intensive methods.- Arthur Lewis model

Module 3: STRUCTURE OF THE INDIAN ECONOMY

Basic features of Indian Economy – Role of Natural Resources in Economic development –Basic demographic features –Occupational distribution – Population Explosion –Problems of over population. National population policy.2011

Module 4: NATIONAL INCOME and New Economic Reforms

National income in India – Trends and Composition – Poverty, Inequalities and unemployment Causes and consequences.- Current Five Year Plan– Objectives, Mobilization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India – Inclusive Growth- India after Globalisation.

(Additional Inputs Underlined)

1. . Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008
2. . Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/ B.sc Paper –III: INDIAN ECONOMY 2

VI SEMESTER

SYLLABUS (w.e.f. 2016-17)

Module 1: INDIAN AGRICULTURE

Nature and importance, Trends in agricultural Production and Productivity: factors determining productivity. Rural Credit – Micro Finance and Self Help Groups (SHGs) Agricultural price policy, Crop insurance, Agricultural Infrastructure and food security. (1) Agricultural Marketing in India, (2) Inspect of Land, informs in India, (3) Provision of Agricultural credit to the tenants.

Module 2: INDIAN INDUSTRY

Structure and Growth of Indian Industry-Industrial policies of 1956 and 1991, Growth and problems of Small Scale Industry. Foreign Exchanges Management Act (FEMA): Disinvestment Policy in India – Foreign Direct Investment.

Module 3: SERVICE SECTORS IN INDIA

Growing important of Service Sector in India – Banking Insurance, Information Technology, Education and Health, Transport and communication

Module 4: ANDHRA PRADESH STATE ECONOMY

GSDP – Sectoral Contribution and Trends; Human Resources – Population Trends, Regional differentials – Demographic Dividend.

Agricultural Sector – Land use and Cropping pattern Impact of hand reforms in A.P. Income and employment in Agricultural sector.

Industrial Sector – Small Scale industries, Investment and employment in industrial sector, SEZs;

Service Sector – Growth of income and employment in the service sector, Information, Technology (IT).

REFERENCES:

1. Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008.
2. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011

GOVERNMENT COLLEE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./ B.sc Paper –IV(a): INTERNATIONAL ECONOMICS

V SEMESTER

SYLLABUS (2017 – 2018)

Module 1: Introduction

Meaning of Internal Trade and External Trade-Inter– regional and International Trade –Differences between Internal Trade and External Trade - Importance of International Trade – Inter – industry trade.

Module 2: THEORIES OF INTERNATIONAL TRADE

Theory of absolute advantage –Theory of Heberler's opportunity costs and Hecksher –Ohllin modern Theory .Terms of Trade –Gross Barter and Net Bartter and Income terms of Trade

Module 3: Protection And Balance of Payments

Tariffs-Meaning and Definition of Tariffs –Types of Tariffs -a Tariffs and their effects-: Concept of Optimum Tariff – Quotas- Balance of Trade - Balance of Payments -Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments –Measures to correct Disequilibrium-Depreciation.

Module 4: FOREIGN TRADE IN INDIA

Recent trends in the composition of India's forgein trade –Recent EXIM policy –EXIM Bank –Forgein Direct Investment in India - changing role of IMF,IBRD, WTO-Impact on India –Concept of Out sourcing

REFERENCES:

1. J.Bhagavathi "International Trade '' –Selected reading ,
2. B.O. Soderston – "International Economics", Macmillan, 1995.
3. C.P. Kindle Berger – 'International Economics.
4. Telugu Academy Publications.
5. Dr.N Koti Reddy,Dictionary of Economics,Samatha Publications,2011
6. AUSDE – Study Material.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A /B.sc Paper –IV(a): PUBLIC FINANCE

VI SEMESTER

SYLLABUS (w.e.f 2016-17)

Module1: Introduction

Meaning and scope of public finance: Distinction between public and private finance. Principal of Maximum Social Advantage – Public goods vs Private goods, Merit goods –Demerit good-Social goods

Module 2: Public Revenue

Sources of Public revenue –(a) Taxes (b) Administrative Revenues (c) Commercial Revenues (d) Gifts and grants (e) Deficit Finance –Concept of fiscal deficit –Canons of taxation –(Aedam Smith & Modern)-R Impact, Shifting and Incidence of Taxation, Effects of Taxation –The concept of Value added Tax (VAT). Taxes – direct and indirect taxes – merits and demerits , Methods of taxation –Progressive , proportional ,regressive and degressive.

Module 3: Public Expenditure

Meaning and Classification of public expenditure —Reasons for the growth of public expenditure – Wagner's law – Peacock – Wiseman hypothesis – Canons of public Expenditure-effects of Public Expenditure on Production and Employment

Module 4:Public Debt

Public Debt – Classification of Public debt – Methods of debt redemption – Causes and effects of the growth of India's Public Debt.-Monitisation of Public Debt –Limit of Public debt

[Additional Inputs Underlined]

REFERENCES:

1. B.P. Tyagi – "Public Finance", Jai Prakash Nath, 2004.
2. H.D. Bhatia – "Public Finance", Vikas Publishing House, 2006.
3. D.M. Mithani & G.K. Murty – "Fundamentals of Business Economics", Himalaya Publishing House, 2007.
4. Telugu Academy Publications.
5. AUSDE – Study Material.
6. AUSDE-Study material
7. Dr.N Koti Reddy, Dictionary of Economics, Samatha Publications,201

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 1 (OPTIONAL)

V SEMESTER

SYLLABUS (2017– 2018)

Module 1: MATRIX ALGEBRA

Matrices – Types of Matrices Addition, Subtraction, Multiplication and equality of Matrices – Minors, Co-factors of a matrix – Determinants – Properties – Inverse of a matrix – Solution of simultaneous equations by matrix – Inverse method and Cramer's rule – Depiction of inter industry relationship by matrices.

Module 2: CENTRAL TENDENCY AND DISPERSION

Definition , Scope and Importance of Statistics in Economic analysis- Primary and Secondary Data – Graphic and diagrammatic representation of data, Techniques of data collection, Sampling and Census Methods. Measures of Central Tendency – Mean, Median, Mode, Geometric mean and Harmonic Mean.

Module 3:Measures of DISPERSION

Measures of Dispersion,- Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, concept of Skewness.,Coefficient of Skewness

Module 4: CORRELATION AND REGRESSION

Simple Correlation, Coefficient of Correlation: Karl Pearson Coefficient of Correlation and Spearman's Rank Correlation , Coefficient of determination and Coefficient of Alienation

REFERENCES:

1. A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.
2. Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.
3. S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005
4. Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.
5. E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.
6. K Sydsater & P.J.Hammond – 'Mathematics for Economic Analysis", Pearson Education, Delhi, 2002.

G.S.Monga-"Mathematics and Economics " , Vikas Publishing House pvt L

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus effective from admitted batch of 2014-15
(CBCS PATTERN)
FIRST YEAR – FIRST SEMESTER

MODULE – 1 (CORE) TITLE: MICRO – ECONOMICS -1 Hours:6, Credits:4
(CONSUMPTION AND PRODUCTION)

Unit -1: Introduction

Nature, Definition and Scope of economics – Micro and Macro, Static and Dynamic, Normative and Positive – Inductive and Deductive approaches – Partial General Equlibrium – Applications of Micro Economic theory.

Unit -2: Consumer Behaviour

Utility analysis – Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curves – Properties of Indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of Indifference curves. Demand analysis – Law of Demand – Elasticity of Demand – Price, Income, and Cross elasticities, Consumer Surplus – Demand Forecasting.

Unit -3: Theory of Production

Theories of production – Factors of Production – Concept of Cobb-Douglas production function – Law of Variable Proportions, Law of Returns to Scale – Isoquant approach.

Unit -4: Costs and Supply theory

Different Concepts of Revenue and costs - Equilibrium of the Firm – Break-Even analysis - theory of Supply – determinants of Supply – Supply function – Elasticity of supply – types of elasticity of supply.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
5. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
6. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
7. Telugu Academy Publications
8. AUSSDE – Study material
9. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971
10. Dr. N.Koti Reddy – "Dictionary of Economics, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus effective from admitted batch of 2014-15
(CBCS PATTERN)
FIRST YEAR – FIRST SEMESTER

MODULE – 1 (CORE) TITLE: MICRO – ECONOMICS -1 (CONSUMPTION AND PRODUCTION) Hours:6, Credits:4

Unit -1: Introduction

Nature, Definition and Scope of economics – Micro and Macro, Static and Dynamic, Normative and Positive – Inductive and Deductive approaches – Partial General Equlibrium – Applications of Micro Economic theory.

Unit -2: Consumer Behaviour

Utility analysis – Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curves – Properties of Indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of Indifference curves. Demand analysis – Law of Demand – Elasticity of Demand – Price, Income, and Cross elasticities, Consumer Surplus – Demand Forecasting.

Unit -3: Theory of Production

Theories of production – Factors of Production – Concept of Cobb-Douglas production function – Law of Variable Proportions, Law of Returns to Scale – Isoquant approach.

Unit -4: Costs and Supply theory

Different Concepts of Revenue and costs - Equilibrium of the Firm – Break-Even analysis - theory of Supply – determinants of Supply – Supply function – Elasticity of supply – types of elasticity of supply.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
5. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
6. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
7. Telugu Academy Publications
8. AUSSDE – Study material
9. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971
10. Dr. N.Koti Reddy – "Dictionary of Economics, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus effective from admitted batch of 2014-15

(CBCS PATTERN)

FIRST YEAR – SECOND SEMESTER

MODULE – 2 (CORE) TITLE : MICRO – ECONOMICS - 2 Hours:6, Credits:4

(VALUE AND DISTRIBUTION)

Unit -1: Market Structure

Classification of Markets – Features of Perfect competitive market and Imperfect competitive market – Time element in Price determination.

Unit -2: Product Pricing

Price determination under perfect competition – Equilibrium of a Firm and Industry under perfect competition – Monopoly – Price determination under monopoly – Price Discrimination – Monopolistic competition – Price Determination. Oligopoly and Concept of Duopoly – Cournot Model.

Unit -3: Theory of Distribution

Personal distribution and Functional distribution – Micro distribution and Macro distribution – Marginal Productivity theory of distribution

Unit -4: Factor Pricing

Theories of Wage determination – Wages and Collective Bargaining – Minimum Wage – Rent – Scarcity Rent, Differential Rent, Quasi Rent – Interest – Classical, Neo-Classical and Keynesian theories – Profit – Dynamic, Innovations, Risk and Uncertainty theories – The welfare function.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
5. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
6. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
7. Telugu Academy Publications
8. AUSSDE – Study material
9. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971
10. Dr. N.Koti Reddy – "Dictionary of Economics, Samatha Publications, 2011

Govt College (A) Rajahmundry

I BSc ECONOMICS - I

I Semester 2013-2014

Micro Economics Analysis - I

BSC. ECONOMICS syllubus

Module : 1 Demand, Production and cost Theories

Introduction

Nature, Definition and Scope of Economics - Methods of Economics - Micro and Macro - Static and Dynamic - Positive and Normative, Partial and General Equilibrium - Choice as an economic problem - The Production Possibility Curve

Module : 2 Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi-Marginal Utility - Indifference Curves - Properties of Indifference Curves - Price (Budget) line - Equilibrium of the Consumer with the help of Ic Curves - Splitty of Price effect, Hi and

Module : 3 Demand Analysis

Law of Demand - Elasticity of Demand - Price income and cross Elasticities, Demand forecasting - Meaning and factors influencing Demand forecasting - Consumer Surplus - Engel curve, Types of utility function

Module : 4 Theory of production and costs

Objectives of a firm - Production function - Cobb-Douglas, Production function - Isoquant - factor Substitution - Elasticity of Substitution - Law of Variable Proportions, law of Returns to Scale - Expansion Path - Revenue and cost concepts - Break-Even analysis. Short run and long run cost function.

[Additional input underlined]

References :

1. R.G. Lipsey and K.A. Chrystal - Economics Oxford University Press 10/e 2004

2. P.A. Samuelson & W.D "Economics" Tata Mc. Graw Hill 18/e 2005

3. H L Ahuja. 'Advanced Economics theory' Schand 2004

Govt college (A) Rajahmundry Syllabus

Bsc - Economics - I

II Semester 2013-14

Micro Economic Analysis - II Theories of value and distribution

Module : 1 Market Structure

Market forms - Perfect and im perfect Markets, perfect competition Price Determination and Equilibrium of a firm and Industry under Perfect Competition - optimum firm - Time element in Value Determination ..

Module : 2 Imperfect Market

Monopoly - Price determination under Monopoly price Dis Crimination - Degrees of discrimination - Monopolistic Competition, Price determination - selling cost - Equilibrium with selling costs Oligopoly (Kinked Demand Curve) - price leadership - Types

Module : 3 Factor Pricing

Marginal Productivity theory of distribution - Theory of Wage determination - Collective bargaining - Minimum wage - Types of Wage, Rent Concepts - Scarcity Rent, Differential rent - Quasi rent - Interest - Classical, Neo-Classical and Keynesian theories. Profit theory Dynamic, Innovations, Risk and uncertainty theories.

Module : 4 Welfare Economics

Welfare Economics, Pareto optimality, Individual Welfare and Social Welfare, Social welfare function.

[Additional input underlined]

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

I BA PROGRAMME – ECONOMICS Syllabus for the year 2017-18
(CBCS PATTERN)
FIRST YEAR – FIRST SEMESTER

MODULE – 1 (CORE) TITLE: MICRO – ECONOMICS -1 Hours:6, Credits:4
(CONSUMPTION AND PRODUCTION)

Unit -1: Introduction

Nature, Definition and Scope of economics – Micro and Macro, Static and Dynamic, Normative and Positive – Inductive and Deductive approaches – Partial General Equlibrium – choice as an economics problem-Growth definition of samuelson..

Unit -2: Utility Analysis

Utility analysis – Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curves – Properties of Indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of Indifference curves-derivation of demand curve from insdifference curve analysis

Unit -3: Demand Analysis

Law of Demand – Elasticity of Demand – Price, Income, and Cross elasticities, Consumer Surplus – Demand Forecasting- Meaning and Factors influencing Demand forecasting-consumer's surplus-Engel Curve

Unit -4: Theory of Production

Theories of production –Objectives of a firm- Factors of Production – Production function-Concepts of homogeneous production-Concept of Cobb-Douglas production function – Law of Variable Proportions, Law of Returns to Scale – Economies of scale-internal and external economies.

Unit -5: Cost, Revenue and Supply Analysis

Different Concepts of Revenue and costs , Envelope Curve - Equilibrium of the Firm – Break-Even analysis - theory of Supply – determinants of Supply – Supply function – Elasticity of supply – types of elasticity of supply- Cost-Supply relationship- Long run Cost Curves.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
5. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
6. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
7. Telugu Academy Publications
8. AUSSDE – Study material
9. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971
10. Dr. N.Koti Reddy – "Dictionary of Economics, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

II SEMESTER – ECONOMICS (2017-18)

B.A Programme (CBCS PATTERN)

Paper-II (Core Paper)

Hours:5, Credits:4

Value and Distribution

Unit-1: Producer Behaviour

Isoquants ,characteristics -Isocost -Producer's equilibrium with the help Isoquants-Expansion path – Cobb –Web theory**.** Elasticity of Substitution**.** Marginal rate of technical substitution.

Unit -2: Perfect competition

Classification of Markets – Features of Perfect competitive market- Price determination under perfect competition- Equilibrium of a Firm and Industry under perfect competition– Time element in Price determination-market price-normal price.

Unit -3: Imperfect competition

Monopoly – Price determination under monopoly – Price Discrimination – Monopolistic competition –Price determination-Selling costs –Oligopoly –Kinked demand Curve approach, Duopoly -Price Leadership, price rigidity

Unit -4: Theory of Distribution –Rent and Wage

Marginal Productivity theory of distribution –Ricardian theory of Rent -Quasi Rent and Scarcity rent concepts of Alfred Marshall –Transfer earnings –Types Wages –Wage theories -Subsistence theory of wages, standard of living theory of wages –Collective bargaining –concept of minimum wage. Factors determining real wage .

Unit -5: Theory of Distribution- Interest and Profit

Interest –– Classical, Neo-Classical and Keynesian theories-gross interest and net interest – Profit – Dynamic, Innovations, Risk and Uncertainty theories –Gross Profit and net profit, nature of profits.

(Additional Inputs Underlined)

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd edition), English Language Book Society/ Macmillan press, London
3. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
4. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
5. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
6. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
7. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
8. Telugu Academy Publications
9. AUSSDE – Study material
10. Bilas, A.- "Micro economic Theory", International Student edition, Mc. Graw Hill, 1971

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.A PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – THIRD SEMESTER

MODULE – 3 (CORE) **TITLE: MACRO – ECONOMICS -1 (INCOME AND EMPLOYMENT)** **Hours:6, Credits:4**

Unit-I: **Introduction**

Micro and Macro Economics, Meaning, Definition and importance of Macro Economics – Types of Macro Economics – Macro Economic variables – Limitations of Macro Economics.

Unit-II: National Income

Meaning, Definitions of National Income – Concepts: GNP & NNP, GDP &NDP, Personal Income (PI), Disposable Income (DI), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) –Measurement of National Income in India – Problems of measurement of National Income.

Unit-III: Theories of Employment

Classical theory of employment – Say's law of markers –Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate of Interest. The concepts of Multiplier and Accelerator – Applicability of the Keynesian theory to the developing countries.

Unit-IV: Trade Cycles

Meaning and definition of Trade Cycles - Characteristics and Phases of a trade cycles – Theories of Trade Cycles – Measures to control Trade Cycles

[**Additional Input Underlined]**

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – FOURTH SEMESTER

MODULE – 4 (CORE) **TITLE: MACRO – ECONOMICS -2 (MONEY AND BANKING)** **Hours:6, Credits:4**

Unit-I: **Money and Theories of Money**

Meaning, functions and classification of Money–Gresham's law – R.B.I. Classification of Money – M1, M2, M3, M4 - Theories of Money – Fisher's quantity theory of Money, Cambridge approach (Marshall, Pigou,Robertson and Keynes).

Unit-II: **Inflation**

Definition – Types of Inflation – Causes and effects of inflation – Measures to control inflation – The Philips curve – Other concepts of Inflation.

Unit-III: Banking

Functions of Commercial banks – The process of credit creation – Concept of Non Banking Finance Companies (NBFCs) – Functions of Reserve Bank of India – Methods of Credit control – Quantitative and Qualitative credit controls – Commercial Banking in India.

Unit-IV: Stock Markets and Insurance

Concept of SEBI Stock Market – Meaning, functions and importance of Stock Market– Primary and Secondary Markets, Concepts of (a) Shares (b) Debentures. Insurance – Types of Insurance – Life Insurance and General Insurance

[Additional Input Underlined]

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./B.sc Paper –III: INDIAN ECONOMY 1

V SEMESTER

SYLLABUS

Module 1: CONCEPTS OF DEVELOPMENT:

Meaning of Economic growth and development – Measures of Economic Development –GNP,PCL,PQLI and HDI , Factors influencing Economic development. Sustainable development, -Inclusive growth

Module 2: STRATEGIES AND METHODS of GROWTH

Balanced growth Strategy and unbalanced growth Strategy – Choice of Techniques Labour intensive and capital intensive methods.- Arthur Lewis model

Module 3: STRUCTURE OF THE INDIAN ECONOMY

Basic features of Indian Economy – Role of Natural Resources in Economic development –Basic demographic features –Occupational distribution – Population Explosion –Problems of over population. National population policy.2011

Module 4: NATIONAL INCOME and New Economic Reforms

National income in India – Trends and Composition – Poverty, Inequalities and unemployment Causes and consequences.- Current Five Year Plan– Objectives, Mobilization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India – Inclusive Growth- India after Globalisation.

(Additional Inputs Underlined)

1. . Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008
2. . Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/ B.sc Paper –III: INDIAN ECONOMY 2

VI SEMESTER

SYLLABUS (w.e.f. 2016-17)

Module 1: INDIAN AGRICULTURE

Nature and importance, Trends in agricultural Production and Productivity: factors determining productivity. Rural Credit – Micro Finance and Self Help Groups (SHGs) Agricultural price policy, Crop insurance, Agricultural Infrastructure and food security. (1) Agricultural Marketing in India, (2) Inspect of Land, informs in India, (3) Provision of Agricultural credit to the tenants.

Module 2: INDIAN INDUSTRY

Structure and Growth of Indian Industry-Industrial policies of 1956 and 1991, Growth and problems of Small Scale Industry. Foreign Exchanges Management Act (FEMA): Disinvestment Policy in India – Foreign Direct Investment.

Module 3: SERVICE SECTORS IN INDIA

Growing important of Service Sector in India – Banking Insurance, Information Technology, Education and Health, Transport and communication

Module 4: ANDHRA PRADESH STATE ECONOMY

GSDP – Sectoral Contribution and Trends; Human Resources – Population Trends, Regional differentials – Demographic Dividend.

Agricultural Sector – Land use and Cropping pattern Impact of hand reforms in A.P. Income and employment in Agricultural sector.

Industrial Sector – Small Scale industries, Investment and employment in industrial sector, SEZs;

Service Sector – Growth of income and employment in the service sector, Information, Technology (IT).

REFERENCES:

1. Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008.
2. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011

GOVERNMENT COLLEE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./ B.sc Paper –IV(a): INTERNATIONAL ECONOMICS

V SEMESTER

SYLLABUS (2017 – 2018)

Module 1: Introduction

Meaning of Internal Trade and External Trade-Inter– regional and International Trade –Differences between Internal Trade and External Trade - Importance of International Trade – Inter – industry trade.

Module 2: THEORIES OF INTERNATIONAL TRADE

Theory of absolute advantage –Theory of Heberler's opportunity costs and Hecksher –Ohllin modern Theory .Terms of Trade –Gross Barter and Net Bartter and Income terms of Trade

Module 3: Protection And Balance of Payments

Tariffs-Meaning and Definition of Tariffs –Types of Tariffs -a Tariffs and their effects-: Concept of Optimum Tariff – Quotas- Balance of Trade - Balance of Payments -Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments –Measures to correct Disequilibrium-Depreciation.

Module 4: FOREIGN TRADE IN INDIA

Recent trends in the composition of India's forgein trade –Recent EXIM policy –EXIM Bank –Forgein Direct Investment in India - changing role of IMF,IBRD, WTO-Impact on India –Concept of Out sourcing

REFERENCES:

1. J.Bhagavathi "International Trade '' –Selected reading ,
2. B.O. Soderston – "International Economics", Macmillan, 1995.
3. C.P. Kindle Berger – 'International Economics.
4. Telugu Academy Publications.
5. Dr.N Koti Reddy,Dictionary of Economics,Samatha Publications,2011
6. AUSDE – Study Material.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A /B.sc Paper –IV(a): PUBLIC FINANCE

VI SEMESTER

SYLLABUS (w.e.f 2016-17)

Module1: Introduction

Meaning and scope of public finance: Distinction between public and private finance. Principal of Maximum Social Advantage – Public goods vs Private goods, Merit goods –Demerit good-Social goods

Module 2: Public Revenue

Sources of Public revenue –(a) Taxes (b) Administrative Revenues (c) Commercial Revenues (d) Gifts and grants (e) Deficit Finance –Concept of fiscal deficit –Canons of taxation –(Aedam Smith & Modern)-R Impact, Shifting and Incidence of Taxation, Effects of Taxation –The concept of Value added Tax (VAT). Taxes – direct and indirect taxes – merits and demerits , Methods of taxation –Progressive , proportional ,regressive and degressive.

Module 3: Public Expenditure

Meaning and Classification of public expenditure —Reasons for the growth of public expenditure – Wagner's law – Peacock – Wiseman hypothesis – Canons of public Expenditure-effects of Public Expenditure on Production and Employment

Module 4:Public Debt

Public Debt – Classification of Public debt – Methods of debt redemption – Causes and effects of the growth of India's Public Debt.-Monitisation of Public Debt –Limit of Public debt

[Additional Inputs Underlined]

REFERENCES:

1. B.P. Tyagi – "Public Finance", Jai Prakash Nath, 2004.
2. H.D. Bhatia – "Public Finance", Vikas Publishing House, 2006.
3. D.M. Mithani & G.K. Murty – "Fundamentals of Business Economics", Himalaya Publishing House, 2007.
4. Telugu Academy Publications.
5. AUSDE – Study Material.
6. AUSDE-Study material
7. Dr.N Koti Reddy, Dictionary of Economics, Samatha Publications,201

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 1 (OPTIONAL)

V SEMESTER

SYLLABUS (2017– 2018)

Module 1: MATRIX ALGEBRA

Matrices – Types of Matrices Addition, Subtraction, Multiplication and equality of Matrices – Minors, Co-factors of a matrix – Determinants – Properties – Inverse of a matrix – Solution of simultaneous equations by matrix – Inverse method and Cramer's rule – Depiction of inter industry relationship by matrices.

Module 2: CENTRAL TENDENCY AND DISPERSION

Definition , Scope and Importance of Statistics in Economic analysis- Primary and Secondary Data – Graphic and diagrammatic representation of data, Techniques of data collection, Sampling and Census Methods. Measures of Central Tendency – Mean, Median, Mode, Geometric mean and Harmonic Mean.

Module 3:Measures of DISPERSION

Measures of Dispersion,- Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, concept of Skewness.,Coefficient of Skewness

Module 4: CORRELATION AND REGRESSION

Simple Correlation, Coefficient of Correlation: Karl Pearson Coefficient of Correlation and Spearman's Rank Correlation , Coefficient of determination and Coefficient of Alienation

REFERENCES:

1. A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.
2. Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.
3. S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005
4. Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.
5. E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.
6. K Sydsater & P.J.Hammond – 'Mathematics for Economic Analysis", Pearson Education, Delhi, 2002.

G.S.Monga-"Mathematics and Economics " , Vikas Publishing House pvt L

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 2 (OPTIONAL)

VI SEMESTER

SYLLABUS (w.e.f 2016 – 2017)

Module 1: CALCULUS

Definition of a function – Differentiation of a Function: Maxima and Minima, Elasticities, Equilibrium of a consumer and a firm, Inter relationships among total, marginal and average cost and revenues: Constrained optimization problem: Integration of a function, Consumer and producer surplus.-Minimisation of Cost and Maximisation of Revenue

Module 2: REGRESSION

Regression analysis – Estimation of regression line in a bivariate distribution – Ordinary Least Squares (OLS) Method – Interpretation of regression coefficients – Demand forecasting. –Trasformation to Linearity

Module 3: TIME SERIES

Objectives and Uses Time series analysis–Concept and Components – Determination of Trend, Simple and Compound Growth Rates –Business forecasting

Module 4: INDEX NUMBERS

Index numbers: concept, price relative, quantity relative, value relative, Laspeyer's Paasche's and Fisher's Ideal Index- Time Reversal Test and Factor Reversal Test – Constructing Wholesale Price Index and Consumer Price Index- Uses and Limitations of Index numbers.

[Additional Inputs Underlined]

REFERENCES:

1.A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.

2.Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.

3.S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005

4.Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.

5.E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.

Govt College (A) Rajahmundry

I BSc ECONOMICS - I

I Semester 2013-2014

Micro Economics Analysis - I

BSC. ECONOMICS syllubus

Module : 1 Demand, Production and cost Theories

Introduction

Nature, Definition and Scope of Economics - Methods of Economics - Micro and Macro - Static and Dynamic - Positive and Normative, Partial and General Equilibrium - Choice as an economic problem - The Production Possibility Curve

Module : 2 Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi-Marginal Utility - Indifference Curves - Properties of Indifference Curves - Price (Budget) line - Equilibrium of the Consumer with the help of Ic Curves - Splitty of Price effect, Hi and

Module : 3 Demand Analysis

Law of Demand - Elasticity of Demand - Price income and cross Elasticities, Demand forecasting - Meaning and factors influencing Demand forecasting - Consumer Surplus - Engel curve, Types of utility function

Module : 4 Theory of production and costs

Objectives of a firm - Production function - Cobb-Douglas, Production function - Isoquant - factor Substitution - Elasticity of Substitution - Law of Variable Proportions, law of Returns to Scale - Expansion Path - Revenue and cost concepts - Break-Even analysis. Short run and long run cost function.

[Additional input underlined]

References :

1. R.G. Lipsey and K.A. Chrystal - Economics Oxford University Press 10/e 2004

2. P.A. Samuelson & W.D "Economics" Tata Mc. Graw Hill 18/e 2005

3. H L Ahuja. 'Advanced Economics theory' Schand 2004

Govt college (A) Rajahmundry Syllabus

Bsc - Economics - I

II Semester 2013-14

Micro Economic Analysis - II Theories of value and distribution

Module : 1 Market Structure

Market forms - Perfect and im perfect Markets, perfect competition Price Determination and Equilibrium of a firm and Industry under Perfect Competition - optimum firm - Time element in Value Determination ..

Module : 2 Imperfect Market

Monopoly - Price determination under Monopoly price Dis Crimination - Degrees of discrimination - Monopolistic Competition, Price determination - selling cost - Equilibrium with selling costs Oligopoly (Kinked Demand Curve) - price leadership - Types

Module : 3 Factor Pricing

Marginal Productivity theory of distribution - Theory of Wage determination - Collective bargaining - Minimum wage - Types of Wage, Rent Concepts - Scarcity Rent, Differential rent - Quasi rent - Interest - Classical, Neo-Classical and Keynesian theories. Profit theory Dynamic, Innovations, Risk and uncertainty theories.

Module : 4 Welfare Economics

Welfare Economics, Pareto optimality, Individual Welfare and Social Welfare, Social welfare function.

[Additional input underlined]

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

I BA PROGRAMME – ECONOMICS Syllabus for the year 2017-18
(CBCS PATTERN)
FIRST YEAR – FIRST SEMESTER

MODULE – 1 (CORE) TITLE: MICRO – ECONOMICS -1 Hours:6, Credits:4
(CONSUMPTION AND PRODUCTION)

Unit -1: Introduction

Nature, Definition and Scope of economics – Micro and Macro, Static and Dynamic, Normative and Positive – Inductive and Deductive approaches – Partial General Equlibrium – choice as an economics problem-Growth definition of samuelson..

Unit -2: Utility Analysis

Utility analysis – Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curves – Properties of Indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of Indifference curves-derivation of demand curve from insdifference curve analysis

Unit -3: Demand Analysis

Law of Demand – Elasticity of Demand – Price, Income, and Cross elasticities, Consumer Surplus – Demand Forecasting- Meaning and Factors influencing Demand forecasting-consumer's surplus-Engel Curve

Unit -4: Theory of Production

Theories of production –Objectives of a firm- Factors of Production – Production function-Concepts of homogeneous production-Concept of Cobb-Douglas production function – Law of Variable Proportions, Law of Returns to Scale – Economies of scale-internal and external economies.

Unit -5: Cost, Revenue and Supply Analysis

Different Concepts of Revenue and costs , Envelope Curve - Equilibrium of the Firm – Break-Even analysis - theory of Supply – determinants of Supply – Supply function – Elasticity of supply – types of elasticity of supply- Cost-Supply relationship- Long run Cost Curves.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
3. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
4. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
5. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
6. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
7. Telugu Academy Publications
8. AUSSDE – Study material
9. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971
10. Dr. N.Koti Reddy – "Dictionary of Economics, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

II SEMESTER – ECONOMICS (2017-18)

B.A Programme (CBCS PATTERN)

Paper-II (Core Paper)

Hours:5, Credits:4

Value and Distribution

Unit-1: Producer Behaviour

Isoquants ,characteristics -Isocost -Producer's equilibrium with the help Isoquants-Expansion path – Cobb –Web theory**.** Elasticity of Substitution**.** Marginal rate of technical substitution.

Unit -2: Perfect competition

Classification of Markets – Features of Perfect competitive market- Price determination under perfect competition- Equilibrium of a Firm and Industry under perfect competition– Time element in Price determination-market price-normal price.

Unit -3: Imperfect competition

Monopoly – Price determination under monopoly – Price Discrimination – Monopolistic competition –Price determination-Selling costs –Oligopoly –Kinked demand Curve approach, Duopoly -Price Leadership, price rigidity

Unit -4: Theory of Distribution –Rent and Wage

Marginal Productivity theory of distribution –Ricardian theory of Rent -Quasi Rent and Scarcity rent concepts of Alfred Marshall –Transfer earnings –Types Wages –Wage theories -Subsistence theory of wages, standard of living theory of wages –Collective bargaining –concept of minimum wage. Factors determining real wage .

Unit -5: Theory of Distribution- Interest and Profit

Interest –– Classical, Neo-Classical and Keynesian theories-gross interest and net interest – Profit – Dynamic, Innovations, Risk and Uncertainty theories –Gross Profit and net profit, nature of profits.

(Additional Inputs Underlined)

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd edition), English Language Book Society/ Macmillan press, London
3. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
4. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
5. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
6. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
7. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
8. Telugu Academy Publications
9. AUSSDE – Study material
10. Bilas, A.- "Micro economic Theory", International Student edition, Mc. Graw Hill, 1971

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

B.A PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – THIRD SEMESTER

MODULE – 3 (CORE) **TITLE: MACRO – ECONOMICS -1 (INCOME AND EMPLOYMENT)** **Hours:6, Credits:4**

Unit-I: **Introduction**

Micro and Macro Economics, Meaning, Definition and importance of Macro Economics – Types of Macro Economics – Macro Economic variables – Limitations of Macro Economics.

Unit-II: National Income

Meaning, Definitions of National Income – Concepts: GNP & NNP, GDP &NDP, Personal Income (PI), Disposable Income (DI), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) –Measurement of National Income in India – Problems of measurement of National Income.

Unit-III: Theories of Employment

Classical theory of employment – Say's law of markers –Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate of Interest. The concepts of Multiplier and Accelerator – Applicability of the Keynesian theory to the developing countries.

Unit-IV: Trade Cycles

Meaning and definition of Trade Cycles - Characteristics and Phases of a trade cycles – Theories of Trade Cycles – Measures to control Trade Cycles

[**Additional Input Underlined]**

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY.

BA PROGRAMME – ECONOMICS Syllabus for the year 2016-17
(CBCS PATTERN)
SECOND YEAR – FOURTH SEMESTER

MODULE – 4 (CORE) **TITLE: MACRO – ECONOMICS -2 (MONEY AND BANKING)** **Hours:6, Credits:4**

Unit-I: **Money and Theories of Money**

Meaning, functions and classification of Money–Gresham's law – R.B.I. Classification of Money – M1, M2, M3, M4 - Theories of Money – Fisher's quantity theory of Money, Cambridge approach (Marshall, Pigou,Robertson and Keynes).

Unit-II: **Inflation**

Definition – Types of Inflation – Causes and effects of inflation – Measures to control inflation – The Philips curve – Other concepts of Inflation.

Unit-III: Banking

Functions of Commercial banks – The process of credit creation – Concept of Non Banking Finance Companies (NBFCs) – Functions of Reserve Bank of India – Methods of Credit control – Quantitative and Qualitative credit controls – Commercial Banking in India.

Unit-IV: Stock Markets and Insurance

Concept of SEBI Stock Market – Meaning, functions and importance of Stock Market– Primary and Secondary Markets, Concepts of (a) Shares (b) Debentures. Insurance – Types of Insurance – Life Insurance and General Insurance

[Additional Input Underlined]

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. Dr. N Koti Reddy, *Dictionary of Economics*, Samatha Publications, 2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./B.sc Paper –III: INDIAN ECONOMY 1

V SEMESTER

SYLLABUS

Module 1: CONCEPTS OF DEVELOPMENT:

Meaning of Economic growth and development – Measures of Economic Development –GNP,PCL,PQLI and HDI , Factors influencing Economic development. Sustainable development, -Inclusive growth

Module 2: STRATEGIES AND METHODS of GROWTH

Balanced growth Strategy and unbalanced growth Strategy – Choice of Techniques Labour intensive and capital intensive methods.- Arthur Lewis model

Module 3: STRUCTURE OF THE INDIAN ECONOMY

Basic features of Indian Economy – Role of Natural Resources in Economic development –Basic demographic features –Occupational distribution – Population Explosion –Problems of over population. National population policy.2011

Module 4: NATIONAL INCOME and New Economic Reforms

National income in India – Trends and Composition – Poverty, Inequalities and unemployment Causes and consequences.- Current Five Year Plan– Objectives, Mobilization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India – Inclusive Growth- India after Globalisation.

(Additional Inputs Underlined)

1. . Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008
2. . Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/ B.sc Paper –III: INDIAN ECONOMY 2

VI SEMESTER

SYLLABUS (w.e.f. 2016-17)

Module 1: INDIAN AGRICULTURE

Nature and importance, Trends in agricultural Production and Productivity: factors determining productivity. Rural Credit – Micro Finance and Self Help Groups (SHGs) Agricultural price policy, Crop insurance, Agricultural Infrastructure and food security. (1) Agricultural Marketing in India, (2) Inspect of Land, informs in India, (3) Provision of Agricultural credit to the tenants.

Module 2: INDIAN INDUSTRY

Structure and Growth of Indian Industry-Industrial policies of 1956 and 1991, Growth and problems of Small Scale Industry. Foreign Exchanges Management Act (FEMA): Disinvestment Policy in India – Foreign Direct Investment.

Module 3: SERVICE SECTORS IN INDIA

Growing important of Service Sector in India – Banking Insurance, Information Technology, Education and Health, Transport and communication

Module 4: ANDHRA PRADESH STATE ECONOMY

GSDP – Sectoral Contribution and Trends; Human Resources – Population Trends, Regional differentials – Demographic Dividend.

Agricultural Sector – Land use and Cropping pattern Impact of hand reforms in A.P. Income and employment in Agricultural sector.

Industrial Sector – Small Scale industries, Investment and employment in industrial sector, SEZs;

Service Sector – Growth of income and employment in the service sector, Information, Technology (IT).

REFERENCES:

1. Ruddar Dutta and K.P.M. Sundaram – "Indian Econmy", S Chand & Co, 2008.
2. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
3. R.S. Rao, V Hanumantha Rao & N Venu Gopal (Ed.) – Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
4. Center for Documentation ,Research and Communications ,Hyderabad,2007
5. Telugu Academy Publications.
6. Dr.N Koti Reddy , Dictionary of Economics ,Samatha Publications,2011

GOVERNMENT COLLEE (AUTONOMOUS): : RAJAHMUNDRY

III B. A./ B.sc Paper –IV(a): INTERNATIONAL ECONOMICS

V SEMESTER

SYLLABUS (2017 – 2018)

Module 1: Introduction

Meaning of Internal Trade and External Trade-Inter– regional and International Trade –Differences between Internal Trade and External Trade - Importance of International Trade – Inter – industry trade.

Module 2: THEORIES OF INTERNATIONAL TRADE

Theory of absolute advantage –Theory of Heberler's opportunity costs and Hecksher –Ohllin modern Theory .Terms of Trade –Gross Barter and Net Bartter and Income terms of Trade

Module 3: Protection And Balance of Payments

Tariffs-Meaning and Definition of Tariffs –Types of Tariffs -a Tariffs and their effects-: Concept of Optimum Tariff – Quotas- Balance of Trade - Balance of Payments -Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments –Measures to correct Disequilibrium-Depreciation.

Module 4: FOREIGN TRADE IN INDIA

Recent trends in the composition of India's forgein trade –Recent EXIM policy –EXIM Bank –Forgein Direct Investment in India - changing role of IMF,IBRD, WTO-Impact on India –Concept of Out sourcing

REFERENCES:

1. J.Bhagavathi "International Trade '' –Selected reading ,
2. B.O. Soderston – "International Economics", Macmillan, 1995.
3. C.P. Kindle Berger – 'International Economics.
4. Telugu Academy Publications.
5. Dr.N Koti Reddy,Dictionary of Economics,Samatha Publications,2011
6. AUSDE – Study Material.

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A /B.sc Paper –IV(a): PUBLIC FINANCE

VI SEMESTER

SYLLABUS (w.e.f 2016-17)

Module1: Introduction

Meaning and scope of public finance: Distinction between public and private finance. Principal of Maximum Social Advantage – Public goods vs Private goods, Merit goods –Demerit good-Social goods

Module 2: Public Revenue

Sources of Public revenue –(a) Taxes (b) Administrative Revenues (c) Commercial Revenues (d) Gifts and grants (e) Deficit Finance –Concept of fiscal deficit –Canons of taxation –(Aedam Smith & Modern)-R Impact, Shifting and Incidence of Taxation, Effects of Taxation –The concept of Value added Tax (VAT). Taxes – direct and indirect taxes – merits and demerits , Methods of taxation –Progressive , proportional ,regressive and degressive.

Module 3: Public Expenditure

Meaning and Classification of public expenditure —Reasons for the growth of public expenditure – Wagner's law – Peacock – Wiseman hypothesis – Canons of public Expenditure-effects of Public Expenditure on Production and Employment

Module 4:Public Debt

Public Debt – Classification of Public debt – Methods of debt redemption – Causes and effects of the growth of India's Public Debt.-Monitisation of Public Debt –Limit of Public debt

[Additional Inputs Underlined]

REFERENCES:

1. B.P. Tyagi – "Public Finance", Jai Prakash Nath, 2004.
2. H.D. Bhatia – "Public Finance", Vikas Publishing House, 2006.
3. D.M. Mithani & G.K. Murty – "Fundamentals of Business Economics", Himalaya Publishing House, 2007.
4. Telugu Academy Publications.
5. AUSDE – Study Material.
6. AUSDE-Study material
7. Dr.N Koti Reddy, Dictionary of Economics, Samatha Publications,201

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 1 (OPTIONAL)

V SEMESTER

SYLLABUS (2017– 2018)

Module 1: MATRIX ALGEBRA

Matrices – Types of Matrices Addition, Subtraction, Multiplication and equality of Matrices – Minors, Co-factors of a matrix – Determinants – Properties – Inverse of a matrix – Solution of simultaneous equations by matrix – Inverse method and Cramer's rule – Depiction of inter industry relationship by matrices.

Module 2: CENTRAL TENDENCY AND DISPERSION

Definition , Scope and Importance of Statistics in Economic analysis- Primary and Secondary Data – Graphic and diagrammatic representation of data, Techniques of data collection, Sampling and Census Methods. Measures of Central Tendency – Mean, Median, Mode, Geometric mean and Harmonic Mean.

Module 3:Measures of DISPERSION

Measures of Dispersion,- Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, concept of Skewness.,Coefficient of Skewness

Module 4: CORRELATION AND REGRESSION

Simple Correlation, Coefficient of Correlation: Karl Pearson Coefficient of Correlation and Spearman's Rank Correlation , Coefficient of determination and Coefficient of Alienation

REFERENCES:

1. A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.
2. Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.
3. S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005
4. Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.
5. E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.
6. K Sydsater & P.J.Hammond – 'Mathematics for Economic Analysis", Pearson Education, Delhi, 2002.

G.S.Monga-"Mathematics and Economics " , Vikas Publishing House pvt L

GOVERNMENT COLLEGE (AUTONOMOUS): : RAJAHMUNDRY

III B A/B.sc Paper –IV(b): QUANTITATIVE TECHNIQUES 2 (OPTIONAL)

VI SEMESTER

SYLLABUS (w.e.f 2016 – 2017)

Module 1: CALCULUS

Definition of a function – Differentiation of a Function: Maxima and Minima, Elasticities, Equilibrium of a consumer and a firm, Inter relationships among total, marginal and average cost and revenues: Constrained optimization problem: Integration of a function, Consumer and producer surplus.-Minimisation of Cost and Maximisation of Revenue

Module 2: REGRESSION

Regression analysis – Estimation of regression line in a bivariate distribution – Ordinary Least Squares (OLS) Method – Interpretation of regression coefficients – Demand forecasting. –Trasformation to Linearity

Module 3: TIME SERIES

Objectives and Uses Time series analysis–Concept and Components – Determination of Trend, Simple and Compound Growth Rates –Business forecasting

Module 4: INDEX NUMBERS

Index numbers: concept, price relative, quantity relative, value relative, Laspeyer's Paasche's and Fisher's Ideal Index- Time Reversal Test and Factor Reversal Test – Constructing Wholesale Price Index and Consumer Price Index- Uses and Limitations of Index numbers.

[Additional Inputs Underlined]

REFERENCES:

1.A.C. Chiang – "Fundamental Methods of Mathematical Economics", Mc Graw Hill, 1984.

2.Yamane Taro – "Mathematics for Economics", Prentice Hall of India, New Delhi, 1988, 2/e.

3.S.P. Gupta & V.K. Kapoor – "Fundamentals of Mathematical Statisties", S. Chand & Co., 2005

4.Stephen Bernstein & Ruth Bernstein – "theory & Problems of Elements of Statistics", Schaum's Outlines Series, Tata Mc Graw Hill, 2005.

5.E. Dowling – "Mathematical Economics", Schaum's Outline Series, 2007.

Govt College (A) Rajahmundry

I BSc ECONOMICS - I

I Semester 2013-2014

Micro Economics Analysis - I

BSC. ECONOMICS syllubus

Module : 1 Demand, Production and cost Theories

Introduction

Nature, Definition and Scope of Economics - Methods of Economics - Micro and Macro - Static and Dynamic - Positive and Normative, Partial and General Equilibrium - Choice as an economic problem - The Production Possibility Curve

Module : 2 Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi-Marginal Utility - Indifference Curves - Properties of Indifference Curves - Price (Budget) line - Equilibrium of the Consumer with the help of Ic Curves - Splitty of Price effect, Hi and

Module : 3 Demand Analysis

Law of Demand - Elasticity of Demand - Price income and cross Elasticities, Demand forecasting - Meaning and factors influencing Demand forecasting - Consumer Surplus - Engel curve, Types of utility function

Module : 4 Theory of production and costs

Objectives of a firm - Production function - Cobb-Douglas, Production function - Isoquant - factor Substitution - Elasticity of Substitution - Law of Variable Proportions, law of Returns to Scale - Expansion Path - Revenue and cost concepts - Break-Even analysis. Short run and long run cost function.

[Additional input underlined]

References :

1. R.G. Lipsey and K.A. Chrystal - Economics Oxford University Press 10/e 2004

2. P.A. Samuelson & W.D "Economics" Tata Mc. Graw Hill 18/e 2005

3. H L Ahuja. 'Advanced Economics theory' Schand 2004

Govt college (A) Rajahmundry Syllabus

Bsc - Economics - I

II Semester 2013-14

Micro Economic Analysis - II Theories of value and distribution

Module : 1 Market Structure

Market forms - Perfect and im perfect Markets, perfect competition Price Determination and Equilibrium of a firm and Industry under Perfect Competition - optimum firm - Time element in Value Determination ..

Module : 2 Imperfect Market

Monopoly - Price determination under Monopoly price Dis Crimination - Degrees of discrimination - Monopolistic Competition, Price determination - selling cost - Equilibrium with selling costs Oligopoly (Kinked Demand Curve) - price leadership - Types

Module : 3 Factor Pricing

Marginal Productivity theory of distribution - Theory of Wage determination - Collective bargaining - Minimum wage - Types of Wage, Rent Concepts - Scarcity Rent, Differential rent - Quasi rent - Interest - Classical, Neo-Classical and Keynesian theories. Profit theory Dynamic, Innovations, Risk and uncertainty theories.

Module : 4 Welfare Economics

Welfare Economics, Pareto optimality, Individual Welfare and Social Welfare, Social welfare function.

[Additional input underlined]

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

I SEMESTER – ECONOMICS (2018-19)

B.A- (CBCS PATTERN)

Paper-I (Core Paper)

Hours:5, Credits:4

Consumption and production

Unit -1: Introduction

Nature, Definition and Scope of economics – Micro and Macro, Static and Dynamic, Normative and Positive – Inductive and Deductive approaches – Partial General Equilibrium-Choice as an Economic Problem-Growth definition of Samuelson.

Unit -2: Utility Analysis

Utility analysis – Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curves – Properties of Indifference curves – Price (Budget) line – Equilibrium of the consumer with the help of Indifference curves. Derivation of demand curve from indifference curve analysis

Unit -3: Demand Analysis

Law of Demand – Elasticity of Demand – Price, Income, and Cross elasticities, Consumer Surplus – Demand Forecasting- Meaning and Factors influencing Demand forecasting-consumer's surplus-Engel Curve

Unit -4: Theory of Production

Theories of production –Objectives of a firm- Factors of Production – Production function-Concept of homogeneous production function- Cobb-Douglas production function – Law of Variable Proportions, Law of Returns to Scale – Economies of scale-internal and external economies.

Unit -5: Cost, Revenue and Supply Analysis

Different Concepts of Revenue and costs, Envelope Curve - Equilibrium of the Firm – Break-Even analysis - theory of Supply – determinants of Supply – Supply function – Elasticity of supply – types of elasticity of supply- Cost-Supply relationship- Long run Cost Curves.

[Additional Input Underlined]

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd edition), English Language Book Society/ Macmillan press, London
3. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
4. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
5. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
6. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
7. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
8. Telugu Academy Publications
9. AUSSDE – Study material
10. Bilas, A.-"Micro economic Theory", International Student edition, Mc. Graw Hill, 1971

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

II SEMESTER – ECONOMICS (2017-18)

B.A Programme (CBCS PATTERN)

Paper-II (Core Paper)

Hours:5, Credits:4

Value and Distribution

Unit-1: Producer Behaviour

Isoquants ,characteristics -Isocost -Producer's equilibrium with the help Isoquants-Expansion path – Cobb –Web theory**.** Elasticity of Substitution**.** Marginal rate of technical substitution.

Unit -2: Perfect competition

Classification of Markets – Features of Perfect competitive market- Price determination under perfect competition- Equilibrium of a Firm and Industry under perfect competition– Time element in Price determination-market price-normal price.

Unit -3: Imperfect competition

Monopoly – Price determination under monopoly – Price Discrimination – Monopolistic competition –Price determination-Selling costs –Oligopoly –Kinked demand Curve approach, Duopoly -Price Leadership, price rigidity

Unit -4: Theory of Distribution –Rent and Wage

Marginal Productivity theory of distribution –Ricardian theory of Rent -Quasi Rent and Scarcity rent concepts of Alfred Marshall –Transfer earnings –Types Wages –Wage theories -Subsistence theory of wages, standard of living theory of wages –Collective bargaining –concept of minimum wage. Factors determining real wage .

Unit -5: Theory of Distribution- Interest and Profit

Interest –– Classical, Neo-Classical and Keynesian theories-gross interest and net interest – Profit – Dynamic, Innovations, Risk and Uncertainty theories –Gross Profit and net profit, nature of profits.

(Additional Inputs Underlined)

Suggested Books:

1. R.G. lipsey and K.A.Chrysal – " ECONOMICS" Oxford University press, 10/e 2004
2. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd edition), English Language Book Society/ Macmillan press, London
3. P.A. Samuelson & W.D Nordhaus – " ECONOMICS" Tata mc.Graw Hill, 18/e, 2005
4. N.Gregory Mankiw – "Principles of Economics", Thompson, 4/e 2007
5. H.L. Ahuja – "Advanced Economic Theory", S Chand, 2004
6. M.L.Sethy – " Micro Economics", Laxmi Narayana Agarwal, 2007
7. D.M. Mithani & G.K Murthy – "Fundamentals of Business Economics", Himalaya Publishing, 2007
8. Telugu Academy Publications
9. AUSSDE – Study material
10. Bilas, A.- "Micro economic Theory", International Student edition, Mc. Graw Hill, 1971

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

B.A PROGRAMME – ECONOMICS Syllabus for the year 2017-18
(CBCS PATTERN)
SECOND YEAR – THIRD SEMESTER

PAPER – 3 (CORE) TITLE: MACRO – ECONOMICS -1 Hours:5, Credits:4
(INCOME, EMPLOYMENT AND MONEY)

Unit-I: **Introduction**

Micro and Macro Economics- Evolution of Macro Economics- Meaning, Definition and importance of Macro Economics – Macro Economic variables –Paradox of Macro Economics-Limitations of Macro Economics.

Unit-II: National Income

Meaning, Definitions of National Income – Concepts: GNP & NNP, GDP &NDP, Personal Income (PI), Disposable Income (DI), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) –Measurement of National Income in India – Problems in measurement of National Income – Economic Welfare and National Income-Circular Flow of Income.

Unit-III: Money and Theories of Money

Evolution of Money- Meaning and Functions of Money - Classification of money - Gresham's Law - RBI classification of Money. Theories of Money - Fisher's Quantity theory of Money-Cambridge approach (Marshall, Pigou, Robertson & Keynes)

Unit-IV: Theories of Employment-Classical

Classical theory of employment –Wage Cut Policy- Saving and investment equilibrium-Say's law of markers.

Unit-V: Theories of Employment-Keynes

Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate of Interest. The concepts of Multiplier and Accelerator – Applicability of the Keynesian theory to the developing countries.

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. E. Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
7. Central Statistical Organisations - "National Accounts Statistics".
8. R. Dornbush, S. Fisher and R. Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e, 2004.
9. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

B.A - PROGRAMME – ECONOMICS Syllabus for the year 2017-18
(CBCS PATTERN)
SECOND YEAR – FOURTH SEMESTER

PAPER – 4 (CORE) TITLE: MACRO – ECONOMICS -2 Hours:5, Credits:4
(DEVELOPMENT, BANKING AND INTERNATIONAL TRADE)

Unit-I: Trade Cycles & Inflation

Trade Cycles - meaning and definition – Phases of a Trade Cycles – Measures to control trade cycles. Inflation - definition - types of inflation - causes and effects of inflation- measures to control inflation-Philips Curve-inflationary gap.

Unit-II: International Trade

Importance of International Trade- Regional and International Trade- Theories of International Trade-Classical-Adam Smith and David Ricardo-Hecksher and Ohlin - Heberlar opportunity cost theory.

Unit-III: Banking

Evolution of Commercial Banking- Banking Systems-Functions of Commercial Banks - Concept of Credit Creation-Functions of RBI-Methods of Credit Control-Quantitative and Qualitative-central Banking.

Unit-IV: Stock Markets and Insurance

Stock Market – Meaning, Functions and importance of stock market - Primary and Secondary Markets -Securities Exchange Board of India (SEBI)-Functions. Insurance – Life Insurance and General Insurance- Insurance Regulatory and Development Authority (IRDA) – NSE and BSE.

Unit-IV: Economic Growth and Development

Concept of Economic Growth - Distinction between economic growth and development – Determinants of economic development- Measurement of economic development.
Environmental protection and sustainable development.

(Additional Inputs Underlined)

REFERENCES:

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.
2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
3. Central Statistical Organisations - "National Accounts Statistics".
4. R.Dornbush, s.Fisher and R.Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e, 2004.
5. M.L.Seth-"Macro Economics", Lakshmi Narayana Agarwal, 2015.
6. K.P.M. Sundaram - "Money, banking & International Trade", Sultan Chand, 2010.
7. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. M.N.Mish ra & S.B.Mishra - "Insurance Principles & Practice" S.Chand 2012.
9. Bharati V.Pathak "The Indian Financial System Markets. Institutions & Services". Pearson.
10. D.M.Mithani & G.K.Murty - " Business Economics", Himalaya Publishing House, 2015.
11. M.L.Jhingan - Economic Development - Vikas, 2012.
12. G.Omkarnath - Economics - A Primer for India - Orient Blackswan, 2012.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

B.A PROGRAMME – ECONOMICS Syllabus for the year 2017-18
(CBCS PATTERN)
SECOND YEAR – THIRD SEMESTER

PAPER – 3 (CORE) TITLE: MACRO – ECONOMICS -1 Hours:5, Credits:4
(INCOME, EMPLOYMENT AND MONEY)

Unit-I: **Introduction**

Micro and Macro Economics- Evolution of Macro Economics- Meaning, Definition and importance of Macro Economics – Macro Economic variables –Paradox of Macro Economics-Limitations of Macro Economics.

Unit-II: National Income

Meaning, Definitions of National Income – Concepts: GNP & NNP, GDP &NDP, Personal Income (PI), Disposable Income (DI), Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation of National Income (NI) –Measurement of National Income in India – Problems in measurement of National Income – Economic Welfare and National Income-Circular Flow of Income.

Unit-III: Money and Theories of Money

Evolution of Money- Meaning and Functions of Money - Classification of money - Gresham's Law - RBI classification of Money. Theories of Money - Fisher's Quantity theory of Money-Cambridge approach (Marshall, Pigou, Robertson & Keynes)

Unit-IV: Theories of Employment-Classical

Classical theory of employment –Wage Cut Policy- Saving and investment equilibrium-Say's law of markers.

Unit-V: Theories of Employment-Keynes

Keynesian theory of employment – Consumption function – APC, MPC, factors influencing consumption function – Investment function – MEC and Rate of Interest. The concepts of Multiplier and Accelerator – Applicability of the Keynesian theory to the developing countries.

Books for Reference:

1. G Ackley, *Macro Economics Theory and Policy*, Collier Macmillan,1978.
2. M L Seth, *Macro Economics*, Lakshmi Narayana Agarwal, 2006.
3. K P M Sundaram, *Money Banking & International Trade*, Sultan Chand, 2006.
4. *Telugu Academy*, Publications.
5. M N Mishra & S B Mishra, *Insurance Principles & Practice* S Chand 2007.
6. E. Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
7. Central Statistical Organisations - "National Accounts Statistics".
8. R. Dornbush, S. Fisher and R. Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e, 2004.
9. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAHMUNDRY
B. A. ECONOMICS
III Year B. A. Programme (UG) Courses – Under CBCS
Semester – V
Paper – VI (Core Paper)
PAPER VI : QUANTITATIVE TECHNIQUES
(Mathematical derivations and proofs are not required. Only applications) Quantitative Methods

HOURS:5
CREDIT:4

Unit- I: Introduction

Meaning – definition – functions- importance and limitations of statistics – collection of data – primary and secondary data- schedule and questionnaire – frequency distribution – tabulation – diagram and graphic presentation of data(one dimensional and frequency curves).

Unit – II: Measures of Central Tendency

Definition, objectives and characteristics of measures of central tendency – types of averages- arithmetic mean, geometric mean, harmonic mean – median – mode – quartiles – deciles – percentiles – properties of averages and their applications.

Unit – III: Measures of Dispersion

Objectives of dispersions, range, quartile deviation, mean deviation, standard deviation- coefficient of variation.

Unit – IV: Measures of Correlation and Regression

Meaning, definition and use of correlation- types of correlation- Karl Pearson's correlation coefficient- Spearman's rank correlation- Measures of Regression - probable error- meaning, utility of regression analysis- comparison between correlation and regression.

Unit – V: Matrix:

Definition – examples- types of matrices – matrix addition – multiplication – determinant of matrices – minors – co-factors – inverse of a matrix. References:

1. Sivayya K.V and Satya Rao, Business Mathematics , Saradhi Publications Guntur
2. Sancheti and Kapoor VK, Business Mathematics, Sulthan Chand & Sons, New Delhi
3. D.N Elhance , Fundamentals of Statistics , Kithab Mahal, Allahabad
4. Guptha SC, Fundamentals of Business Statistics, Sulthan Chand, New Delhi
5. Aggarwal, Business Statistics, Kalyani Publishers Hyderabad Reddy CR, Business Statistics, Deep & Deep Publications ,
6. S.P. Gupta & V.K Kapoor- "Fundamentals of Mathematical Statistics", S.Chand & Co., 2014

GOVERNMENT COLLEGE (AUTONOMOUS):
RAJAMAHENDRAVARAM

III Year B. A Programme (UG) Courses – Under CBCS

Semester – VI

Paper – VII-(A) (Elective)

Paper VII-(A) -- AGRICUTURAL ECONOMICS

Module-1

Nature and Scope of Agricultural Economics. Factors affecting agricultural development: technological, institutional and general. Interdependence between agriculture and industry.

Module-2

Concept of production function : input-output and product relationship in farm production.

Module-3

Growth and productivity trends in Indian agriculture with special reference to Andhra Pradesh. Agrarian reforms and their role in economic development.

Module-4

Systems of farming, farm size and productivity relationship in Indian agriculture with special reference to Andhra Pradesh- New agriculture strategy and Green revolution : and its Impact

Module-5

Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to industrial sector with specific reference to agro-industries in agri-business enterprises.

RECOMMENDED / REFERENCE BOOKS

1. Sadhu An, Singh Amarjit and Singh Jasbir (2014), Fundamentals of Agricultural Economics, Himalaya Publishing House, Delhi
2. Lekhi RK and Singh Joginder, Agriculatural Economics, Kalyani Publishers
3. Bhaduri, A. (1984), The Economic Structure of Backward Agriculture, Macmillan, Delhi.
4. Bilgrami, S.A.R. (1996), Agricultural Economics, Himalayas publishing house, Delhi.
5. Dantwala, M.L. et.al (1991), Indian Agricultural Development Since Independence, Oxford & IBH, New Delhi.
6. Government of India (1976), Report of the National Commission on Agriculture, New Delhi. 5. Government of India, Economic Survey (Annual), New Delhi.
7. Gualti, A. and T. Kelly (1999), Trade Liberalisation and Indian Agriculture Oxford University Press, New Delhi

GOVERNMENT COLLEGE (AUTONOMOUS):
RAJAMAHENDRAVARAM

III Year B. A Programme (UG) Courses – Under CBCS
Semester – VI
Paper – VIII (A) - Cluster Elective – (A) Agribusiness

Paper – VIII (A) - Agribusiness Environment in Andhra Pradesh

Module-1
Role of agriculture in development process in Andhra Pradesh vis-à-vis other developed states. Economy wide effects of agriculture in Andhra pradesh through trickle down effects. Backward and forward linkages of agriculture with rest of economy.

Module-2
Agricultural finance-importance in modern agriculture- performance of agricultural finance in Andhra Pradesh -problems of agricultural finance – Inter linkages of agricultural credit and other input markets and product markets.

Module-3
Dynamics of agriculture-crop (horticulture, field crops), sector-livestock (poultry dairy and fisheries) sector and inter linkages among the sectors. Agribusiness sector in Andhra Pradesh-salient futures, constraints, sub sectors of agribusiness-input sector, production sector, processing sector.

Module-4
Growth performance of major agricultural commodities in Andhra Pradesh-production and processing trends in exports and imports of major agricultural commodities.

Module-5
Marketing policy- structure of agri markets – regulated markets – need – activities – structure – APMC act – market legislations – Role of Farmer Groups in the marketing of Agricultural Produce.

References:

1. Adhikary M. 1986. Economic Environment of Business. S. Chand & Sons.
2. Aswathappa K. 1997. Essentials of Business Environment. Himalaya Publ.
3. Francis Cherunilam 2003. Business Environment. Himalaya Publ.
4. Agarwal Raj, 2001, Business Environment, Excel Books, New Delhi.

GOVERNMENT COLLEGE (AUTONOMOUS):
RAJAMAHENDRAVARAM

III Year B. A Programme (UG) Courses – Under CBCS
Semester – VI
Paper – IX (A) - Cluster Elective – (A –Agribusiness)

Paper – IX (A) - Agricultural output Marketing

Module-1

Structure and Model of Agri-Marketing Organizations with functions: Functions of intermediaries, Marketing Practices in Primary and secondary and terminal market, Regulated markets, co-operative marketing.

Module-2

Marketing costs and margins, Marketing Finance. Marketing Structure of Major agricultural commodities, food grains: Rice, and Maize. Cash Crops; Cotton, Oil Seeds, Vegetables and Fruits, Milk, Meat and Poultry products.

Module-3:

Problems and Challenges in Agriculture Marketing - Market Yards - Support prices - Rural Warehousing.

Module-4:

State Intervention in Agricultural Marketing, Role of Various agencies (Andhra Pradesh Agro, MARKEED, State Department, and FCI, Tobacco Board, Cotton Corporation) and its impact on market efficiency. Agriculture Price Commission.

Module-5:

Inter-regional and international trade in agriculture; emerging scenario of international trade in agricultural commodities; concept of terms of trade and balance of payments,. WTO and Indian agriculture with special reference to Andhra Pradesh .

References:

1. C.S.G.Krishnamacharyulu & Lalitha Ramakrishnan, "Rural Marketing: Text and Cases", Pearson Education, New Delhi.
2. Awadhesh Kumar Singh & Satyaprakash Pandey, Rural Marketing: Indian Perspective, New Age International Publishers, New Delhi.
3. Mamoria, C.B. & Badri Vishal: Agriculture Problems in India
4. Arora, R.C., "Integrated Rural Development", S. Chand Limited, New Delhi.
5. Gopalaswamy, T.P., "Rural Marketing: Environment, Problems and Strategies, Vikas Publishing House Pvt. Ltd., New Delhi.
6. Bedi & Bedi, "Rural Marketing", Himalaya Publishing House, New Delhi.

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAMAHENDRAVARAM

III Year B. A Programme (UG) Courses – Under CBCS
Semester – VI
Paper – X (A) - Cluster Elective –(A) Agribusiness

Paper – X (A) - Agricultural Input Marketing

Module-1
Agri input marketing – Meaning and importance – distinctive features of Agri. Input marketing – Distribution channels of agri. Inputs – Private, Government, Co-operative and Joint sector. Agri inputs promotional programme – concepts and techniques.

Module-2
.
Issues in seed marketing – determinants of seed demand – private sector contribution – public sector support to private sector - Distinctive features of Seed Marketing vis – a – vis other Input Marketing – strengths and weaknesses on Indian seed industry.

Module-3
Fertilizer industry scenario – public, private, co-operative and joint sector role – fertilizer production consumption, and imports – fertilizer marketing characteristics. Biofertilizers – its role and scope – major constraints involved – production level – market level – field level. Marketing network/ channels.

Module-4
Pesticide industry – an overview – nature of industry growth – consumption crop wise, area wise – demand and supply – market segmentation.-IPM concept development – biopesticides – its role and scope.

Module-5
Agricultural mechanization – benefits and importance and future priorities – scenario of farm implements and machinery sector – economic advantage of mechanization – contribution of agricultural mechanization – Need for the development of agricultural machinery and implements to suit the local resource endowments.
References:

1. Acharya SS & Agarwal NL 2004, Agricultural Marketing in India – Oxford & IBH.
2. Sharma Premjit 2008, Marketing of Seeds – gene Tech Books, New Delhi.
3. Marketing of the Agri. Inputs – IIMA publications.
4. State of the Indian Farmer - Input Management, Ministry of Agriculture, GOI, Academic Foundation, New Delhi-2004
5.

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAMAHENDRAVARAM

III Year B. A Programme (UG) Courses – Under CBCS

Semester – VI

Paper – VII (B) (Elective Paper VII(D))

RURAL ECONOMICS AND SOCIAL CHANGE

Module 1 :

Definition of a rural area – Economic structure and characteristics of rural economy in India and Andhra Pradesh - Linkages of farm and non-farm sectors – Role of rural economy in India's economic development – Demographic features of rural India and rural Andhra Pradesh - Rural-Urban migration and its causes - Composition of rural workforce – Occupational distribution in farm and non-farm activities - Economic resources

Module 2:

Inequalities of wealth and income distribution in the rural economy in India and Andhra Pradesh - Rural poverty in India and Andhra Pradesh - Its causes and remedial measures **–** Rural labour – characteristics – Work Participation Rate **-** Problem of rural unemployment and its magnitude – Causes and remedial measures – mechanisation of agriculture and rural works and unemployment – various schemes of employment – MGNREGS and its appraisal – Causes of rural debt and institutional facilities of rural finance

Module 3:

Role of agriculture in rural economic development – Trends in the agricultural growth in India – Land use of changing crop pattern – changing cultivation practices - Current challenges in agriculture – Allied activities – Horticulture, Dairy, Poultry, Fisheries - Credit needs of agriculture and allied activities - and institutional framework - Role of non-farm sector in rural economy – Scope for rural industrialization and its importance in absorption of surplus labour - Composition of rural markets and their problems

Module 4:

Structure of the Rural Society in India – Major social institutions: family, marriage, education, economy, polity and religion – forms of social stratification : caste, class and gender - Caste and economic inequalities – Caste and social backwardness – Traditions, customs and socio-economic development – women and their status – child labour and bonded labour

Module 5:

Need for social change in rural society – Agents of social change - education and employment - Impact of economic development, urbanisation, westernization, secularization, modernization on Indian Rural Society- Post Modernization and Globalization and Indian Villages – Government policies, legislations and programmes to effect social change and their evaluation

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAMAHENDRAVARAM

III Year B.A Programme (UG) Courses – Under CBCS

Semester – VI

VIII-B - Cluster Elective –D: Rural Development

Paper VIII - B: Rural Development

Module-I

Concept and scope of rural development – indicators of rural development - a historical view of rural development in India – Causes of rural backwardness -Socio-economic and cultural dimensions of rural development – Constraints of rural development – Lewis model of economic development – Big push theory of development – Myrdal's Thesis of 'spread and backwash effects'- Gandhian model of rural development – approaches to rural development – area based and beneficiary based - concept of sustainable rural development – Issues of human development in rural areas

Module- II

Rural infrastructure - Water bodies and irrigation – silting, drainage and other problems – Watershed development – social forestry - warehousing and cold storages - - roads and linking with highways - transport of agricultural produce and other rural products – problems and government measures - - Information and Communications infrastructure - Internet kiosks and broadband – technology missions - Electricity – rural electrification – problems of distribution and voltage – subsidized supply of electricity

Module- III

Community development - Rural housing schemes – Supply of safe drinking water – Rural healthcare – health infrastructure - family welfare – women and child development – nutrition - Rural health mission -rural sanitation – education – gross enrolment and dropouts – midday meals – sarva siksha abhiyan and other schemes - adult literacy and Skill training programmes – social welfare and social security measures – rural indebtedness – interest subvention and redemption of debt - micro-finance and insurance schemes

Module IV

Rural development and administration – District Rural Development Agency – Panchayati Raj and its role in rural development –Powers and responsibilities of Mandal Praja Parishats and Gram Panchayats – Role of cooperative institutions in rural development - Community participation in development – Community based organizations – Watershed Committees, Village Forest Committees – non-government organizations, concept, their role, limitations and funding - Local finance and sources of revenue – Role of State Finance Commission - e-governance

Module– V

Planning for rural development – Planning at the district, mandal and village level – Identification of projects and preparation of project reports – implementation and evaluation mechanisms – rural development policies and programmes with special reference to Andhra Pradesh – self-employment, wage-employment and poverty alleviation programmes

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAMAHENDRAVARAM

III Year B.A Programme (UG) Courses – Under CBCS
Semester – VI
Paper – IX (B) - Cluster Elective – (D) Rural Economy
Paper – IX (B) - *Rural Industrialization*

Module– I

Rural industrialization – Nature and scope - Role of and importance of industries in rural economy – Complementarities between agriculture and industry - Rural environment and resources for industrialization - Pre-requisites of infrastructure- Land, water and electricity – rural transport and communications – Impediments to rural industrialisatrion – Status of industrialization in Andhra Pradesh

Module–II

Types of rural industries: need-based, raw-material based and skill-based – Village and cottage industries – traditional and handi-crafts industries – Distinction between large and small industries - Definitions of Medium. Small and micro-enterprises – Their importance in rural economic development - Handloom industry - Agro-based industries - Agro-processing and food processing – Scope for development – Growth, problems and remedial measures with special reference to Andhra Pradesh

Module–III

Industrial policy with reference to backward areas and rural areas – District Industrial Centres and their role in rural industrialization – Clusters approach - industrial corridors and special economic zones - start-ups – Selection of product and identification of industry – Feasibility projects and their preparation – issues of location - Government policy and conditions for establishing industries in rural areas - Clearances required - environmental regulations

Module - IV

Industrial finance – Institutional framework – Credit policies of commercial banks and cooperatives – Role of NABARD and its assistance – Development institutions offering assistance to rural industries – Fiscal incentives from the government – Insurance

Module - V:

Human Resources for rural industrialization – Rural labour and their characteristics – Rural artisans – disguised unemployment in agriculture and their transfer into non-farm sector - Institutional framework for skill training and skill up-gradation - Entrepreneurship development and training - Role of technology

Reference Books :

1. Desai, Vasant**. Rural Development in India.** New Delhi: Himalaya, 2005.
2. IGNOU. **Rural Development: Indian Context.** New Delhi: IGNOU, 2005.
3. Narwani, G. S. **Training for Rural Development**, New Delhi: Rawat Publications, 2002.
4. Rao K. Hanumantha **Rural Development Statistics** – 2007-08, National Institute of Rural Development Ministry of R. D., Govt. of India, Rajendra Nagar, Hyderabad – 30 July, 2008

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAMAHENDRAVARAM

III Year B.Sc Programme (UG) Courses – Under CBCS

Semester – VI

Paper – X (B) - Cluster Elective – (D) Rural Economy

Paper – X (B) - *Rural Marketing*

Module– I

Concept of rural marketing – Inflow and outflow of goods and services - Rural vs urban marketing – nature and characteristics of rural markets – profile of rural markets in India and Andhra Pradesh – size and scope – opportunities of rural marketing – constraints in rural marketing – government support and measure

Module– II

Cusumer behavior in rural markets – factors influencing buying decisions – buying behavior models - Factors influencing demand for rural products – buying decision making process - brand loyalty – market segmentation – basis for market segmentation – target marketing - positioning strategies – product characteristics, pricing and application as bases of strategy

Module–III

Classification of products – product mix – branding – product life cycle – pricing strategies – low pricing, cost saving - product distribution channels – distribution patterns and methods in rural markets - challenges in rural distribution – logistics - warehousing – transportation – wholesale and retail markets – competition from business houses and multinational companies

Module– IV

Markets for rural markets – farm and non-farm products – trends and problems of marketing rural products – traditional markets – regulated markets and cooperative markets – their organization, objectives and features - rythu bazaars – integrated marketing - Government regulation mechanisms – commodity markets and commodity trading – agro-processing and food processing

Module– V

Marketing Information System in rural markets – sales promotion as a component of marketing communication - data sources , agencies, publications of market statistics. role of ICT and multi-media –- challenges in media planning - selection of media-mix – Market research- objectives, process and significance

1. Acharya, S.S. **Agriculture Marketing in India**, New Delhi : Ford, IBH Publishing Co. Ltd., 2004
2. Chaudhari, C.M. **Rural Economics**, Jaipur: Subline Publication, 2009
3. Desai, Vasant **Rural Development in India,** New Delhi: Himalaya Publication House, 2005
4. Desai, Vasant **Fundamentals of Rural Development**, New Delhi: Rawat Publications, 1991
5. Narwani, G.S. **Training for Rural Development,** New Delhi: Rawat Publications, 2002
6. Ramaswamy and Nama kumari, **Marketing management, Planning, Implementation and Control**, McMillan
7. Stanto W.J. et al, **Fundamentals of Marketing**, McGraw Hills

B.Sc. (Econometrics)
SEMESTER-I Paper-I
MICROECONOMICS

Unit 1: Introduction

Nature and scope of economics; Methodology in economics; Choice as an economic problem; basic postulates; Role of price mechanism; Demand and supply; Basic framework — applications; Market equilibrium.

Unit 2: Consumer's Behaviour

Utility — Cardinal and ordinal approaches; Indifference curve; Consumer's equilibrium (Hicks and Slutsky); Giffin goods; Compensated demand; Elasticity of demand — Price, income and cross; Consumer's surplus; Engel curve.

Unit 3 : Theory of Production and Costs

Production decisions; Production function; Iso-quant; Factor substitution; law of variable proportions; returns to scale; economies of scale; Different concepts of cost and their interrelation; Equilibrium of the firm; Expansion path; Empirical evidence on costs.

Unit 4: Market Structure

Market forms — Perfect and imperfect markets; Equilibrium of a firm — Perfect competition, monopoly and price discrimination; Measure of monopoly power; Monopolistic competition; Duopoly, Oligopoly; Taxation and equilibrium of a firm; Notion of controlled and administered prices.

Unit 5 : Factor Pricing

Marginal productivity theory of distribution; Theories of wage determination; Wages and collective bargaining; Wage differentials; Rent — Scarcity rent; Differential rent; Quasi rent; Interest — Classical and Keynesian theories; Profits — Innovation, risk and uncertainty theories. Concept of a social welfare function; Compensation principle — Kaldor, Hicks.

BASIC READING LIST

! Bach, G.L. (1977), Economics, Prentice Hall of India, New Delhi.

! Gauld, J.P. and Edward P. L. (1996), Microeconomic Theory, Richard. Irwin, Homewood.

! Henderson J. and R.E. Quandt (1980), Microeconomic Theory : A Mathematical Approach, McGraw Hill, New Delhi.

! Heathfield and Wibe (1987), An Introduction to Cost and Production Functions, Macmillan, London.

! Koutsoyiannis, A. (1990), Modern Microeconomics, Macmillan.

! Lipsey, R.G. and K.A. Chrystal (1999), Principles of Economics (9th Edition), Oxford University Press, Oxford.

! Mansfield, E. (1997), Microeconomics (9th Edition), W.W. Norton and Company, New York.

! Ray, N.C. (1975), An Introduction to Microeconomics, Macmillan Company of India Ltd., Delhi.

! Ryan, W.J.L. (1962), Price Theory, Macmillan and CO. Limited, London.

! Samuelson, P.A. and W.D. Nordhaus (1998), Economics, Tata McGraw Hill, New Delhi.

! Stonier, A.W. and D.C. Hague (1972), A Textbook of Economic Theory, ELBS & Longman Group, London.

! Varian, H.R. (2000), Intermediate Microeconomics : A Modern Approach (5th Edition), East-West Press, New Delhi.

Government College(A), Rajamahendravaram
Proposed Syllabus – Econometrics Semester-II
Macroeconomics Paper -II

Unit 1 : National Income and Social Accounts hours:12

Concepts of stock and flow variables, endogenous, exogenous, macro economic models, and scope of macro economics. Concepts and measurement of national income; National income identities with government and international trade, incorporation of environmental concerns in national income accounts — green accounting.

Unit 2 : Theories of income determination and consumption hours:12

Say's law of markets and the classical theory of employment; Keynes' objection to the classical theory; Keynesian theory of employment-Aggregate demand and aggregate supply functions; The principle of effective demand; Consumption function — Average and marginal propensity to consume; Factors influencing consumption function

Unit 3 : Theories of investment hours:12

Keynesian theory of investment, marginal efficiency of capital and investment- factors determining MEC and The accelerator and investment behaviour of inflations, influence of policy measures

Unit 4 : Trade Cycles hours:12

Nature and characteristics; Hawtrey's monetary theory; Hayek's over-investment theory; Keynes' view on trade cycle; The concept of accelerator; Samuelson and Hicks multiplier-accelerator interaction model; Control of trade cycles.

Unit 5 : Economic Growth and Development hours:12

Concepts of economic growth, and economic development, factors effecting economic growth, Sources of growth; Harrod and Domar theories of economic growth, classical theory maximum approach; Instability of equilibrium;

Neo-classical growth models — Solow; Economic growth and technical progress.

BASIC READING LIST

1. Ackley, G. (1976), Macroeconomics : Theory and Policy, Macmillan Publishing Company,New York.
2. Day, A.C.L. (1960), Outline of Monetary Economics, Oxford University Press, Oxford.
3. Gupta, S.B. (1994), Monetary Economics, S. Chand and Co., Delhi.
4. Heijdra, B.J. and F.V. Ploeg (2001), Foundations of Modern Macroeconomics, Oxford University Press, Oxford.
5. Lewis, M.K. and P.D. Mizan (2000), Monetary Economics, Oxford University Press, New Delhi.
6. Shapiro, E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

B.Sc . (Econometrics)
SEMESTER-III Paper-III
MATHEMATICAL ECONOMICS

Unit 1 : Quantitative Methods
Variable, constants and parameters; Simple functional relationship and their graphs; Elementary ideas of differential and integral calculus; Matrix and determinants; Solution of simultaneous equations; Quadratic equations; Difference and differential equations.

Unit 2 : Consumer Theory
Utility function; budget line; Constrained optimization; Consumer's equilibrium; Income effect; substitution effect and price effect; Slutsky equation; Derivation of demand curve; Elasticity of demand; Consumer's surplus.

Unit 3 : Theory of Production
Properties of production function — Homogeneous and non-homogeneous; Cobb-Douglas, CES, Returns to scale; Technology progress and production function; Choice of optimal combination of factors of production; Cost and revenue functions; Derivation of cost curves; Relation between total, average and marginal cost and revenue; Producer's surplus; Production possibility curve; Adding up theorem.

Unit 4 : Market Structure/Pricing
Concept of equilibrium; Equilibrium of the firm under perfect competition, monopoly, price discrimination, monopolistic competition; Subsidies and taxes; Economies of scale; Market equilibrium; Economic interpretation of time lag in function; Cobweb model.

Unit 5 : Input-Output Analysis, Linear Programming
Input-output analysis; The simple closed and open model; Linkages, concepts and measurement; Dynamic input-output model; Linear programming — Basic concepts, primal and dual; Basic theorem of linear programming; Graphic and simplex method.

BASIC READING LIST

Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press, London.
Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics (3rd Edition), McGraw Hill, New Delhi.
Colell, A. Mas et. al. (1991), Microeconomic Theory, Harvard University Press, Cambridge, Mass.
Hands, D.W. (1991), Introductory Mathematical Economics, D.C. Heath.
Henderson, J. and R.E. Quandt (1980), Microeconomic Theory : A Mathematical Approach, McGraw Hill, New Delhi.
Handy, S.T. (1997), Operations Research, Prentice-Hall of India, New Delhi.
Mukherji, B. and V. Pandit (1982), Mathematical Method of Economic Analysis, Allied Publishers, New Delhi.

B.A. (Econometrics)
SEMESTER-IV Paper-IV
QUANTITATIVE TECHNIQUES

Unit 1 : Calculus

Differentiation of a Function; Maxima and Minima, Elasticities; Equilibrium of a firm and consumer; Inter-relationships among total, marginal and average cost and revenues; Constrained optimisation problem; Integration of a function, consumer's and producer's surplus.

Unit 2 : Matrix and Determinants

Various types of matrices, Determinants, Inverse of a matrix, Crammer's rule, Input-output analysis; Simple static model, Linkages, Concept of linear programming — Graphic Method.

Unit 3 : Correlation and Regression

Correlation; Simple, Coefficient of correlation — Karl Pearson and Rank Correlation, Partial and Multiple correlation Analysis, Regression analysis — Estimation of regression line in a bivariate distribution— Least squares method, interpretation of regression coefficients.

Unit 4: Time Series and Index Numbers

Time series analysis — Concept and components — Determination of regular, trend and seasonal indices; Index numbers — Concept, price relative, quantity relative, value relative; Laspeyer's, Paasche's and Fisher, Family budget method; Problems in the construction and limitations of index numbers, Tests for ideal index number.

Unit 5: Probability and Distribution

Probability: Concept, Rules of probability (Addition and Multiplication); Random variables, Mathematical expectations, Theoretical distribution — Binomial, Poisson and Normal: their properties and uses.

BASIC READING LIST

- Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press, London.
- Black, J. and J.F. Bradley (1973), Essential Mathematics for Economists, John Wiley and Sons.
- Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics (3rd Edition), McGraw Hill, New Delhi.
- Croxton, F.E., D.J. Cowden and S. Klein (1973), Applied General Statistics, Prentice Hall, New Delhi.
- Gupta, S.C. and V.K. Kapoor (1993), Fundamentals of Applied Statistics, S. Chand and Sons, New Delhi.
- Speigal, M.R. (1992), Theory and Problems of Statistics, McGraw Hill Book, London.

GOVERNMENT COLLEGE (A),Rajamahendravaram.
B.Sc Actuarial Science Proposed Syllabus
Semester- 1
Basics of Business economics -Paper-I

Unit-I Hours:12

Nature and scope of economics – Methodology in economics – Concepts of Demand and Supply – Elasticity of demand – price, income, cross.

Unit-II Hours:12

Cardinal and Ordinal approaches – Law of Diminishing Marginal utility – Indifference curve –Consumer's equilibrium– Consumer surplus.

Unit-III Hours:12

Market forms – Perfect and Imperfect Markets –Features of various markets – Monopoly, Monopolistic Competition, and Oligopoly – Notion of Controlled and Administered prices.

Unit-IV Hours:12

Concepts of Payback period – Average Annual Rate of return – Net Present Value – Internal Rate of Return criterion – Elements of Social Cost Benefit analysis.

Unit-V Hours:12

National income and social accounts – concept and measurement of national income – Introduction to Macroeconomic policy and Money and monetary institutions…. RBI, Commercial banks – Concept of Insurance, Stock exchanges, SEBI, IRDA. Nature, characteristics and phases of Trade cycles – Control of Trade Cycles.

References:

1. CT-7 study material of Institute of Actuaries of India

2. Ackley (1976) Micro Economics – Theory and policy, Macmilan publishing company, Newyork.

3. Gupta S.B (1994), Monetary Economics, S.Chand& Co., New Delhi.4. Heijdra B.J. and F.V.Ploeg (2001) Foundations of Modern Economics, Oxford University Press, Oxford.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

B.A PROGRAMME-ECONOMICS SYLLABUS FOR THE YEAR 2018-2019

(CBCS PATTERN)

FIRST YEAR – FIRST SEMESTER

PAPER – 1 (CORE) **TITLE: RURAL ECONOMICS-1** **HOURS:5, CREDITS:4**

Module I : Introduction to Rural Economics 12 Hours

Nature and Scope of Rural Economics, Inter-disciplinary approach of Rural Economics – Components-Structure and Characteristics -Pre and Post-independence.

Module II : Rural Resources Management in India 12 Hours

Rural Resources –Nature-Types and Magnitude - Rural Resources- Management and Development, Application of Technology in Rural Development – Problems and prospects.

Module III : Rural Demography 14 Hours

Population Size - Sex and Age Composition- Density of Population- Population Problems and Challenges – Family Welfare Measures in Rural India.

Module IV : Rural Occupational Structure 8 Hours

Nature of Rural Occupations - Occupational Distribution in Rural India – The Concept of Work Participation Rates.

Module V : Rural Poverty and Unemployment 14 Hours

Rural Poverty-Meaning, Estimates, Causes and Consequences. Unemployment - Meaning, Types, Magnitude of Rural Unemployment, - Causes and Consequences.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

B.A PROGRAMME-ECONOMICS SYLLABUS FOR THE YEAR 2018-2019

(CBCS PATTERN)

FIRST YEAR – SECOND SEMESTER

PAPER – 1 (CORE) TITLE: RURAL DEVELOPMENT PROGRAMMES-II HOURS:5, CREDITS:4

Module I : Growth and Development 16 Hours Rural Development- Meaning, Nature and Scope - Factors Affecting Rural Growth - Economic Development- Definitions, Characteristicsand Measurement - Per Capita Income, Physical Quality of Life Index, Human Development Index.

Module II : Rural Development Theories 16 Hours W.W. Rostow's Theory of Stages, Lewis-Fei-Ranis Modeland Gandhian Approach to Rural Development.

Module III: Approaches to Rural Development 16 Hours Early attempts for Rural Development - National Programmes for Rural Development, Community Development Programmes and Employment Guarantee Schemes.

Module IV: Rural Empowerment Programmes 8 Hours Bharat Nirmana, Provisions of Urban Amenities in Rural Area(PU RA), Mahatma Gandhi National Rural Employment Guarantee Act-Features and Challenges.

Module V: Agencies for Rural Development 4 Hours Government, Semi-Government Organisations, Co-Operative Institutions, Non-Government Organisations and Voluntary Agencies for Rural Development.

References: 1. K Vijayakumar Empowerment of weaker section future planning and strategies for Rural Development in India. 2. Vasant Desai: Rural Development in India, Himalaya Publishing House, 3. Mumbai, 2012. 4. Dutt and Sundaram- Indian Economy, S.Chand Publications, New Delhi, 2013-07-02. 5. S.K. Mishra and V.K. Puri- Economics of Development and Planning, Himalaya Publishing House, Mumbai, 2012. 6. Shankar Chatterjee- Implementation of Rural Development.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

I SEMESTER SYLLABUS 2012-2013

ENGLISH TRACKS –I (ENG 101)

PART-A, PAPER-1

Prose Text:

1. Spoken English and Broken English	G.B. Shaw
2. The Man in Black	Oliver GoldSmithStephen
3. With the Photographer	Stephen Leacock
4. The Last Leaf	O'Henry (Additional Input)

Poetry Text:

1 .Dover Beach	Mathew Arnold
2. The Unknown Citizen	W.H. Auden
3.Stopping by Woods on a Snowy Evening	Robert Frost (Addl. Input)

Non-Detailed:

1. Little Girls are Wiser than Men	Leo Tolstoy
2. The River	Ruskin Bond

Grammar:

1. Comprehension from Prose Text
2. Verb Forms
3. Prepositions (Addl. Input)
4. Synonyms and Antonyms
5. Correction of sentences (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

II SEMESTER SYLLABUS 2012-2013

ENGLISH TRACKS –II(ENG 102)

PART-A, PAPER-1

Prose Text:

1. I have a Dream	Martin Luther King Jr.
2. Letter to a Teacher	Nora Rossi and Tom Cole
3. The Prospects of Democracy	Dr. BR Ambedkar
4. What Makes an Indian	Mrs. Indira Gandhi (Addl. Input)

Poetry Text:

1. Home Coming	Pardhasaradhi
2. Myriad Winged Bird	A. Satya Devid
3. Song 36 from Gitanjali	Rabindranath Tagore
4. Sita	Toru Dutt (Addl. Input)

Non-Detailed:

1. Sacrifice (One Act Pay)	Rabindranath Tagore
2. Merchant of Venice (Casket scene)	William Shakespeare.

Grammar:

1. Comprehension from Prose Text
2. Concord
3. Homonyms and Homophones
4. Choosing the right Part of Speech.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

III SEMESTER SYLLABUS 2012-2013

ENGLISH FOR EMPOWERMENT – I (ENG 103)

PART-A, PAPER-1

Prose Text:

1. Mr. Know All	Somerset Maughm
2. Not Just Oranges	Isai Tobolsky
3. A Talk on Advertising	Herman Wouk
4. Principles of Good Writing	L.A. Hill. (Addl. Input)

Poetry Text:

1. The Sun Rising	John Donne
2. The Solitary Reaper	William Wordsworth
3. The Road not Taken	Robert Frost
4. The Happy Man	Alexander Pope (Addl. Input)

Non-Detailed:

1. Gajar Halwa	Gita Hariharan
2. My Brother, My Brother	Norah Burke

Grammar:

1. Phrasal Verbs in Matching form
2. One-word substitutes
3. Concord
4. Expansion (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

IV SEMESTER SYLLABUS 2012-2013

ENGLISH FOR EMPOWERMENT –II (ENG 104)

PART-A, PAPER-1

Prose Text:

1. On Shaking Hands	A.G. Gardiner
2. No Man is an Island	Minoo Masani
3. Decolonising the Mind	Ngugi Wa Thiong'o
4. World, My son starts school today	Abraham Lincoln (Addl. Input)

Poetry Text:

1. Refugee Mother and Child	Chinua Achebe
2. Good Bye Party for Miss. Pushpa T.S.	Nissim Ezekiel
3. I will embrace only the Sun	Tripuraneni Srinivas
4. Daffodils	William Wordsworth (Addl. Input)

Non-Detailed:

1. The Never, Never Nest	Cedric Mount
2. Julius Caesar (Caesar's Murder)	William Shakespeare

Grammar:

1. Paragraph writing using hints
2. Linking Devices
3. Matching the Idioms with meanings
4. General Essay (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I SEMESTER SYLLABUS 2012-2013

HISTORY OF ENGLISH LANGUAGE (ENG 105)

DEGREE –I YEAR – ENGLISH LITERATURE

I. English Language (The Outline History of the English Language FT wood)

1. Old English
2. Middle English
3. Renaissance
4. Standard English
5. Word Formation and Growth of Vocabulary

II. Forms of Poetry:

1. Sonnet:	Wordsworth: "Scorn not the sonnet"
2. Ode:	Shelley – "Ode to the West Wind"
3. Elegy:	Grey – "Elegy written in a country churchyard"
4. Lyric:	Robert Burns- "A Red Red Rose"
5. Dramatic Monologue:	Browning – "My Last Duchess"

III. Language Study and Skills:

1. Appreciation of a poem
2. Comprehension of an unseen passage

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II SEMESTER SYLLABUS 2012-2013

HISTORY OF ENGLISH LITERATURE –I (ENG 106)

DEGREE –I YEAR – ENGLISH LITERATURE

I. English Language: (The outline History of the English Language: FT Wood)

a) Latin

b) French

c) Scandinavian

d) Change of Meaning or Semantics

II. Elements of Drama

a) Plot / Structure: Farewell Mitchell "The Best Laid Plans"

b) Character: JB Priestly "Mother's Day".

c) Dialogue: Anton Chekhov "The Marriage Proposal".

III. Elements of Fiction

a) Point of view: Kushwanth Sing-"The Interview"

b) Setting / Atmosphere: Edgar Allen Poe "The Tell Tale Heart"

c) Style/ Narrative Technique – O Henry "The Gift of the Magi".

IV. Language Skills

a) Selected Figures of Speech – Definition and Identification

b) Lexical Sets

c) Matching the sentences meaningfully

d) Comprehension from Fiction.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
III SEMESTER SYLLABUS 2012-2013
HISTORY OF ENGLSIH LITERATURE-II (ENG 107)
DEGREE –II YEAR – ENGLISH LITERATURE

UNIT-I: Poetry from the Elizabethan Age to Pre-Romantic Age

1. E.Spenser – Sonnet – "One Day I wrote her name…."
2. John Donne – "The Canonization"
3. Alexander Pope – "the Rape of the Lock" (Cantos I and II)
4. William Blake – "The School Boy"
5. Henry Wotton – "The character of a Happy Man" (added).

UNIT –II: Prose – Origin & Development of the Essay Kinds

1. Bacon - "Of Youth and Age"
2. Steele - "On Judicious Flattery"
3. Lamb - "Dream Children"
4. Chesterton - "On Lying in Bed"

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
IV SEMESTER SYLLABUS 2012-2013
HISTORY OF ENGLISH LITERATURE-III(ENG 108)
DEGREE –II YEAR – ENGLISH LITERATURE

This paper is mainly divided into two distinct units. The first unit will cover the Development of Drama -16th and 17th century British Drama and the Text. The second unit will have topics from origin and development of the Novel and the Text.

UNIT – I:

- **A.** Development of Drama – 16th and 17th Century British Drama
- **B.** William Shakespeare's "Twelfth Night".

UNIT – II:

- **A.** Fiction – Origin and Development of the Novel
- **B.** Henry Fielding's "Joseph Andrews".

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2012-2013
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –I (ENG 109)

Syllabus for V Semester:

I. History of Indian English Literature: Poetry and Prose

a) Definition and scope of Indian English

b) Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857

c) Development of Indian English Poetry and Prose from 1857 to 1920

d) Development of Prose and Poetry in Gandhian Era (1920-1947)

e) Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

1) Sri Aurobindo: Thought the Paraclete

2) Toru Dutt: Sita

3) Nissim Ezekiel: Very Indian Poem in Indian English

4) A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.

5) Keki. N. Daruwalla: The Epileptic

6) Gouri Desh Pande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

1) M.K. Gandhi : To students

2) Nehru: The Relationship of Languages

IV.Grammmar and Composition

a.Antonyms
b.Pairs of Words

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2012-2013
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-I (ENG 110)

I. American Language and Literature ------ Drama

a) The English Language in America - Settlement
b) The Uniformity of American Language
c) The influence of Noah Webster
d) American English Dialects
(A History of the English Language – A.C.Baugh)
e) American Literature – Development of Drama
f) American Literature – Development of Short story

II. American English Drama – Detailed study

The Hairy Ape

III. (Additional syllabus) – American English Short story

a) Luck	Mark Twain
b) The Tell-Tale Heart	Edgar Allen Poe
c) Jimmy Valentine	O.Henry

IV. Grammar & Composition

Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2012-2013
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –II (ENG 111)

I. The History of Indian English Literature – Drama, Fiction and Short stories

a) Development of Novel and Dama from 1857 – 1920
b) Development of Drama, Fiction and Short story (1920-1947)- Gandhian Era
c) Fiction from 1947 onwards – Post Independence period
d) Development of Drama from 1947 onwards
e) Literary terms related to fiction and drama – MH Abrahms (Addl. Input)

II. Indian English Drama – Text for Detailed study

a) "Naga Mandala" by Girish Karnad

III. Indian English Fiction (Non-detailed Study)

a) "Train to Pakistan" by Kushwanth Singh

IV. Additional Input – Short Stories:

a) Cargo from Singapore – Manohar Malgaonkar
b) Darjeeling – Kamala Das

V. Grammar & Composition

a) Comprehension Passage from Train to Pakistan
b) One-word Substitutions-Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2012-2013
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE – (ENG 112)

I. American Literature and Language

a) Development of American Prose Literature
b) Development of American Poetry
c) The controversy over Americanisms – The Purist attitude
d) American words in General English
e) English as an International Language (Extra syllabus)

II. American English Literature: Poetry (Detailed study)

a) William Carlos Williams: The Yachts/
b) Wallace Stevens: Of Modern Poetry
c) Emily Dickinson: "Hope is the thing with Feathers"
d) Robert Frost: "Stopping by the woods on a Snowy Evening"
e) Archibald Mcleish: Not Marble nor the Gilded Monuments- for Adele.

III. American English Prose (Non-detailed study)

a) Walden H.D. Thoreau
b) "The American Scholar" Emerson (Extra syllabus)

IV. Grammar & Composition

a) Comprehension
b) Books & Authors

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

I SEMESTER SYLLABUS 2013-2014

ENGLISH TRACKS –I (ENG 101)

PART-A, PAPER-1

Prose Text:

1. Spoken English and Broken English	G.B. Shaw
2. Conjuror's Revenge	Stephen Leacock
3. The Best Investment I Have Ever Made	A.J.Cronin
4. Stench of Kerosene	Amrita Pritam (Addl. Input)

Poetry Text:

1. Ode to Autumn	John Keats
2. Dover Beach	Mathew Arnold
3. The Unknown Citizen	W.H. Auden
4. Stopping by Woods on a Snowy Evening	Robert Frost (Addl. Input)

Non-Detailed:

1. Little Girls are Wiser than Men	Leo Tolstoy
2. The River	Ruskin Bond

Grammar:

1. Comprehension from Prose Text
2. Verb Forms
3. Prepositions (Addl. Input)
4. Synonyms and Antonyms
5. Correction of sentences (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

II SEMESTER SYLLABUS 2013-2014

ENGLISH TRACKS –(ENG 102)

PART-A, PAPER-1

Prose Text:

1. I have a Dream	Martin Luther King Jr.
2. Letter to a Teacher	Nora Rossi and Tom Cole
3. The Prospects of Democracy	Dr. BR Ambedkar
4. What Makes an Indian	Mrs. Indira Gandhi (Addl. Input)

Poetry Text:

1. Home Coming	Pardhasaradhi
2. Myriad Winged Bird	A. Satya Devid
3. Song 36 from Gitanjali	Rabindranath Tagore
4. Sita	Toru Dutt (Addl. Input)

Non-Detailed:

1. Sacrifice (One Act Pay)	Rabindranath Tagore
2. Merchant of Venice (Casket scene)	William Shakespeare.

Grammar:

1. Comprehension from Prose Text
2. Concord
3. Homonyms and Homophones
4. Choosing the right Part of Speech.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

III SEMESTER SYLLABUS 2013-2014

ENGLISH FOR EMPOWERMENT –I (ENG 103)

PART-A, PAPER-1

Prose Text:

1. Mr. Know All	Somerset Maughm
2. Not Just Oranges	Isai Tobolsky
3. A Talk on Advertising	Herman Wouk
4. Principles of Good Writing	L.A. Hill. (Addl. Input)

Poetry Text:

1. The Sun Rising	John Donne
2. The Solitary Reaper	William Wordsworth
3. The Road not Taken	Robert Frost
4. The Happy Man	Alexander Pope (Addl. Input)

Non-Detailed:

1. Gajar Halwa	Gita Hariharan
2. My Brother, My Brother	Norah Burke

Grammar:

1. Phrasal Verbs in Matching form
2. One-word substitutes
3. Concord
4. Expansion (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

IV SEMESTER SYLLABUS 2013-2014

ENGLISH FOR EMPOWERMENT-II (ENG 104)

PART-A, PAPER-1

Prose Text:

1. On Shaking Hands	A.G. Gardiner
2. No Man is an Island	Minoo Masani
3. Decolonising the Mind	Ngugi Wa Thiong'o
4. World, My son starts school today	Abraham Lincoln (Addl. Input)

Poetry Text:

1. Refugee Mother and Child	Chinua Achebe
2. Good Bye Party for Miss. Pushpa T.S.	Nissim Ezekiel
3. I will embrace only the Sun	Tripuraneni Srinivas
4. Daffodils	William Wordsworth (Addl. Input)

Non-Detailed:

1. The Never, Never Nest	Cedric Mount
2. Julius Caesar (Caesar's Murder)	William Shakespeare

Grammar:

1. Paragraph writing using hints
2. Linking Devices
3. Matching the Idioms with meanings
4. General Essay (Addl. Input)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I SEMESTER SYLLABUS 2013-2014

HISTORY OF ENGLISH LANGUAGE – ENG 105

DEGREE –I YEAR – ENGLISH LITERATURE

I. English Language (The Outline History of the English Language FT wood)

1. Old English
2. Middle English
3. Renaissance
4. Standard English
5. Word Formation and Growth of Vocabulary

II. Forms of Poetry:

1. Sonnet:	Wordsworth: "Scorn not the sonnet"
2. Ode:	Shelley – "Ode to the West Wind"
3. Elegy:	Grey – "Elegy written in a country churchyard"
4. Lyric:	Robert Burns- "A Red Red Rose"
5. Dramatic Monologue:	Browning – "My Last Duchess"

III. Language Study and Skills:

1. Appreciation of a poem
2. Comprehension of an unseen passage

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II SEMESTER SYLLABUS 2013-2014

HISTORY OF ENGLISH LITERATURE -I (ENG 106)

DEGREE –I YEAR – ENGLISH LITERATURE

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a) Latin

b) French

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II. Elements of Drama

a) Plot / Structure: Farewell Mitchell "The Best Laid Plans"

b) Character: JB Priestly "Mother's Day".

c) Dialogue: Anton Chekhov "The Marriage Proposal".

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a) Point of view: Kushwanth Sing-"The Interview"

b) Setting / Atmosphere: Edgar Allen Poe "The Tell Tale Heart"

c) Style/ Narrative Technique – O Henry "The Gift of the Magi".

IV. Language Skills

a) Selected Figures of Speech – Definition and Identification

b) Lexical Sets

c) Matching the sentences meaningfully

d) Comprehension from Fiction.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
III SEMESTER SYLLABUS 2013-2014
HISTORY OF ENGLISH LITERATURE-II (ENG 107)
DEGREE –II YEAR – ENGLISH LITERATURE

UNIT-I: Poetry from the Elizabethan Age to Pre-Romantic Age

1. E.Spenser – Sonnet – "One Day I wrote her name…."
2. John Donne – "The Canonization"
3. Alexander Pope – "the Rape of the Lock" (Cantos I and II)
4. William Blake – "The School Boy"
5. Henry Wotton – "The character of a Happy Man" (added).

UNIT –II: Prose – Origin & Development of the Essay Kinds

1. Bacon - "Of Youth and Age"
2. Steele - "On Judicious Flattery"
3. Lamb - "Dream Children"
4. Chesterton - "On Lying in Bed"

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
IV SEMESTER SYLLABUS 2013-2014
HISTORY OF ENGLISH LITERATURE-III (ENG 108)
DEGREE –II YEAR – ENGLISH LITERATURE

This paper is mainly divided into two distinct units. The first unit will cover the Development of Drama -16th and 17th century British Drama and the Text. The second unit will have topics from origin and development of the Novel and the Text.

UNIT – I:

- **A.** Development of Drama – 16th and 17th Century British Drama
- **B.** William Shakespeare's "Twelfth Night".

UNIT – II:

- **A.** Fiction – Origin and Development of the Novel
- **B.** Henry Fielding's "Joseph Andrews".

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2013-2014
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –I (ENG 109)

Syllabus for V Semester:

I. History of Indian English Literature: Poetry and Prose

a) Definition and scope of Indian English

b) Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857

c) Development of Indian English Poetry and Prose from 1857 to 1920

d) Development of Prose and Poetry in Gandhian Era (1920-1947)

e) Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

1) Sri Aurobindo: Thought the Paraclete

2) Toru Dutt: Sita

3) Nissim Ezekiel: Very Indian Poem in Indian English

4) A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.

5) Keki. N. Daruwalla: The Epileptic

6) Gouri Desh Pande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

1) M.K. Gandhi : To students

2) Nehru: The Relationship of Languages

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2013-2014
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-I (ENG 110)

I. American Language and Literature ------ Drama

a) The English Language in America - Settlement
b) The Uniformity of American Language
c) The influence of Noah Webster
d) American English Dialects
(A History of the English Language – A.C.Baugh)
e) American Literature – Development of Drama
f) American Literature – Development of Short story

II. American English Drama – Detailed study

Tom Sawyer

III. (Additional syllabus) – American English Short story

a) Luck	Mark Twain
b) The Tell-Tale Heart	Edgar Allen Poe
c) Jimmy Valentine	O.Henry

IV. Grammar & Composition

Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2013-2014
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –II (ENG 111)

I. The History of Indian English Literature – Drama, Fiction and Short stories

a) Development of Novel and Dama from 1857 – 1920
b) Development of Drama, Fiction and Short story (1920-1947)- Gandhian Era
c) Fiction from 1947 onwards – Post Independence period
d) Development of Drama from 1947 onwards
e) Literary terms related to fiction and drama – MH Abrahms (Addl. Input)

II. Indian English Drama – Text for Detailed study

a) "Naga Mandala" by Girish Karnad

III. Indian English Fiction (Non-detailed Study)

a) "Train to Pakistan" by Kushwanth Singh

IV. Additional Input – Short Stories:

a) Cargo from Singapore – Manohar Malgaonkar
b) Darjeeling – Kamala Das

V. Grammar & Composition

a) Comprehension Passage from Train to Pakistan
b) One word substitutions – Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2013-2014
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE –II (ENG 112)

I. American Literature and Language

a) Development of American Prose Literature
b) Development of American Poetry
c) The controversy over Americanisms – The Purist attitude
d) American words in General English
e) English as an International Language (Extra syllabus)

II. American English Literature: Poetry (Detailed study)

a) William Carlos Williams: The Yachts/
b) Wallace Stevens: Of Modern Poetry
c) Emily Dickinson: "Hope is the thing with Feathers"
d) Robert Frost: "Stopping by the woods on a Snowy Evening"
e) Archibald Mcleish: Not Marble nor the Gilded Monuments- for Adele.

III. American English Prose (Non-detailed study)

a) Walden H.D. Thoreau
b) "The American Scholar" Emerson (Extra syllabus)

IV. Grammar & Composition

a) Comprehension
b) Books & Authors

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

I SEMESTER SYLLABUS 2014-2015

ENGLISH LANGUAGE THROUGH LITERATURE-I (ENG 101)

PART-A, PAPER-1

POETRY :

1. On His Having arrived at the age of Twenty three — John Milton
2. Laugh and Be merry — John MasefieldStephen
3. Let Me not to the Marriage of True Minds — William Shakespeare
4. The UnknownCitizen — W.H.Auden

PROSE:

1. The Man inBlack — Oliver GoldsmithJohn
2. With the Photographer — StephenLeacock
3. The LastLeaf — O.Henry
4. Spoken English and Broken English — G.B.Shaw

Non-Detailed:

1. David Copperfield (abridged)

Grammar:

1. Vocabulary (Synonyms and Antonyms)
2. Verb Forms
3. Correction of Sentences
4. Prose Comprehension

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

II SEMESTER SYLLABUS 2014-2015

ENGLISH LANGUAGE THROUGH LITERATURE-II (ENG 102)

PART-A, PAPER-1

Poetry

1. Where the mind is without fear	Rabindranath Tagore
2. Because I could not stop for Death	Emily Dickinson
3. Ozymandias	P.B.Shelley
4. Telephone Conversation	Sole Woyinka

Prose

1. I have a Dream	Martin Luther King
2. Good Manners	J.C.Hill
3. Prospects of Democracy in India	Dr.B.R.Ambedkar
4. Letter to a Teacher	Students of Barbiana (Additional Input)

Non-Detailed:

1. Sacrifice (One Act Pay)	Rabindranath Tagore
2. Merchant of Venice (Casket scene)	William Shakespeare.

Grammar:

1. Parts of Speech
2. Prepositions
3. Words often Confused
4. Subject-Verb Agreement
5. Prose comprehension and Essay writing

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

III SEMESTER SYLLABUS 2014-2015

ENGLISH LANGUAGE THROUGH LITERATURE –III(ENG 103)

PART-A, PAPER-1

Prose Text:

1. Mr. Know All	Somerset Maughm
2. Not Just Oranges	Isai Tobolsky
3. A Talk on Advertising	Herman Wouk
4. Principles of Good Writing	L.A. Hill. (Addl. Input)

Poetry Text:

1. The Sun Rising	John Donne
2. The Solitary Reaper	William Wordsworth
3. The Road not Taken	Robert Frost
4. The Happy Man	Alexander Pope (Addl. Input)

Non-Detailed:

1. Gajar Halwa	Gita Hariharan
2. My Brother, My Brother	Norah Burke

Grammar:

1. Phrasal Verbs in Matching form
2. One-word substitutes
3. Expansion of Proverbs
4. Letter Writing
5. Prose Comprehension

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

IV SEMESTER SYLLABUS 2014-2015

ENGLISH LANGUAGE THROUGH LITERATURE –IV(ENG 104)

PART-A, PAPER-1

Prose Text:

1. On Shaking Hands	A.G. Gardiner
2. No Man is an Island	Minoo Masani
3. Decolonising the Mind	Ngugi Wa Thiong'o
4. World, My son starts school today	Abraham Lincoln (Addl. Input)

Poetry Text:

1. Refugee Mother and Child	Chinua Achebe
2. Good Bye Party for Miss. Pushpa T.S.	Nissim Ezekiel
3. I will embrace only the Sun	Tripuraneni Srinivas
4. Daffodils	William Wordsworth (Addl. Input)

Non-Detailed:

1. The Never, Never Nest	Cedric Mount
2. Julius Caesar (Caesar's Murder)	William Shakespeare

Grammar:

1. Linking Devices
2. Idioms (Matching)
3. General Essay
4. Paragraph Writing Using Hints
5. Prose Comprehension

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I SEMESTER SYLLABUS 2014-2015

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LANGUAGE-(ENG 105)

I. English Language (The Outline History of the English Language FT wood)

1. Old English
2. Middle English
3. Renaissance
4. Standard English

II. Vocabulary

1.Word Formation
2.Semantics

III. Forms of Poetry:

1. Sonnet
2. Ode
3. Elegy
4. Lyric
5. Dramatic Monologue

IV. Poetry

1.Wordsworth – "Scorn not the Sonnet"
2.Shelley - Ode to the West Wind
3.Gray - Elegy written in a Country Churchyard
4. Robert Burns –A Red Red Rose
5.Browning - My Last Duchess

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II SEMESTER SYLLABUS 2014-2015

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-I (ENG 106)

I. English Language: (The outline History of the English Language: FT Wood)

a) Latin

b) French

c) Scandinavian

d) Select Literary Terms (Additional Input)

II. Elements of Drama

a) Plot/Structure

b) Character

c) Dialogue

d) Point of View

e) Setting/atmosphere

f) Style/Narrative Technique

III. Drama

1.Farewell Mitchell – "The Best Laid Plans "

2. J.B.Priestley - Mother's Day

3. AntonChekov - The Marriage Proposal

IV.Fiction

1.Kushwanth Singh – The Interview

2.Edgar Allan Poe -The Tell Tale Heart

3. O.Henry - The Gift of the Magi

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
III SEMESTER SYLLABUS 2014-2015
DEGREE –II YEAR – ENGLISH LITERATURE
HISTORY OF ENGLISH LITERATURE-II (ENG 107)

UNIT-I: Poetry from the Elizabethan Age to Pre-Romantic Age

1. E.Spenser – Sonnet – "One Day I wrote her name…."
2. John Donne – "The Canonization"
3. Alexander Pope – "the Rape of the Lock" (Cantos I and II)
4. William Blake – "The School Boy"
5. John Milton - L'Allegro

UNIT –II: Prose – Origin & Development of the Essay Kinds

1. Bacon - "Of Youth and Age"
2. Steele - "On Judicious Flattery"
3. Lamb - "Dream Children"
4. Chesterton - "On Lying in Bed"

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
IV SEMESTER SYLLABUS 2014-2015
DEGREE –II YEAR – ENGLISH LITERATURE
HISTORY OF ENGLISH LITERATURE –III(ENG 108)

This paper is mainly divided into two distinct units. The first unit will cover the Development of Drama -16th and 17th century British Drama and the Text. The second unit will have topics from origin and development of the Novel and the Text.

UNIT – I:

A. Development of Drama – 16th and 17th Century British Drama

B. William Shakespeare's "Twelfth Night".

UNIT – II:

A. Fiction – Origin and Development of the Novel

B. Henry Fielding's "Joseph Andrews".

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2014-2015
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE-1 (ENG 109)

Syllabus for V Semester:

I. History of Indian English Literature: Poetry and Prose

a) Definition and scope of Indian English

b) Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857

c) Development of Indian English Poetry and Prose from 1857 to 1920

d) Development of Prose and Poetry in Gandhian Era (1920-1947)

e) Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

1) Sri Aurobindo: Thought the Paraclete

2) Toru Dutt: Sita

3) Nissim Ezekiel: Very Indian Poem in Indian English

4) A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.

5) Keki. N. Daruwalla: The Epileptic

6) Gouri Desh Pande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

1) M.K. Gandhi : To students

2) Nehru: The Relationship of Languages

IV. Grammmar and Composition

a.Antonyms
b.Pairs of Words

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2014-2015
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE –I (ENG 110)

I. American Language and Literature ------ Drama

a) The English Language in America - Settlement
b) The Uniformity of American Language
c) The influence of Noah Webster
d) American English Dialects
(A History of the English Language – A.C.Baugh)
e) American Literature – Development of Drama
f) American Literature – Development of Short story

II. American English Drama – Detailed study

The Hairy Ape

III. (Additional syllabus) – American English Short story

a) Luck	Mark Twain
b) The Tell-Tale Heart	Edgar Allen Poe
c) Jimmy Valentine	O.Henry

IV. Grammar & Composition

Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2014-2015
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –II (ENG 111)

I. The History of Indian English Literature – Drama, Fiction and Short stories

a) Development of Novel and Dama from 1857 – 1920
b) Development of Drama, Fiction and Short story (1920-1947)- Gandhian Era
c) Fiction from 1947 onwards – Post Independence period
d) Development of Drama from 1947 onwards
e) Literary terms related to fiction and drama – MH Abrahms (Addl. Input)

II. Indian English Drama – Text for Detailed study

a) "Naga Mandala" by Girish Karnad

III. Indian English Fiction (Non-detailed Study)

a) "Train to Pakistan" by Kushwanth Singh

IV. Additional Input – Short Stories:

a) Cargo from Singapore – Manohar Malgaonkar
b) Darjeeling – Kamala Das

IV. Grammar & Composition

a) Comprehension Passage from Train to Pakistan
b) One-word Substitutions-Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2014-2015
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-II (ENG 112)

I. American Literature and Language

a) Development of American Prose Literature
b) Development of American Poetry
c) The controversy over Americanisms – The Purist attitude
d) American words in General English
e) English as an International Language (Extra syllabus)

II. American English Literature: Poetry (Detailed study)

a) William Carlos Williams: The Yachts/
b) Wallace Stevens: Of Modern Poetry
c) Emily Dickinson: "Hope is the thing with Feathers"
d) Robert Frost: "Stopping by the woods on a Snowy Evening"
e) Archibald Mcleish: Not Marble nor the Gilded Monuments- for Adele.

III. American English Prose (Non-detailed study)

a) Walden H.D. Thoreau
b) "The American Scholar" Emerson (Extra syllabus)

IV. Grammar & Composition

a) Comprehension
b) Books & Authors

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

I SEMESTER SYLLABUS 2015-2016

PATH TO SKILLS IN ENGLISH-I (ENG 101)

PART-A, PAPER-1

POETRY :

1. On His Having arrived at the age of Twenty three John Milton
2. Laugh and Be merry John MasefieldStephen
3. Let Me not to the Marriage of True Minds William Shakespeare
4. Tables Turned William Wordsworth

PROSE:

1. The Man inBlack Oliver GoldsmithJohn
2. With the Photographer StephenLeacock
3. The LastLeaf O.Henry
4. Principles of Good Writing L.A.Hill

Non-Detailed:

1. David Copperfield (abridged) –Charles Dickens
2. Little Girls are Wiser than Men - Leo Tolstoy

Grammar:

1. Vocabulary (Synonyms and Antonyms)
2. Verb Forms
3. Articles
4. Prose Comprehension
5. Prepositions

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I DEGREE GENERAL ENGLISH

II SEMESTER SYLLABUS 2015-2016

PATHS TO SKILLS IN ENGLISH –II (ENG 102)

PART-A, PAPER-1

Poetry

1. Where the mind is without fear	Rabindranath Tagore
2. Because I could not stop for Death	Emily Dickinson
3. Ozymandias	P.B.Shelley
4. Telephone Conversation	Sole Woyinka

Prose

1. I have a Dream	Martin Luther King
2. Good Manners	J.C.Hill
3. Prospects of Democracy in India	Dr.B.R.Ambedkar
4. Letter to a Teacher	Students of Barbiana (Additional Input)

Non-Detailed:

1. Sacrifice (One Act Pay)	Rabindranath Tagore
2. Merchant of Venice (Casket scene)	William Shakespeare.

Grammar:

1. Linking Devices
2. Vocabulary From Prose Selections
3. Words often Confused
4. Subject-Verb Agreement
5. Prose comprehension

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

III SEMESTER SYLLABUS 2015-2016

PATHS TO SKILLS IN ENGLISH –III(ENG 103)

PART-A, PAPER-1

Poetry

1. The Human Seasons	John Keats
2. The Solitary Reaper	WilliamWordsworth
3. The Quality of Mercy	William Shakespeare
4. The River	Ramanujan

Prose

1. Mother Teresa	John Fraser
2. Forgetting	Robert Lynd
3. Seeing People Off	Max.Beerbohm
4. World,My Son Starts School Today	Abraham Lincoln(Additional Input)

Non-Detailed:

1. Gajar Halwa	Gita Hariharan
2. Importance of Being Earnest	Oscar Wilde

Grammar:

1. Vocabulary
2. Linking Devices
3. Phrasal Verbs
4. Correction of Sentences

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

IV SEMESTER SYLLABUS 2015-2016

PATHS TO SKILLS IN ENGLIS –IV (ENG 104)

PART-A, PAPER-1

Poetry

1. Night of the Scorpion	Nissim Ezekiel
2. Ode on Solitude	Alexander Pope
3. Stopping by Woods on a snowy evening	Robert Frost
4. Refugee Mother and Child	Chinua Achebe(Additional. Input)

Prose

1. The Power of Prayer	APJ Abdul Kalam
2. On Saying Please	A.G.Gardener
3. The Eyes are not Here	Ruskin Bond
4. The Best Investment I have Ever Made	A.J.Cronin

Non-Detailed:

1. The Never, Never Nest	Cedric Mount
2. The Refund	Fritz karinthy

Grammar:

1. Substitute the italicized phrase with a suitable one word substitute
2. Idioms (Matching)
3. Writing e-mail
4. Resume Writing

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I SEMESTER SYLLABUS 2015-2016

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LANGUAGE –(ENG 105)

I. English Language (The Outline History of the English Language FT wood)

1. Old English
2. Middle English
3. Renaissance
4. Standard English

II. Vocabulary

1.Word Formation
2.Semantics

III. Forms of Poetry:

1. Sonnet
2. Ode
3. Elegy
4. Lyric
5. Dramatic Monologue

IV. Poetry

1.Wordsworth – "Scorn not the Sonnet"
2.Shelley - Ode to the West Wind
3.Gray - Elegy written in a Country Churchyard
4. Robert Burns –A Red Red Rose
5.Browning - My Last Duchess

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II SEMESTER SYLLABUS 2015-2016

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-I (ENG 106)

I. English Language: (The outline History of the English Language: FT Wood)

a) Latin

b) French

c) Scandinavian

d) Select Literary Terms (Additional Input)

II. Elements of Drama

a) Plot/Structure

b) Character

c) Dialogue

d) Point of View

e) Setting/atmosphere

f) Style/Narrative Technique

III. Drama

1.Farewell Mitchell – "The Best Laid Plans "

2. J.B.Priestley - Mother's Day

3. AntonChekov - The Marriage Proposal

IV.Fiction

1.Kushwanth Singh – The Interview

2.Edgar Allan Poe -The Tell Tale Heart

3. O.Henry - The Gift of the Magi

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
III SEMESTER SYLLABUS 2015-2016
DEGREE –II YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-II (ENG 107)

UNIT-I: Poetry from the Elizabethan Age to Pre-Romantic Age

1. E.Spenser – Sonnet – "One Day I wrote her name…."
2. John Donne – "The Canonization"
3. Alexander Pope – "the Rape of the Lock" (Cantos I and II)
4. William Blake – "The School Boy"
5. John Milton - L'Allegro

UNIT –II: Prose – Origin & Development of the Essay Kinds

1. Bacon - "Of Youth and Age"
2. Steele - "On Judicious Flattery"
3. Lamb - "Dream Children"
4. Chesterton - "On Lying in Bed"

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
IV SEMESTER SYLLABUS 2015-2016
DEGREE –II YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-III (ENG 108)

This paper is mainly divided into two distinct units. The first unit will cover the Development of Drama -16th and 17th century British Drama and the Text. The second unit will have topics from origin and development of the Novel and the Text.

UNIT – I:

- **A.** Development of Drama – 16th and 17th Century British Drama
- **B.** William Shakespeare's "Twelfth Night".

UNIT – II:

- **A.** Fiction – Origin and Development of the Novel
- **B.** Henry Fielding's "Joseph Andrews".

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2015-2016
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE-I (ENG 109)

Syllabus for V Semester:

I. History of Indian English Literature: Poetry and Prose

a) Definition and scope of Indian English

b) Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857

c) Development of Indian English Poetry and Prose from 1857 to 1920

d) Development of Prose and Poetry in Gandhian Era (1920-1947)

e) Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

1) Sri Aurobindo: Thought the Paraclete

2) Toru Dutt: Sita

3) Nissim Ezekiel: Very Indian Poem in Indian English

4) A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.

5) Keki. N. Daruwalla: The Epileptic

6) Gouri Desh Pande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

1) M.K. Gandhi : To students

2) Nehru: The Relationship of Languages

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2015-2016
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-I(ENG 110)

I. American Language and Literature ------ Drama

a) The English Language in America - Settlement
b) The Uniformity of American Language
c) The influence of Noah Webster
d) American English Dialects
(A History of the English Language – A.C.Baugh)
e) American Literature – Development of Drama
f) American Literature – Development of Short story

II. American English Drama – Detailed study

The Hairy Ape

III. (Additional syllabus) – American English Short story

a) Luck	Mark Twain
b) The Tell-Tale Heart	Edgar Allen Poe
c) Jimmy Valentine	O.Henry

IV. Grammar & Composition

Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2015-2016
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE –II(ENG 111)

I. The History of Indian English Literature – Drama, Fiction and Short stories

a) Development of Novel and Dama from 1857 – 1920
b) Development of Drama, Fiction and Short story (1920-1947)- Gandhian Era
c) Fiction from 1947 onwards – Post Independence period
d) Development of Drama from 1947 onwards
e) Literary terms related to fiction and drama – MH Abrahms (Addl. Input)

II. Indian English Drama – Text for Detailed study

a) "Naga Mandala" by Girish Karnad

III. Indian English Fiction (Non-detailed Study)

a) "Train to Pakistan" by Kushwanth Singh

IV. Additional Input – Short Stories:

a) Cargo from Singapore – Manohar Malgaonkar
b) Darjeeling – Kamala Das

IV. Grammar & Composition

a) Comprehension Passage from Train to Pakistan
b) One-word Substitutions-Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2015-2016
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-II(ENG 112)

I. American Literature and Language

a) Development of American Prose Literature
b) Development of American Poetry
c) The controversy over Americanisms – The Purist attitude
d) American words in General English
e) English as an International Language (Extra syllabus)

II. American English Literature: Poetry (Detailed study)

a) William Carlos Williams: The Yachts/
b) Wallace Stevens: Of Modern Poetry
c) Emily Dickinson: "Hope is the thing with Feathers"
d) Robert Frost: "Stopping by the woods on a Snowy Evening"
e) Archibald Mcleish: Not Marble nor the Gilded Monuments- for Adele.

III. American English Prose (Non-detailed study)

a) Walden H.D. Thoreau
b) "The American Scholar" Emerson (Extra syllabus)

IV. Grammar & Composition

a) Comprehension
b) Books & Authors

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – I
STEP UP WITH ENGLISH-I (ENG 101)
2016-2017

Prescribed Text:

Unit – 1

Prose:

1. APJ Abdul Kalam: The Knowledge Society
2. Ngugi WaThiong'o: The Language of African Literature
3. RK Narayan: The Astrologer's Day (Additional Input)

Unit – 2

Poetry:

1. Robert Frost: The Road Not Taken
2. Nissim Ezekiel: Night of the Scorpion
3. William Wordsworth: The Solitary Reaper (Additional Input)

Unit – 3

Short Story:

1. Mulk Raj Anand: The lost Child
2. O' Henry: The Last Leaf
3. Henry Lawson The Loaded Dog

Unit – 4

One Act Play:

1. William Shakespeare: The Merchant of Venice (Court Scene – Act IV Sc-1)
2. Fritz Karinthy: The Refund(Additional Input)

Unit – 5

Language Activity:

1. Spelling
2. Pronunciation
3. Meaning

4. Syntax

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – II
STEP UP WITH ENGLISH –II (ENG 102)
2016-2017

Prescribed Text:

Unit – 1

Prose:

1. JBS Haldane: Scientific Point of View
2. AG Gardiner: On Shaking Hands
3. L.A.Hill Principles of Good Writing

Unit – 2

Poetry:

1. John Keats: Ode to Autumn
2. Kishwar Naheed: I am not That Woman
3. Harindranath Chatopadhayaya Earthen Goblet

Unit – 3

Short Story:

1. Ruskin Bond: The Boy who Broke the Bank
2. RK Narayan: Half a Rupee Worth
3. Saki: Open Window (Additional Input)

Unit – 4

One Act Play:

1. Anton Chekov: The Proposal
2. Cedrik Mount: Never, Never Nest (Additional Input)

Unit – 5

Grammar & Language Activity:

1. Reading Comprehension (Unseen)
2. Verb Forms

3. Guided Composition
4. Arrangement of sentences in a paragraph

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR COMMUNICATION SKILLS
SEMESTER – I (2016-2017)

Unit 1 : Pronunciation 1

1. Sounds of English – Vowels
2. Sounds of English - Consonants
3. Common Pronunciations : Problems for Indian Learners of English

Unit 2 : Pronunciation 2

1. The Syllable
2. Word Accent
3. Accent and Rhythm in Connected Speech
4. Intonation

Unit 3 : Grammar

1.The Verb Phrase

a.Stative Verbs and Dynamic Verbs
b. Transitive Verbs and Intransitive Verbs
c. Operators

2. Meaning of Modals
3.Tense (Present and Past)Aspects
4.Several possibilities for denoting future time
5.The basic sentence types
6.Subject-Verb Concord

Unit 4 : Listening Skills
Importance of Listening
Types of Listening
Barriers/Obstacles of Effective Listening
Strategies foe Effective Listening

Unit 5: Reading Comprehension
1.Comprehension
2.Skimming
3.Scanning
4.Intensive Reading
5.Extensive Reading

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR II YEAR GENERAL ENGLISH PAPER –II A
SEMESTER – III
ENGLISH LANGUAGE THROUGH LITERATURE-I (ENG 103)
2017-2018

Prescribed Text:

Unit – I

Prose:

1. M.K. Gandhi: Shyness My Shield
2. Alexis Madrigal: Why People Really Love Technology – An Interview with Genevieve Bell
3. Genl. Seattle: Letter to the American President (Additional input)

Unit – II

Poetry:

1. Gabriel Okara: Once Upon A Time
2. William Shakespeare: Quality of Mercy
3. Henry Vivian Derozio: Harp of India (Additional input)

Unit – III

Short Story:

1. Jhumpa Lahiri: The Interpreter of Maladies
2. Shashi Deshpande: My Beloved Charioteer
3. Ruskin Bond: The Eyes are Not here (Additional input)

Unit – IV

One Act Play:

1. GurajadaApparao, trans. N. Usha: Kanyasulkam (Acts 1 and 2)
2. Rabindranath Tagore: Post Office(Additional input)

Unit – 5

Language Activity:

1. Correction of Sentences
2. Linking Devices (Either-or, Neither-nor, To-too, So-that, not, but, if, when, Since, unless, because)
3. Idioms & Phrases

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II DEGREE GENERAL ENGLISH

IV SEMESTER SYLLABUS 2015-2016

ENGLISH LANGUAGE THROUGH LITERATURE-II(ENG 104)

PART-A, PAPER-1

Poetry

1. Night of the Scorpion	Nissim Ezekiel
2. Ode on Solitude	Alexander Pope
3. Stopping by Woods on a snowy evening	Robert Frost
4. Refugee Mother and Child	Chinua Achebe(Additional. Input)

Prose

1. The Power of Prayer	APJ Abdul Kalam
2. On Saying Please	A.G.Gardener
3. The Eyes are not Here	Ruskin Bond
4. The Best Investment I have Ever Made	A.J.Cronin

Non-Detailed:

1. The Never, Never Nest	Cedric Mount
2. The Refund	Fritz karinthy

Grammar:

1. Substitute the italicized phrase with a suitable one word substitute
2. Idioms (Matching)
3. Writing e-mail
4. Resume Writing

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I SEMESTER SYLLABUS 2016-2017

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LANGUAGE-(ENG 105)

Unit 1 :History of English Language
1.Old English
2. Middle English Period

Unit 2 : Philology (History and Development of English Language)
1.History and Development of English Language
2.Scandinavian influence on Englih Language
3.Latin Influence on English Language
4.Greek influence on English Language
5.French influence on English Language

Unit 3: Literary Forms and Terms
1.Ballad Terms ; Rhythm,Rhyme,Meter,Diction,Imagery
2.Epic
3.Lyric
4.Ode
5.Elegy
6.Sonnet

Unit 4 : Poetry
1. John Donne – Death be not Proud
2. Andrew Marvell – To his Coy Mistress

Unit 5 : Prose
1. Bacon : Of Studies
2. Bacon : Of Friendship

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

II SEMESTER SYLLABUS 2016-2017

DEGREE –I YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-I (ENG 106)

Unit I - History of English Literature
1.Renaissance
2.Elizabethan Period

Unit II – Literary Terms

1.Irony
2Ttragedy
3 Comedy.
4 Chronicle Play
5 Comedy of humours
6 Farce
Figures of Speech : Simile,Metaphor,Prsonification,Hyperbole,Allegory,Alliteration

Unit 3: Drama
Shakespeare – Twelfth Night

Unit 4 : Poetry

Shakesperare - sonnet no 116
Milton - Paradise Lost Book Book 1X

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
III SEMESTER SYLLABUS 2016-2017
DEGREE –II YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-II (ENG 107)

UNIT-I: Poetry from the Elizabethan Age to Pre-Romantic Age

1. E.Spenser – Sonnet – "One Day I wrote her name…."
2. John Donne – "The Canonization"
3. Alexander Pope – "the Rape of the Lock" (Cantos I and II)
4. William Blake – "The School Boy"
5. John Milton - L'Allegro

UNIT –II: Prose – Origin & Development of the Essay Kinds

1. Bacon - "Of Youth and Age"
2. Steele - "On Judicious Flattery"
3. Lamb - "Dream Children"
4. Chesterton - "On Lying in Bed"

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
IV SEMESTER SYLLABUS 2016-2017
DEGREE –II YEAR – ENGLISH LITERATURE

HISTORY OF ENGLISH LITERATURE-III (ENG 108)

This paper is mainly divided into two distinct units. The first unit will cover the Development of Drama -16th and 17th century British Drama and the Text. The second unit will have topics from origin and development of the Novel and the Text.

UNIT – I:

- **A.** Development of Drama – 16th and 17th Century British Drama
- **B.** William Shakespeare's "Twelfth Night".

UNIT – II:

- **A.** Fiction – Origin and Development of the Novel
- **B.** Henry Fielding's "Joseph Andrews".

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2016-2017
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE-I (ENG 109)

Syllabus for V Semester:

I. History of Indian English Literature: Poetry and Prose

a) Definition and scope of Indian English

b) Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857

c) Development of Indian English Poetry and Prose from 1857 to 1920

d) Development of Prose and Poetry in Gandhian Era (1920-1947)

e) Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

1) Sri Aurobindo: Thought the Paraclete

2) Toru Dutt: Sita

3) Nissim Ezekiel: Very Indian Poem in Indian English

4) A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.

5) Keki. N. Daruwalla: The Epileptic

6) Gouri Desh Pande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

1) M.K. Gandhi : To students

2) Nehru: The Relationship of Languages

IV.Grammmar and Composition

a.Antonyms
b.Pairs of Words

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
V SEMESTER SYLLABUS 2016-2017

DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE-I (ENG 110)

I. American Language and Literature ------ Drama

a) The English Language in America - Settlement
b) The Uniformity of American Language
c) The influence of Noah Webster
d) American English Dialects
(A History of the English Language – A.C.Baugh)
e) American Literature – Development of Drama
f) American Literature – Development of Short story

II. American English Drama – Detailed study

Tom Swayer

III. (Additional syllabus) – American English Short story

a) Luck	Mark Twain
b) The Tell-Tale Heart	Edgar Allen Poe
c) Jimmy Valentine	O.Henry

IV. Grammar & Composition

Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2016-2017
DEGREE –III YEAR – ENGLISH LITERATURE
INDIAN ENGLISH LITERATURE- (ENG 111)

I. The History of Indian English Literature – Drama, Fiction and Short stories

a) Development of Novel and Dama from 1857 – 1920
b) Development of Drama, Fiction and Short story (1920-1947)- Gandhian Era
c) Fiction from 1947 onwards – Post Independence period
d) Development of Drama from 1947 onwards
e) Literary terms related to fiction and drama – MH Abrahms (Addl. Input)

II. Indian English Drama – Text for Detailed study

a) "Naga Mandala" by Girish Karnad

III. Indian English Fiction (Non-detailed Study)

a) "Train to Pakistan" by Kushwanth Singh

IV. Additional Input – Short Stories:

a) Cargo from Singapore – Manohar Malgaonkar
b) Darjeeling – Kamala Das

IV. Grammar & Composition

a) Comprehension Passage from Train to Pakistan
b) Literary Terms

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
VI SEMESTER SYLLABUS 2016-2017
DEGREE –III YEAR – ENGLISH LITERATURE
AMERICAN ENGLISH LANGUAGE AND LITERATURE II (ENG 112)

I. American Literature and Language

a) Development of American Prose Literature
b) Development of American Poetry
c) The controversy over Americanisms – The Purist attitude
d) American words in General English
e) English as an International Language (Extra syllabus)

II. American English Literature: Poetry (Detailed study)

a) William Carlos Williams: The Yachts/
b) Wallace Stevens: Of Modern Poetry
c) Emily Dickinson: "Hope is the thing with Feathers"
d) Robert Frost: "Stopping by the woods on a Snowy Evening"
e) Archibald Mcleish: Not Marble nor the Gilded Monuments- for Adele.

III. American English Prose (Non-detailed study)

a) Walden H.D. Thoreau
b) "The American Scholar" Emerson (Extra syllabus)

IV. Grammar & Composition

a) Comprehension
b) Books & Authors

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – I
STEP UP WITH ENGLISH-(ENG 101)
2017-2018

Prescribed Text:

Unit – 1

Prose:

1. APJ Abdul Kalam: The Knowledge Society
2. Ngugi WaThiong'o: The Language of African Literature
3. RK Narayan: The Astrologer's Day (Additional Input)

Unit – 2

Poetry:

1. Robert Frost: The Road Not Taken
2. Nissim Ezekiel: Night of the Scorpion
3. William Wordsworth: The Solitary Reaper (Additional Input)

Unit – 3

Short Story:

1. Mulk Raj Anand: The lost Child
2. O' Henry: The Last Leaf
3. James Thurber: Snapshot of a Dog (Additional Input)

Unit – 4

One Act Play:

1. William Shakespeare: The Merchant of Venice (Court Scene – Act IV Sc-1)
2. Fritz Karinthy: The Refund(Additional Input)

Unit – 5

Language Activity:

1. Spelling
2. Pronunciation
3. Meaning
4. Syntax

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – II
ENGAGE WITH ENGLISH –(ENG 102)
2017-2018

Prescribed Text:
Unit – 1

Prose:

1. Dr.BR Ambedkar: The Annihilation of Caste
2. JBS Haldane: Scientific Point of View
3. AG Gardiner: On Shaking Hands
4. Robert Lynd On Forgetting (Additional Input)

Unit – 2

Poetry:

1. John Keats: Ode to Autumn
2. Kishwar Naheed: I am not That Woman
3. R.W. Emerson Brahma (Modified)
4. Wole Soyinka: Telephone Conversation (Additional Input)

Unit – 3

Short Story:

1. Ruskin Bond: The Boy who Broke the Bank
2. RK Narayan: Half a Rupee Worth
3. Saki: Open Window (Additional Input)

Unit – 4

One Act Play:

1. Anton Chekov: The Proposal
2. Cedrik Mount: Never, Never Nest (Additional Input)

Unit – 5

Grammar & Language Activity:

1. Reading Comprehension (Unseen)
2. Verb Forms
3. Guided Composition
4. Arrangement of sentences in a paragraph

I YEAR B.A., SPECIAL ENGLISH
SEMESTER – I
2017-2018
HISTORY OF ENGLISH LANGUAGE –(ENG 105)
SYLLABUS

Prescribed Text:

Unit – I

History of English Language:

1. History and Development of English Language
2. Indo-European Family of Languages
3. Old English Period
4. Middle English Period

Unit – II

Philology (History and Development of English Language):

1. Scandinavian Influence on English Language
2. Latin Influence on English Language
3. Greek Influence on English Language
4. French Influence on English Language

Unit – III

Literary Forms and Terms:

1. Ballad
2. Epic
3. Ode
4. Elegy
5. Sonnet
6. Rhyme
7. Rhythm
8. Meter
9. Diction
10. Imagery

Prose:

1. **Bacon-** Of Studies
2. **Bacon – Of F**riendship

Unit – IV

Poetry:

1. John Donne: Death, Be Not Proud
2. Andrew Marvel:To his Coy Mistress – Andrew (Additional Input)

Unit – V

Government College (A) Rajahmundry
SYLLABUS FOR I YEAR B.A SPECIAL ENGLISH PAPER
SEMESTER – II
HISTORY OF ENGLISH LITERATURE –I (ENG 106)
2017-2018

Prescribed Text:

Unit – I

History of English Literature: **2X6=12M**

1. Renaissance
2. Elizabethan Period
3. Jacobean Period

Unit – II

Figures of Speech & Literary Terms: **4X3=12 M**

A

1. Simile
2. Metaphor
3. Personification
4. Allegory
5. Irony

B

6. Tragedy
7. Comedy
8. Chronicle play
9. Mysteries, moralities and miracles
10. Classical Unities

Unit-III

Drama: **2X6=12M**

1. Shakespeare's Twelfth Night

Unit – IV

Poetry: **1X8=8M**

1. Milton: "Extract from Paradise Lost Book-IX" (Fall of Adam and Eve)
2. Marlowe: "Helen's description" from Dr. Faustus (Additional Input)

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM

DEPARTMENT OF ENGLISH 2017-2018

FOUNDATION COURSE – SEMESTER – I

COMMUNICATION SKILLS (30 hours)

COURSE CONTENT

Unit - I

1. Prefixes and Suffixes
2. Conversion
3. Compounding
4. Analogy
5. One-Word Substitutes
6. Words Often Confused
7. Synonyms and Antonyms
8. Phrasal Verbs (Keep, put, get, call, make, give, look)

Unit II- Grammar-1

1. Types of Verbs
2. Subject-Verb Agreement

Unit III: Grammar - 2

1. Meanings of Modals
2. Tense (Present and Past) and Aspect
3. The Several Possibilities for Denoting Future Time
4. Articles and Prepositions

Unit IV: Listening Skills

1. The Importance of Listening
2. Types of Listening
3. Barriers/Obstacles to Effective Listening
4. Strategies for Effective Listening

Unit V: Reading Skills

1. Skimming
2. Scanning
3. Intensive Reading and Extensive Reading
4. Comprehension (Unseen)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR II YEAR GENERAL ENGLISH PAPER –II A
SEMESTER – III
GLOBAL HORIZONS –ENG 104
2017-2018

Prescribed Text:

Unit – I

Prose:

1. M.K. Gandhi: Shyness My Shield
2. Alexis Madrigal: Why People Really Love Technology – An Interview with Genevieve Bell
3. Genl. Seattle: Letter to the American President (Additional input)

Unit – II

Poetry:

1. Gabriel Okara: Once Upon A Time
2. William Shakespeare: Quality of Mercy
3. Henry Vivian Derozio: Harp of India (Additional input)

Unit – III

Short Story:

1. Jhumpa Lahiri: The Interpreter of Maladies
2. Shashi Deshpande: My Beloved Charioteer
3. Ruskin Bond: The Eyes are Not here (Additional input)

Unit – IV

One Act Play:

1. GurajadaApparao, trans. N. Usha: Kanyasulkam (Acts 1 and 2)
2. Rabindranath Tagore: Post Office(Additional input)

Unit – 5

Language Activity:

1. Correction of Sentences
2. Linking Devices (Either-or, Neither-nor, To-too, So-that, not, but, if, when, Since, unless, because)
3. Idioms & Phrases

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
Department of English
II B.A Special English - Semester III

Syllabus HISTORY OF ENGLISH LITERATURE –II(ENG 107)
2017-2018

UNIT I - History of English literature

a. Restoration
   - Characteristic features
   - Major writers of diff. genres

b. Augustan periods (17th & 18th c.)
   - Characteristic features
   - Major writers of diff. genres

UNIT II- Literary forms and terms

a. Satire
b. mock-epic
c. heroic couplet
d. epistle
e. heroic tragedy
f. comedy of manners
g. sentimental comedy
h. periodical essay
i. picaresque novel
j. epistolary novel

UNIT III- Poetry

a. Pope: extracts from The Rape of the Lock (Canto 1)

UNIT IV-Prose

a. Defoe: Robinson Crusoe

UNIT V- Drama

a. Congreve: The Way of the World

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM

Department of English

B.A Special English - Semester IV

HISTORY OF ENGLISH LITERATURE –III(ENG 108)

Syllabus 2017-2018

UNIT I- History of English literature

a. Romantic Period
b. Victorian periods

UNIT II -Literary forms and terms

a. Biography
b. Autobiography
c. Melodrama
d. Historical
e. Novel
f. sentimental novel
g. gothic novel
h. Regional
i. Novel
j. flat character
k. round character
l. Protagonist
m. Antagonist

UNIT III- Poetry

a. Keats: 'Ode to a Nightingale'
b. Browning: 'How do I love thee?'

UNIT IV-Novel

a. Austen: Pride and Prejudice

UNIT V- Multiple Choice Questions:

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
DEPARTMENT OF ENGLISH 2017-2018
FOUNDATION COURSE – SEMESTER – 3
COMMUNICATION SKILLS
COURSE CONTENT (30 hours)

Unit I:

The Sounds of English

Unit II:

Speaking Skills -1

1. Conversation Skills
2. Interview Skills:
3. Presentation Skills
4. Public Speaking

Unit III:

Speaking Skills -2

1. Role Play
2. Debate
3. Group Discussion

Unit IV:

Writing Skills

1. Spelling
2. Punctuation
3. Information Transfer
    a. Tables
    b. Bar Diagrams
    c. Line Graphs
    d. Pie Diagrams
    e. Flow Charts
    f. Tree Diagrams
    g. Pictures

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
DEPARTMENT OF ENGLISH
FOUNDATION COURSE – SEMESTER – IV
COMMUNICATION SKILLS-3
SOFT SKILLS –ENG 104
COURSE CONTENT (30 hours)

Unit I:

Soft Skills

1. Positive Attitude
2. Body Language
3. SWOT/SWOC Analysis
4. Emotional Intelligence
5. Netiquette

Unit II:

Paragraph Writing

1. Paragraph Structure
2. Development of Ideas
3. Topics for paragraph writing

(My village, My hobbies, My strengths, My town, My college, My family)

Unit III:

Paraphrasing and Summarizing

1. Elements of Effective Paraphrasing
2. Note Making
3. Expansion
    a. No pains-No gains
    b. Slow and steady wins race
    c. Rome was not built in a day
    d. All that glitters is not gold
    e. Make hay while Sunshine
    f. Necessity is the mother of Invention

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

V SEMESTER SYLLABUS 2017-2018

DEGREE –III YEAR B.A. ENGLISH LITERATURE

Indian English Literature- Poetry and Prose-(ENG 109)

Syllabus

I. History of Indian English Literature: Poetry and Prose

a. Definition and scope of Indian English
b. Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857
c. Development of Indian English Poetry and Prose from 1857 to 1920
d. Development of Prose and Poetry in Gandhian Era (1920-1947)
e. Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

a. Sri Aurobindo: Thought the Paraclete
b. Toru Dutt: Sita
c. Nissim Ezekiel: Very Indian Poem in Indian English
d. A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.
e. Keki. N. Daruwalla: The Epileptic
f. GouriDeshPande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

a.M.K. Gandhi: To students
b. Nehru: The Relationship of Languages

IV. Literary Terms:

1. Allegory
2. Alliteration
3. Allusion
4. Euphemism
5. Hyperbole;
6. Imagery
7. Metaphor
8. Onomatopoeia
9. Oxymoron
10. Paradox
11. Parody;
12. Personification;
13. Satire
14. Simile
15. Syllogism

III B.A - V SEMESTER 2017-2018

AMERICAN ENGLISH – DRAMA & FICTION –(ENG 110)

Paper – VI

SYLLABUS

I. American Language and Literature

a. The English Language in America - Settlement
b. The Uniformity of American Language
c. The influence of Noah Webster
d. American English Dialects

II. American English Novel – Detailed study

a. Development of American Novel
b. Tom Sawyer

III. (Additional syllabus) – American English Short story

a. Development of American Short story
b. Luck — Mark Twain
c. The Tell-Tale Heart — Edgar Allen Poe
d. Jimmy Valentine — O.Henry

IV. American Drama

a. Development of American Drama
b. Death of A Salesman - Arthur Miller

V. Important concepts in American Literature

1. Potato crop failure
2. Boston Tea Party
3. New England Poets
4. Noah Webster
5. American Dream
6. American Renaissance
7. Realism
8. Transcendentalism

V. Matching

VI. Multiplw choice Questions

Department of English 2017-2018

III B.A Semester VIII

Elective Paper: VII–(A)

A Study of the English Language-(ENG 111)

Model Question Paper

Time: 3 Hrs. **Max. Marks: 60M**

I. Answer any TWO of the following Questions in 75 words each **2X6=12M**

a. Trace the origin and branching out of the Indo-European family.
b. Illustrate the similarity of sounds between various Indo-European languages.
c. Define Grimm's Law and explain its significance.
d. What is Carl Verner's contribution to the sound changes of English language?

II. Answer any TWO questions in 150 words each **2X8=16M**

a. Discuss the features of Old English.
b. Old English is a highly synthetic language – discuss.
c. Write a note on the major changes in English during Middle English Period.
d. What factors have contributed to the development of Modern English?

III. Answer any TWO questions in 150 words each **2X8=16M**

a. Write an essay on the contribution of Latin to English Language.
b. How was English enriched from Scandinavian influence?
c. What is the impact of Norman Conquest on English Language?
d. Why was Celtic influence much less on English language?

IV. Answer any TWO questions in 75 words each **2X4=8M**

a. Portmanteau words
b. Backformation
c. Generalization
d. Specialization

V. Answer any ONE questions in 150 words each **1X8=8M**

a. Trace the role of Grammar in the development of language.
b. How does Grammar enrich language?
c. Discuss the role of grammar in facilitating communication

Department of English 2017-2018

III B.A Semester VIII

2015-2016 Admitted Batch

Elective Paper: VII–(B)

A Study of Literary Criticism-ENG 112

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Aristotle: *Poetics – Definition of Tragedy, comedy and elements*	**10 Hrs.**	**03**	**01 in 100 words**	**1X6=6**
III	Sir Philip Sidney : "*Apologie for Poetrie"*	**10 Hrs**	**03**	**01 in 100 words each**	**1X6=6**
IV	John Dryden: *An Essay of Dramatic Poesie – relevance, important aspects*	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
V	Wordsworth: Lyrical Ballads – Treatment of Nature – Definition of Poetry etc.	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
VI	T.S.Eliot: *Tradition and Individual Talent*	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
VII	Short answer Questions on Important Terms from prescribed texts.	**10 Hrs.**	**06**	**03 in 75 words each**	**3X5=15**
VII	**Matching Exercise on Types of Criticism** Biographical criticism, historical criticism, psychoanalytic criticism , sociological criticism, Marxist criticism, feminist criticism, archetypal criticism, postcolonial criticism		**05**	**05**	**5X1=5**
VIII	Multiple Choice Questions on Prescribed Topics		**10**	**10**	**10X1=10**
		60 Hrs.	**36**	**23**	**60 M**

Department of English 2017-2018

III B.A Semester VIII

2015-2016 Admitted Batch

Elective Paper: VII–(C)

Major Genres of English Literature-ENG 113

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Elements of Drama – Unities – origin and growth -Pygmalion and Julius Caesar - Analysis	15 Hrs.	**04**	**02 in 100 words**	**2X6=12**
II	Elements of Poetry – Origin and development – influence of love, war and nature on poetry.	15 Hrs.	**04**	**02 in 100 words each**	**2X6=12**
III	Elements of Fiction- Novel and Essay – development – major contributors	15Hrs	**04**	**02 in 100 words each**	**2X6=12**
IV	Short Answer questions on important elements of novel and essay		**04**	**02 in 50 words each**	**2X6=12**
V	4 Elements of Popular Fiction – children's fiction – detective fiction etc.	15 Hrs.	**04**	**02 in 100 words each**	**2X6=12**
		60 Hrs.	**20**	**10**	**60 M**

DEPARTMENT OF ENGLISH 2017-2018
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-1

American Literature-1-(ENG 114)

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	English Literature from America – Evolution and contributions across time Important Phases – writers - Works in American Lit. Short Ans. Questions	**9 Hrs.**	**04**	**03 in100 words**	**3X6=18**
II	Evolution of American Poetry, Novel and Drama – major writers – works	**9 Hrs.**	**03**	**01 in 100 words**	**1X8=8**
III	Poetry T.S.Eliot: The Love Song of J.AlfredPrufrock structure – Plot – Symbols and Characterization	**9 Hrs.**	**03**	**01 in 100 words each**	**1X8=8**
IV	Stephen Crane – The Red Badge of Courage	**9 Hrs.**	**04**	**02 in 150 words each**	**1X8=8**
V	Tennessee Williams: "The Street Car Named Desire" structure – Plot – Symbols and Characterization	**9 Hrs.**	**03**	**01 in 150 words each**	**1X8=8**
VI	Blanks on American Literature	**6 Hrs.**	**10**	**10**	**10X1=10**
		60 Hrs.	**29**	**19**	**60M**

DEPARTMENT OF ENGLISH 2017-2018
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-2

American Literature-2(ENG 115)

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Poetry Robert Frost: *Road not Taken* Langston Hughes: *I,too*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	Drama Arthur Miller :*The Death of a Salesman*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
III	Prose -1 Mark Twain: *The Adventures of Tom Sawyer*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	Prose – 2 Nathaniel Hawthorne: *The Great Carbuncle*	**12 Hrs.**	**04**	**02 in 100 words**	**2X6=12**
V	Short Story Edgar Allan Poe: *The Tell-Tale Heart*	**12 Hrs.**	**04**	**02 in 100 words**	**2X8=12**
		60 Hrs.	**20**	**10**	**60M**

DEPARTMENT OF ENGLISH 2017-2018
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-3

American Literature-3(ENG 116)

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry Emily Dickinson**: *Success is Counted Sweetest* **Walt Whitman**: *O Captain! My Captain!*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	**Drama** **Eugene O'Neill**: *Long day's Journey into Night*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
III	**Prose-1** **Earnest Hemingway**: *The Old Man and the Sea*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Prose-2** **Martin Luther King**: *I Have a Dream*	**12 Hrs.**	**04**	**02 in 100 words**	**2X6=12**
V	Short Story **O'Henry**: *After Twenty Years*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
		60 Hrs.	**20**	**18**	**60M**

DEPARTMENT OF ENGLISH 2017-2018
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2015-2016 Admitted Batch
Cluster Elective Paper-VIII-B-1
Indian Writing in English-1(ENG 117)
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** **Henry Derozio:** The Harp of India **Sarojini Naidu**: In the Bazaars of Hyderabad **A.K. Ramanujan:** A River	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II III	**Drama** **Mahesh Dattani**: Dance Like a Man	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Prose** 1. **R.K.Narayan**: The Guide	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VI	**Prose & Short Story** 1. **Munshi Premchand**: The Child 2. Sudha Murthy: How I Taught My Grandmother to Read	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VII	Match the following	**12 Hrs**	**05**	**05**	**5X1=5**
VIII	Multiple Choice Questions		**7**	**7**	**7X1=7**
		60 Hrs.	**28**	**20**	**60 M**

DEPARTMENT OF ENGLISH 2017-2018
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2015-2016 Admitted Batch
Cluster Elective Paper-VIII-B-2
Indian Writing in English – 2(ENG 118)
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** *1.* Kamala Das: *An Introduction* *2.* Kolatkar :*An Old Woman* 3. Chitre: *Felling of the Banyan Tree*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
II	**Drama:** Vijay Tendulkar: *Kanyadan*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
III	**Prose-1** Mulk Raj Anand: *The Untouchable* 2	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
IV	**Prose 2** VandanaShiva: *Everything I Need to Know I Learned in the Forest*	**12 Hrs.**	**04**	**02 in 100 words**	**2X5=10**
V	**Short Story** 1. Chitra Banerjee Divakaruni: *Mrs. Datta writes a Letter*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
VI	Multiple Choice Questions		**10**	**10**	**1X10=10**
		60 Hrs	**30**	**20**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2015-2016 Admitted Batch
Cluster Elective Paper-VIII-B-3
Indian Writing in English – 3(ENG 119)
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** 1. **Toru Dutt**: Our Casuarina Tree 2. **Nissim Ezekiel:** The Professor 3. **Keki. N.Daruwallah**: Migrations	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	**Drama** 1. Rabindranath Tagore: The Post Office	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Novel-1** Raja Rao: Kanthapura	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VI	**Novel - 2** R.K.Narayan: The Vendor of Sweets	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VII	**Match the following**		**04**	**04**	**1X4=4**
	Multiple Choice Questions		**08**	**08**	**8X1=8**
		60 Hrs	**28**	**20**	**60 M**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2017-2018

Cluster Elective Paper-VIII-C-1

Commonwealth Literature -1(ENG 120)

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** 1. **A.D.Hope**: Australia, 2. The Death of the Bird	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** 1**. Ray Lawler**: Summer of the Seventeenth Doll	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel** 1. **Chinua Achebe**: Arrow of God	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel** **Alan Paton**: Cry the BelovedCountry	**15 Hrs.**	**05**	**03 in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2017-2018
Cluster Elective Paper-VIII-C-2
Commonwealth Literature -2(ENG 121)
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** Chinua Achebe: *Refugee Motherand Child* Christopher Okigbo: *Watermaid*	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** Athol Fugard: *Hello and Goodbye*	**15Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel 1** V.S.Naipaul: *A House for Mr. Biswas*	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel 2** Nadine Gordimer: *July's People* 2	**15 Hrs.**	**05**	**03 in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
2017-2018
III B.A, Semester VI
Cluster Elective Paper-VIII-C-3
Commonwealth Literature -3(ENG 122)
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** **Margaret Atwood**: In the Secular Night Rosemary Sullivan: The Fugitive Heart	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** **Wole Soyinka**: The Dance of Forests	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel 1** **ZakesMda**: Rachel's Blue	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel 2** **BuchiEmecheta**: A Kind of Marriage	**15 Hrs.**	**05**	**03in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60Marks**

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – I
2018-2019

Prescribed Text:

Unit – 1

Prose:

1. APJ Abdul Kalam: The Knowledge Society
2. Ngugi WaThiong'o: The Language of African Literature
3. RK Narayan: The Astrologer's Day (Additional Input)

Unit – 2

Poetry:

1. Robert Frost: The Road Not Taken
2. Nissim Ezekiel: Night of the Scorpion
3. William Wordsworth: The Solitary Reaper (Additional Input)

Unit – 3

Short Story:

1. Mulk Raj Anand: The lost Child
2. O' Henry: The Last Leaf
3. James Thurber: Snapshot of a Dog (Additional Input)

Unit – 4

One Act Play:

1. William Shakespeare: The Merchant of Venice (Court Scene – Act IV Sc-1)
2. Fritz Karinthy: The Refund(Additional Input)

Unit – 5

Language Activity:

1. Spelling
2. Pronunciation
3. Meaning
4. Syntax

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR I YEAR GENERAL ENGLISH PAPER –IA
SEMESTER – II
2018-2019

Prescribed Text:

Unit – 1

Prose:

1. Dr.BR Ambedkar: The Annihilation of Caste
2. JBS Haldane: Scientific Point of View
3. AG Gardiner: On Shaking Hands
4. Robert Lynd On Forgetting (Additional Input)

Unit – 2

Poetry:

1. John Keats: Ode to Autumn
2. Kishwar Naheed: I am not That Woman
3. R.W. Emerson Brahma (Modified)
4. Wole Soyinka: Telephone Conversation (Additional Input)

Unit – 3

Short Story:

1. Ruskin Bond: The Boy who Broke the Bank
2. RK Narayan: Half a Rupee Worth
3. Saki: Open Window (Additional Input)

Unit – 4

One Act Play:

1. Anton Chekov: The Proposal
2. Cedrik Mount: Never, Never Nest (Additional Input)

Unit – 5

Grammar & Language Activity:

1. Reading Comprehension (Unseen)
2. Verb Forms
3. Guided Composition
4. Arrangement of sentences in a paragraph

I YEAR B.A., SPECIAL ENGLISH
SEMESTER – I
2018-2019
SYLLABUS

Prescribed Text:

Unit – I

History of English Language:

1. History and Development of English Language
2. Indo-European Family of Languages
3. Old English Period
4. Middle English Period

Unit – II

Philology (History and Development of English Language):

1. Scandinavian Influence on English Language
2. Latin Influence on English Language
3. Greek Influence on English Language
4. French Influence on English Language

Unit – III

Literary Forms and Terms:

1. Ballad
2. Epic
3. Ode
4. Elegy
5. Sonnet
6. Rhyme
7. Rhythm
8. Meter
9. Diction
10. Imagery

Unit – IV

Poetry:

1. John Donne: Death, Be Not Proud
2. Andrew Marvel:To his Coy Mistress – Andrew (Additional Input)

Unit – V

Prose:

1. **Bacon-** Of Studies
2. **Bacon – Of F**riendship

Government College (A) Rajahmundry
SYLLABUS FOR I YEAR B.A SPECIAL ENGLISH PAPER
SEMESTER – II
2018-2019

Prescribed Text:

Unit – I

History of English Literature: **2X6=12M**

1. Renaissance
2. Elizabethan Period
3. Jacobean Period

Unit – II

Figures of Speech & Literary Terms: **4X3=12 M**

A

1. Simile
2. Metaphor
3. Personification
4. Allegory
5. Irony

B

6. Tragedy
7. Comedy
8. Chronicle play
9. Mysteries, moralities and miracles
10. Classical Unities

Unit-III

Drama: **2X6=12M**

1. Shakespeare's Twelfth Night

Unit – IV

Poetry: **1X8=8M**

1. Milton: "Extract from Paradise Lost Book-IX" (Fall of Adam and Eve)
2. Marlowe: "Helen's description" from Dr. Faustus (Additional Input)

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM

DEPARTMENT OF ENGLISH 2018-2019

FOUNDATION COURSE – SEMESTER – I

COMMUNICATION SKILLS (30 hours)

COURSE CONTENT

Unit - I

1. Prefixes and Suffixes
2. Conversion
3. Compounding
4. Analogy
5. One-Word Substitutes
6. Words Often Confused
7. Synonyms and Antonyms
8. Phrasal Verbs (Keep, put, get, call, make, give, look)

Unit II- Grammar-1

1. Types of Verbs
2. Subject-Verb Agreement

Unit III: Grammar - 2

1. Meanings of Modals
2. Tense (Present and Past) and Aspect
3. The Several Possibilities for Denoting Future Time
4. Articles and Prepositions

Unit IV: Listening Skills

1. The Importance of Listening
2. Types of Listening
3. Barriers/Obstacles to Effective Listening
4. Strategies for Effective Listening

Unit V: Reading Skills

1. Skimming
2. Scanning
3. Intensive Reading and Extensive Reading
4. Comprehension (Unseen)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
SYLLABUS FOR II YEAR GENERAL ENGLISH PAPER –II A
SEMESTER – III
2018-2019

Prescribed Text:

Unit – I

Prose:

1. M.K. Gandhi: Shyness My Shield
2. Alexis Madrigal: Why People Really Love Technology – An Interview with Genevieve Bell
3. Genl. Seattle: Letter to the American President (Additional input)

Unit – II

Poetry:

1. Gabriel Okara: Once Upon A Time
2. William Shakespeare: Quality of Mercy
3. Henry Vivian Derozio: Harp of India (Additional input)

Unit – III

Short Story:

1. Jhumpa Lahiri: The Interpreter of Maladies
2. Shashi Deshpande: My Beloved Charioteer
3. Ruskin Bond: The Eyes are Not here (Additional input)

Unit – IV

One Act Play:

1. GurajadaApparao, trans. N. Usha: Kanyasulkam (Acts 1 and 2)
2. Rabindranath Tagore: Sacrifice(Additional input)

Unit – 5

Language Activity:

1. Correction of Sentences
2. Linking Devices (Either-or, Neither-nor, To-too, So-that, not, but, if, when, Since, unless, because)
3. Idioms & Phrases

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
Department of English
II B.A Special English - Semester III
Syllabus 2018-2019

UNIT I - History of English literature

a. Restoration
   - Characteristic features
   - Major writers of diff. genres

b. Augustan periods (17_{th} & 18_{th} c.)
   - Characteristic features
   - Major writers of diff. genres

UNIT II- Literary forms and terms

a. Satire
b. mock-epic
c. heroic couplet
d. epistle
e. heroic tragedy
f. comedy of manners
g. sentimental comedy
h. periodical essay
i. picaresque novel
j. epistolary novel

UNIT III- Poetry

a. Pope: extracts from The Rape of the Lock (Canto 1)

UNIT IV-Prose

a. Defoe: Robinson Crusoe

UNIT V- Drama

a. Congreve: The Way of the World

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
Department of English
B.A Special English - Semester IV
Syllabus 2018-2019

UNIT I- History of English literature

a. Romantic Period
b. Victorian periods

UNIT II -Literary forms and terms

a. Biography
b. Autobiography
c. Melodrama
d. Historical
e. Novel
f. sentimental novel
g. gothic novel
h. Regional
i. Novel
j. flat character
k. round character
l. Protagonist
m. Antagonist

UNIT III- Poetry

a. Keats: 'Ode to a Nightingale'
b. Browning: 'How do I love thee?'

UNIT IV-Novel

a. Austen: Pride and Prejudice

UNIT V- Multiple Choice Questions:

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
DEPARTMENT OF ENGLISH 2018-2019
FOUNDATION COURSE – SEMESTER – 3
COMMUNICATION SKILLS
COURSE CONTENT (30 hours)

Unit I:

The Sounds of English

Unit II:

Speaking Skills -1

1. Conversation Skills
2. Interview Skills:
3. Presentation Skills
4. Public Speaking

Unit III:

Speaking Skills -2

1. Role Play
2. Debate
3. Group Discussion

Unit IV:

Writing Skills

1. Spelling
2. Punctuation
3. Information Transfer
    a. Tables
    b. Bar Diagrams
    c. Line Graphs
    d. Pie Diagrams
    e. Flow Charts
    f. Tree Diagrams
    g. Pictures

GOVERNMENT COLLEGE; RAJAMAHENDRAVARAM
DEPARTMENT OF ENGLISH
FOUNDATION COURSE – SEMESTER – IV
COMMUNICATION SKILLS-3
2018-2019
COURSE CONTENT (30 hours)

Unit I:

Soft Skills

1. Positive Attitude
2. Body Language
3. SWOT/SWOC Analysis
4. Emotional Intelligence
5. Netiquette

Unit II:

Paragraph Writing

1. Paragraph Structure
2. Development of Ideas
3. Topics for paragraph writing

(My village, My hobbies, My strengths, My town, My college, My family)

Unit III:

Paraphrasing and Summarizing

1. Elements of Effective Paraphrasing
2. Note Making
3. Expansion
    a. No pains-No gains
    b. Slow and steady wins race
    c. Rome was not built in a day
    d. All that glitters is not gold
    e. Make hay while Sunshine
    f. Necessity is the mother of Invention

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

V SEMESTER SYLLABUS 2018-2019

DEGREE –III YEAR B.A. ENGLISH LITERATURE

Indian English Literature- Poetry and Prose

Syllabus

I. History of Indian English Literature: Poetry and Prose

a. Definition and scope of Indian English
b. Indian English Literature from the Battle of Plassey to the Sepoy Mutiny in 1857
c. Development of Indian English Poetry and Prose from 1857 to 1920
d. Development of Prose and Poetry in Gandhian Era (1920-1947)
e. Development of Poetry from 1947 onwards (Post independence Period)

II. Indian English Poetry: Detailed Study

a. Sri Aurobindo: Thought the Paraclete
b. Toru Dutt: Sita
c. Nissim Ezekiel: Very Indian Poem in Indian English
d. A.K. Ramanujan: The Hindoo: he read his Gita and is calm at all events.
e. Keki. N. Daruwalla: The Epileptic
f. GouriDeshPande: The Female of the species.

III. Indian English Prose. Extra (In addition to University syllabus)

a.M.K. Gandhi: To students
b. Nehru: The Relationship of Languages

IV. Literary Terms:

1. Allegory
2. Alliteration
3. Allusion
4. Euphemism
5. Hyperbole;
6. Imagery
7. Metaphor
8. Onomatopoeia
9. Oxymoron
10. Paradox
11. Parody;
12. Personification;
13. Satire
14. Simile
15. Syllogism

III B.A - V SEMESTER 2018-2019
AMERICAN ENGLISH – DRAMA & FICTION
Paper – VI
SYLLABUS

I. American Language and Literature

a. The English Language in America - Settlement
b. The Uniformity of American Language
c. The influence of Noah Webster
d. American English Dialects

II. American English Novel – Detailed study

a. Development of American Novel
b. Tom Sawyer

III. (Additional syllabus) – American English Short story

a. Development of American Short story
b. Luck — Mark Twain
c. The Tell-Tale Heart — Edgar Allen Poe
d. Jimmy Valentine — O.Henry

IV. American Drama

a. Development of American Drama
b. Death of A Salesman - Arthur Miller

V. Important concepts in American Literature

1. Potato crop failure
2. Boston Tea Party
3. New England Poets
4. Noah Webster
5. American Dream
6. American Renaissance
7. Realism
8. Transcendentalism

V. Matching

VI. Multiplw choice Questions

Department of English 2018-2019
III B.A Semester VIII
Elective Paper: VII–(A)
A Study of the English Language
Model Question Paper

Time: 3 Hrs. **Max. Marks: 60M**

I. Answer any TWO of the following Questions in 75 words each **2X6=12M**

a. Trace the origin and branching out of the Indo-European family.
b. Illustrate the similarity of sounds between various Indo-European languages.
c. Define Grimm's Law and explain its significance.
d. What is Carl Verner's contribution to the sound changes of English language?

II. Answer any TWO questions in 150 words each **2X8=16M**

a. Discuss the features of Old English.
b. Old English is a highly synthetic language – discuss.
c. Write a note on the major changes in English during Middle English Period.
d. What factors have contributed to the development of Modern English?

III. Answer any TWO questions in 150 words each **2X8=16M**

a. Write an essay on the contribution of Latin to English Language.
b. How was English enriched from Scandinavian influence?
c. What is the impact of Norman Conquest on English Language?
d. Why was Celtic influence much less on English language?

IV. Answer any TWO questions in 75 words each **2X4=8M**

a. Portmanteau words
b. Backformation
c. Generalization
d. Specialization

V. Answer any ONE questions in 150 words each **1X8=8M**

a. Trace the role of Grammar in the development of language.
b. How does Grammar enrich language?
c. Discuss the role of grammar in facilitating communication

Department of English 2018-2019

III B.A Semester VIII

2015-2016 Admitted Batch

Elective Paper: VII–(B)

A Study of Literary Criticism

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Aristotle: *Poetics – Definition of Tragedy, comedy and elements*	**10 Hrs.**	**03**	**01 in 100 words**	**1X6=6**
III	Sir Philip Sidney : "*Apologie for Poetrie"*	**10 Hrs**	**03**	**01 in 100 words each**	**1X6=6**
IV	John Dryden: *An Essay of Dramatic Poesie – relevance, important aspects*	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
V	Wordsworth: Lyrical Ballads – Treatment of Nature – Definition of Poetry etc.	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
VI	T.S.Eliot: *Tradition and Individual Talent*	**10 Hrs.**	**03**	**01 in 100 words each**	**1X6=6**
VII	Short answer Questions on Important Terms from prescribed texts.	**10 Hrs.**	**06**	**03 in 75 words each**	**3X5=15**
VII	**Matching Exercise on Types of Criticism** Biographical criticism, historical criticism, psychoanalytic criticism , sociological criticism, Marxist criticism, feminist criticism, archetypal criticism, postcolonial criticism		**05**	**05**	**5X1=5**
VIII	Multiple Choice Questions on Prescribed Topics		**10**	**10**	**10X1=10**
		60 Hrs.	**36**	**23**	**60 M**

Department of English 2018-2019

III B.A Semester VIII

2015-2016 Admitted Batch

Elective Paper: VII–(C)

Major Genres of English Literature

Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Elements of Drama – Unities – origin and growth -Pygmalion and Julius Caesar - Analysis	15 Hrs.	**04**	**02 in 100 words**	**2X6=12**
II	Elements of Poetry – Origin and development – influence of love, war and nature on poetry.	15 Hrs.	**04**	**02 in 100 words each**	**2X6=12**
III	Elements of Fiction- Novel and Essay – development – major contributors	15Hrs	**04**	**02 in 100 words each**	**2X6=12**
IV	Short Answer questions on important elements of novel and essay		**04**	**02 in 50 words each**	**2X6=12**
V	4 Elements of Popular Fiction – children's fiction – detective fiction etc.	15 Hrs.	**04**	**02 in 100 words each**	**2X6=12**
		60 Hrs.	**20**	**10**	**60 M**

DEPARTMENT OF ENGLISH 2018-2019
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-1
American Literature-1
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	English Literature from America – Evolution and contributions across time Important Phases – writers - Works in American Lit. Short Ans. Questions	**9 Hrs.**	**04**	**03 in100 words**	**3X6=18**
II	Evolution of American Poetry, Novel and Drama – major writers – works	**9 Hrs.**	**03**	**01 in 100 words**	**1X8=8**
III	Poetry T.S.Eliot: The Love Song of J.AlfredPrufrock structure – Plot – Symbols and Characterization	**9 Hrs.**	**03**	**01 in 100 words each**	**1X8=8**
IV	Stephen Crane – The Red Badge of Courage	**9 Hrs.**	**04**	**02 in 150 words each**	**1X8=8**
V	Tennessee Williams: "The Street Car Named Desire" structure – Plot – Symbols and Characterization	**9 Hrs.**	**03**	**01 in 150 words each**	**1X8=8**
VI	Blanks on American Literature	**6 Hrs.**	**10**	**10**	**10X1=10**
		60 Hrs.	**29**	**19**	**60M**

DEPARTMENT OF ENGLISH 2018-2019
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-2
American Literature-2
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	Poetry Robert Frost: *Road not Taken* Langston Hughes: *I,too*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	Drama Arthur Miller :*The Death of a Salesman*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
III	Prose -1 Mark Twain: *The Adventures of Tom Sawyer*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	Prose – 2 Nathaniel Hawthorne: *The Great Carbuncle*	**12 Hrs.**	**04**	**02 in 100 words**	**2X6=12**
V	Short Story Edgar Allan Poe: *The Tell-Tale Heart*	**12 Hrs.**	**04**	**02 in 100 words**	**2X8=12**
		60 Hrs.	**20**	**10**	**60M**

DEPARTMENT OF ENGLISH 2018-2019
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI: Paper VIII
2015-2016 Admitted Batch

Cluster Elective VIII-A-3
American Literature-3
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry Emily Dickinson**: *Success is Counted Sweetest* **Walt Whitman**: *O Captain! My Captain!*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	**Drama** **Eugene O'Neill**: *Long day's Journey into Night*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
III	**Prose-1** **Earnest Hemingway**: *The Old Man and the Sea*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Prose-2** **Martin Luther King**: *I Have a Dream*	**12 Hrs.**	**04**	**02 in 100 words**	**2X6=12**
V	Short Story **O'Henry**: *After Twenty Years*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
		60 Hrs.	**20**	**18**	**60M**

DEPARTMENT OF ENGLISH 2018-2019
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2015-2016 Admitted Batch
Cluster Elective Paper-VIII-B-1
Indian Writing in English-1
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** **Henry Derozio:** The Harp of India **Sarojini Naidu**: In the Bazaars of Hyderabad **A.K. Ramanujan:** A River	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II III	**Drama** **Mahesh Dattani**: Dance Like a Man	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Prose** 1. **R.K.Narayan**: The Guide	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VI	**Prose & Short Story** 1. **Munshi Premchand**: The Child 2. Sudha Murthy: How I Taught My Grandmother to Read	**12 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VII	Match the following	**12 Hrs**	**05**	**05**	**5X1=5**
VIII	Multiple Choice Questions		**7**	**7**	**7X1=7**
		60 Hrs.	**28**	**20**	**60 M**

DEPARTMENT OF ENGLISH 2018-2019
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2015-2016 Admitted Batch
Cluster Elective Paper-VIII-B-2
Indian Writing in English - 2
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** *1.* Kamala Das: *An Introduction* *2.* Kolatkar :*An Old Woman* 3. Chitre: *Felling of the Banyan Tree*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
II	**Drama:** Vijay Tendulkar: *Kanyadan*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
III	**Prose-1** Mulk Raj Anand: *The Untouchable* 2	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
IV	**Prose 2** VandanaShiva: *Everything I Need to Know I Learned in the Forest*	**12 Hrs.**	**04**	**02 in 100 words**	**2X5=10**
V	**Short Story** 1. Chitra Banerjee Divakaruni: *Mrs. Datta writes a Letter*	**12 Hrs.**	**04**	**02 in 100 words each**	**2X5=10**
VI	Multiple Choice Questions		**10**	**10**	**1X10=10**
		60 Hrs	**30**	**20**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2018-2019 Admitted Batch

Cluster Elective Paper-VIII-B-3
Indian Writing in English - 3
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** 1. **Toru Dutt**: Our Casuarina Tree 2. **Nissim Ezekiel:** The Professor 3. **Keki. N.Daruwallah**: Migrations	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
II	**Drama** 1. Rabindranath Tagore: The Post Office	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
IV	**Novel-1** Raja Rao: Kanthapura	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VI	**Novel - 2** R.K.Narayan: The Vendor of Sweets	**15 Hrs.**	**04**	**02 in 100 words each**	**2X6=12**
VII	**Match the following**		**04**	**04**	**1X4=4**
	Multiple Choice Questions		**08**	**08**	**8X1=8**
		60 Hrs	**28**	**20**	**60 M**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2018-2019

Cluster Elective Paper-VIII-C-1
Commonwealth Literature -1
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** 1. **A.D.Hope**: Australia, 2. The Death of the Bird	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** 1**. Ray Lawler**: Summer of the Seventeenth Doll	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel** 1. **Chinua Achebe**: Arrow of God	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel** **Alan Paton**: Cry the BelovedCountry	**15 Hrs.**	**05**	**03 in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
III B.A, Semester VI
2018-2019
Cluster Elective Paper-VIII-C-2
Commonwealth Literature -2
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** Chinua Achebe: *Refugee Motherand Child* Christopher Okigbo: *Watermaid*	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** Athol Fugard: *Hello and Goodbye*	**15Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel 1** V.S.Naipaul: *A House for Mr. Biswas*	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel 2** Nadine Gordimer: *July's People* 2	**15 Hrs.**	**05**	**03 in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60 Marks**

DEPARTMENT OF ENGLISH
SPECIAL ENGLISH SYLLABUS UNDER CBCS
2018-2019

III B.A, Semester VI
Cluster Elective Paper-VIII-C-3
Commonwealth Literature -3
Syllabus and Question Paper Format

Q. No.	Topic	Hrs. Allotted	No. of Qs to be given	No. of Qs. To be answered	Marks
I	**Poetry** **Margaret Atwood**: In the Secular Night Rosemary Sullivan: The Fugitive Heart	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
II	**Drama** **Wole Soyinka**: The Dance of Forests	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
III	**Novel 1** **ZakesMda**: Rachel's Blue	**15 Hrs.**	**05**	**03 in 100 words each**	**3X5=15**
IV	**Novel 2** **BuchiEmecheta**: A Kind of Marriage	**15 Hrs.**	**05**	**03in 100 words**	**3X5=15**
		60 Hrs	**20**	**12**	**60Marks**

GGY – 114 SYLLABUS

REGIONAL GEOGRAPHY OF ASIA -I

Unit- I 1.Location and relief of Asia

2. Climate of Asia

Unit-II 3. Drainage system in Asia

4. Soils in Asia

Unit-III 5. Natural Vegetation

6. Types of Agriculture Crops (Paddy Wheat)

Unit-IV 7.Population distribution in Asia

8. Urbanization in Asia

Unit-V 9. Regional Geography of Thailand, Location, Relief.

10. Regional Geography of Indonesia, Location and Relief.

11. Regional Geography of Malaysia location, Relief.

Suggested Readings

1. Hartshorne TN and Alexander JW. 1988. Asian Geography, Prentice Hall, New Delhi.
2. Jones CF and Darkenwald GG. 1975. Asian Geography Mc. Millan Company, New York.
3. Thomas, RS 1962. The Geography of Asia. McGraw Hill, New York.
4. Wheeler J et al. 1995. Asian Geography. John Wiley, New York

GGY – 115 SYLLABUS

REGIONAL GEOGRAPHY OF ASIA - II

Unit- I 1. Live stock: Development, distribution and products.

2. Major fishing grounds of the Asia, production and trade.

Unit-II 3. Minerals: Metallic (Iron ore, Aluminum)

4. Fuels: Coal and Petroleum, Locations and Potentials Mining and trade.

UNIT - III 5. Major Industries and distribution in Asia

6. Regional Geography of Iran, Location, Relief.

UNIT – IV 7. Regional Geography of Iraq, Location and Relief.

8. Regional Geography of Saudi Arabia location, Relief.

Unit-V 9. Transport: Roadways, Railways, Water ways and Airways.

10. Trade: International trade, Major Exports and Imports.

Suggested Readings:

1. Hartshorne TN and Alexander JW. 1988. Asian Geography, Prentice Hall, New Delhi.
2. Jones CF and Darkenwald GG. 1975. Asian Geography Mc. Millan Company, New York.
3. Thomas, RS 1962. The Geography of Asia. McGraw Hill, New York.
4. Wheeler J et al. 1995. Asian Geography. John Wiley, New York

GGY – 116 SYLLABUS

MAPS AND SCALES

1. Introduction to Cartography.
2. Maps and their types.
3. Scales. Exercises
    (i) Methods of Expressing a scale
    (ii) Conversion of Statement of Scale into R.F. and vice-versa.
    (iii) Plain Scale OR Graphic Scale (Km and mile)
    (iv) Comparative Scale 2
    (v) Diagonal Scale 2
    (vi) Measurements of distances and areas of Maps 2

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Mothuen and Co. Ltd., London
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.L. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Viksa Publication House.

GGY – 117 SYLLABUS

REPRESENTATION OF PHYSICAL FEATURES

1. Introduction to Topographical Sheets
   India and adjacent countries
2. Conventional Signs
3. Methods of Representation relief – Spot heights, Bench Marks, Lear coloring and Hill Shading.
4. Representation of Topographical features by contours.
   Slopes (Concave, convex, undulating and terraced)
   Valleys (V Shaped, U shaped, George, R-entrant)
   Ridges (Conical hill, Volcanic hill, Plateau, Escarpment)
   Complex features (Waterfall, Sea cliff, Overhanging cliff, Fiord coast)
5. Interpretation of Weather Maps and Conventional Signs

Suggested Reading:-

1. F.J.Monkhouse and H.R.Wilkinson (1972) Maps and Diagrams, Methuen and Co. Ltd., London
2. L.R.Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.I. Singh and P.K.Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Vikasa Publication House.

GGY – 118 SYLLABUS

Representation of Climatic Data

1. Collection of Climatic data.

2. Representation of temperature and rainfall.

    (i) Line and Bar Graph – 1 Exercise.
    (ii) Distribution of temperature (180 therms) – 1
    (iii) Distribution of rainfall (180 hytes) – 1
    (iv) Hythergraph - 1

3. Climograph (wet and dry places) - 2 Exercise.

4. Weather map symbols and Interpretation (January & July) - 2

Suggested Readings:

1. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.
2. Gregory S. 1963. Statistical Methods and the Geography, Longman, London.
3. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi,.
4. Lawarence, GRP1968. Cartographic Methods, Methuen, London,.
5. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London,
6. Pal. S.K. 1998: Statistics for Geoscientist- Techniques and Applications, Concept Publication, New Delhi,.
7. Sarkar, A.K 1997: Practical Geography-A Systematic Approach, Orient Longman, Calcutta.

GGY – 120 SYLLABUS

MAP PROJECTIONS

Introduction to Map Projection: Characteristics of latitudes and longitudes lines.

1.Simple conical projection (single standard parallel).
2. Simple conical projection (two standard parallel).
3.Bonne's projection or conical equal area projection.
4.poly conic projection.
5.Polar zenithal equi-distant projection.
6.Polar zenithal equal area projection or Lambert's equal area projection.
7.Simple cylindrical projection.
8.Cylindrical equal area projection.

Suggested Readings:

1. Mishra R.P. and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing
Company, New Delhi.
2. Robinson, A.H. et.al. Elements of Cartography, John Wiley & Sons, 1995.
3. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.
4. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi,.
5. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London,
Steers, J.B. Map Projections; University of London Press, London.

GGY – 122 SYLLABUS

WEATHER INSTRUMENTS

I. Weather Instruments

1. Thermometer
2. Rain gauge
3. Wind wane

Suggested Readings

1. Ananta Narayan Raman and Jaya Shree Nimmagadda.
2. A Hand book of Research Process.

1. Bajpal S.R. methods of Social Survey and Research.
2. Gautam, N.C. Development of Research Tools.

GGY – 123 SYLLABUS

SURVEYING WITH INSTRUMENTS

I. Surveying with Instruments

1. Chain Survey
2. Plain Table
3. Prismatic compass

Suggested Readings

1. Ananta Narayan Raman and Jaya Shree Nimmagadda. A Hand book of Research Process.
2. Bajpal S.R. methods of Social Survey and Research.
3. Gautam, N.C. Development of Research Tools.

GGY – 125 SYLLABUS

REPRESENTATION OF STATISTICAL DATA

Representation of Statistical Data

1. Wheel diagram
2. Block diagram
3. Star diagram
4. Pyramid
5. Squares and Rectangles

REFERENCES BOOKS:

1. F.J and Wilkinson , H. R 1968 Maps and Diagrams – Mathuen - London
2. Robinson – A.H.Etal (1965) Elements of cartography John, wiley Newyork.
3. Singh R.L and Dutp. P.K (1968) Elements of Practical Geography, student Friends - Allahabad.

GGY – 128 SYLLABUS

INTERPRETATION OF WEATHER MAPS

1. Weather symbols

2. Interpretation of weather maps

   a) Pressure

   b) Wind

   c) Rainfall

   d) Temperature

   e) Sea Conditions

   f) Others

Suggested Readings

1. Government of India (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India : A Geographical Study of Disasters, Sage Publication, New Delhi.

GGY – 131 SYLLABUS

INDUSTRIAL VISIT

Project Work

Location

Industrial visit

Raw Material

Labour

Transport

Water Resources

Marketing

Production

II. Report Writing

NOTE: Submitting report on Industrial visit Project work carries maximum 50 marks.

Suggested Readings:

1. Ananta Narayan Raman and Jaya Shree Nimmagadda. A hand book of Research Process.
2. Bajpal S.R. methods of Social Survey and Research.
3. Gautam, N.C. Development of Research Tools.

GGY – 132 SYLLABUS

MAPS AND DIAGRAMS

1. Data: Primary and Secondary – Classification.
2. One Dimensional – Line graph, Poly graph, Bar graph, Pyramid graph – Simple and Compound- Pie Diagram.
3. Two Dimensional – Squares and Rectangles.
4. Three Dimensional – Squares and Blocks
5. Thematic Maps: Class intervals, Choropleth, Isopleth – Schematic Choro Schematic Dot Maps- Flow maps- or Chart.

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GGY – 114 SYLLABUS

REGIONAL GEOGRAPHY OF ASIA -I

Unit- I 1.Location and relief of Asia

2. Climate of Asia

Unit-II 3. Drainage system in Asia

4. Soils in Asia

Unit-III 5. Natural Vegetation

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GGY – 115 SYLLABUS

REGIONAL GEOGRAPHY OF ASIA - II

Unit- I 1. Live stock: Development, distribution and products.

2. Major fishing grounds of the Asia, production and trade.

Unit-II 3**.** Minerals: Metallic (Iron ore, Aluminum)

4. Fuels: Coal and Petroleum, Locations and Potentials Mining and trade.

UNIT - III 5. Major Industries and distribution in Asia

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GGY – 116 SYLLABUS

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GGY – 117 SYLLABUS

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   Valleys (V Shaped, U shaped, George, R-entrant)
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GGY – 118 SYLLABUS

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1. Collection of Climatic data.

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GGY – 120 SYLLABUS

MAP PROJECTIONS

Introduction to Map Projection: Characteristics of latitudes and longitudes lines.

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GGY – 122 SYLLABUS

WEATHER INSTRUMENTS

I. Weather Instruments

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Suggested Readings

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2. A Hand book of Research Process.

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2. Gautam, N.C. Development of Research Tools.

GGY – 123 SYLLABUS

SURVEYING WITH INSTRUMENTS

I. Surveying with Instruments

1. Chain Survey
2. Plain Table
3. Prismatic compass

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1. Gautam, N.C. Development of Research Tools.

GGY – 125 SYLLABUS

REPRESENTATION OF STATISTICAL DATA

Representation of Statistical Data

1. Wheel diagram
2. Block diagram
3. Star diagram
4. Pyramid
5. Squares and Rectangles

REFERENCES BOOKS:

1. F.J and Wilkinson , H. R 1968 Maps and Diagrams – Mathuen - London
2. Robinson – A.H.Etal (1965) Elements of cartography John, wiley Newyork.
3. Singh R.L and Dutp. P.K (1968) Elements of Practical Geography, student Friends - Allahabad.

GGY – 128 SYLLABUS

INTERPRETATION OF WEATHER MAPS

1. Weather symbols

2. Interpretation of weather maps

   a) Pressure

   b) Wind

   c) Rainfall

   d) Temperature

   e) Sea Conditions

   f) Others

Suggested Readings

1. Government of India (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India : A Geographical Study of Disasters, Sage Publication, New Delhi.

GGY – 131 SYLLABUS

INDUSTRIAL VISIT

Project Work

Location

Industrial visit

Raw Material

Labour

Transport

Water Resources

Marketing

Production

II. Report Writing

NOTE: Submitting report on Industrial visit Project work carries maximum 50 marks.

Suggested Readings:

1. Ananta Narayan Raman and Jaya Shree Nimmagadda. A hand book of Research Process.
2. Bajpal S.R. methods of Social Survey and Research.
3. Gautam, N.C. Development of Research Tools.

GGY – 132 SYLLABUS

MAPS AND DIAGRAMS

1. Data: Primary and Secondary – Classification.
2. One Dimensional – Line graph, Poly graph, Bar graph, Pyramid graph – Simple and Compound- Pie Diagram.
3. Two Dimensional – Squares and Rectangles.
4. Three Dimensional – Squares and Blocks
5. Thematic Maps: Class intervals, Choropleth, Isopleth – Schematic Choro Schematic Dot Maps- Flow maps- or Chart.

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3. Singh R.L and Dutp. P.K (1968) Elements of Practical Geography, student Friends - Allahabad.

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YEAR 2014-15

GEO-109

Mineral exploration

Unit 1: Introduction

An overview of geophysical methods of exploration & Classification
Physical properties, rocks-density, susceptibility, resistivity and elastic wave velocities, factors controlling the properties, numerical values for important rock types, concept of physical property contrast.
Role of geophysics in understanding the internal structure of the earth and plate tectonics.

Gravity Methods

Earth's gravity field, origin, variation with elevation and depth
Principle of gravity exploration, concept of gravity anomaly; gravimeters, gravity surveys,
.

Unit 2: Magnetic Methods

Earth's magnetic field, origin; magnetic elements, interrelationships, principle of magnetic method, origin of anomalies, induced and remanant magnetizations; magnetometers, proton precession and fluxgate

Unit 3: Electrical and Electromagnetic Methods

Self potential method, origin of SP; resistivity method, concept of apparent resistivity, Werner, Schlumberger and Dipole-dipole configurations; electrical sounding

Unit 4: Seismic Methods

Elastic propagation in rocks, Hooke's Law, acoustic impedance; Snell's Law, principles of seismic refraction method, travel time curves over horizontal interfaces and faults, interpretation of results; principles of seismic reflection method, travel time curves, over horizontal and dipping layers, interpretation

YEAR 2014-15

GEO-110

Palaeontology and Indian geology and stratigraphy

Unit I: Definition of Palaeontology and fossils, conditions for preservation, mode of preservation, uses of fossils.

Unit II: Study of taxonomy, classification, morphology, geological and geographical distribution of the following invertebrate fossils.

Phyllum Echinodermata

Phyllum Brachiopoda

Physum Mollusca

Phylum Arthropoda

Unit III: Study of the following fossils:

Monograputs, Calceola, Cidaris, Micraster, Spirifer, Productus, Terebratulla, pectin, Gryphea, Nautilus, Belemnites, Calymene, Paradoxides, Glossipteris, Gangamopteris, Ptyllophyllum.

Indian Geology

Definition of stratigraphy, stratigraphic principles, standard geologic time-scale, principles of correlation.

Unit IV: Physiographic sub divisions of India with their stratigraphic and structural

characteristics, a brief study of type area, distribution in India. Lithology, fossil content and economic importance of the following geological groups of India – Dharwars, puranas – Cuddapahs, Vindhyans, Kurnools, Gondwanas, Triassic of Spiti, Jurassic of Kutch, Cretaceous of Trichy, Deccan traps and their age, Siwaliks with vertebrate fossils.

20% Additional Curriculum:

Geology of Eastern Ghats.

YEAR 2014-15

GEO-111

REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM (GIS)

UNIT- 1:Fundamentals of Remote Sensing

Basics of Remote Sensing: definition, History, Advantages -Aerial Photography and Satellite Remote Sensing. Components of Remote Sensing System :Energe Source, Eneragy- Atmosphere Interaction, Energy- Matter Interaction, Platforms, Sensorce, Data handling system, Data users Energy Interaction with Atmosphere and Surface Materials: Natural of Electromagnetic Radiation – Electromagnetic Radiation Spectrum Interaction of Electromagnetic Radiation with Atmosphere and with Earth Surface Materials – Spectral Signatures.

UNIT- 2: Remote Sensing: Platforms and Sensors and Products

Remote Sensing Platforms: Aircrafts and Satellites - Orbital Characteristics of Sun –synchronous Earth Resource Satellites and Geostationary Communication – Special purpose Satillites

Remote Sensing Sensors:

Types of Sensors: Active and Passive – Framing System (Cameras) – Scanning Systems

Sensors Characteristics: Spatial Resolution, Spectral Resolution, Radiometric Resolution,

Temporal Resolution. - Cameras: Single Lens, Multiple Lens, Strip and Digital – Filters

Scanners: Cross – track Vs. Along – Track – Mono – Spectral Vs. Multi – Spectral Scanners

Products: Visual and Digital - Remote Sensing in India: Development and Growth – Satellites

UNIT- 3:Fundamentals of Geographic Information Systems (G I S)

GIS: Definition – Contributing Disciplines – Functions – Data Capture/Input, Data storage, Data Retrieval, Data Analysis, Data Output

Components of Geographic Information Systems: Hardware Components, Software Components, Brain –ware Components, and Organizational set up

Data Input and Editing: Data Types : Spatial and Attribute data – raster and Vector Sources of GIS data

Methods of Data input (Keybord Entry, Digitizing, Scanning) – GPS and its Application

UNIT- 4: D B M S , G I S , Analysis

Data Base Management System: Definitions and Functions

Data Analysis and Modeling:

Data Conversion (Format, Structure, and Medium Conversion)

Spatial Measurements (Counting, Measuring lengths and Areas)

Reclassification, Buffering (point, Line, Area, Doughnut)

Overlay Analysis - Modeling Surface (DTMs) - Modeling Networks

Remote Sensing and GIS: Intergration – GIS Application (Ubon / Agricultural / Landform Studies)

YEAR 2014-15

GEO-111

Petroleum Geology

Unit – 1: Geological Methods - Field Mapping

Essential elements that control origin and occurrence of petroleum.

Location of areas, setting of base camp- Reconnaissance survey of the area, Geological mapping and Traversing. Measurement of the strike, dip and apparent thickness of the outcrops. Data plotting, compilation and interpretation of subsurface geology. Preparation of litho stratigraphic columns, litho stratigraphic correlation, geological cross sections and structure contour maps – Application of Remote Sensing techniques in Hydrocarbon exploration.

Unit – 2: Source Rocks

Definition of source rock.: Organic rich sediments as source rocks. Nature and type of source rocks - Claystone / shale. The process of diagenesis, catagenesis and metagenesis in the formation of source rocks. Evaluation of petroleum source rock potential. Limestones as source rocks.

Coring in claystone/shales for source rock evaluation. Subsurface pressure temperature conditions for the generation of oil and gas from the source sediments. Oil window.

Reservoir Rocks

Characteristics of Reservoir rocks – classification and nomenclature:

Clastic Reservoir Rocks, Carbonate Reservoir Rocks, Unconventional, fractured and miscellaneous reservoir rocks. Marine and non marine reservoir rocks.

Reservoir pore space - porosity – primary and secondary porosity, Effective porosity, fracture porosity - permeability – effective and relative permeability - Effects of

diagenesis on reservoir quality, reservoir continuity- Relationship between porosity, permeability and texture.

Classification and origin of pore space – Recrystallisation – Dolomitization phenomenon – Cementation and compaction – Artificial or man made porosity and permeability.

Cap rocks: Definition and characteristics of 'cap Rocks'.

Unit – 3: Hydrocarbon migration

Geological framework of migration and accumulation. The concept of hydrocarbon migration from source beds to the carrier beds - Carrier beds to the reservoir - Free-path ways for migration - Short distance and long distance migration - Evidence for migration – oil and gas seepages.

The concept of buoyancy, capillary pressure and wettability in the process of migration of hydrocarbons – Tilted oil water contacts – Spill point.

Primary and secondary migration- Migration and accumulation of hydrocarbons – Lateral migration and vertical migration – Factors effecting primary and secondary migration – Time of accumulation.

Unit – 4: Entrapment of hydrocarbons

Mechanics of entrapment of hydrocarbons - Traps in the path of migration, entrapment and accumulation of hydrocarbons - Classification and types of traps: Structural, stratigraphic and combination type of traps- Genesis of various types of Traps – The anticlinal theory – traps caused by folding – Traps caused by faulting – Traps caused by fracturing.

Primary Stratigraphic Traps – Lenses and facies in chemical rocks – Porous carbonate facies – Organic reefs – Modern reefs – Fossil reefs – Productive reefs – Secondary stratigraphic traps – Salt domes – Origin of salt domes – Traps associated with salt domes.

YEAR 2017-18

GEO-113
MINEROLOGY AND OPTICAL MINEROLOGY

Unit - I

Definition of a mineral - classification of minerals into rock forming and ore forming minerals.

Physical properties of minerals - Colour, streak, transparency, lustre, form, hardness, tenacity, cleavage, fracture and, Specific gravity.

Silicate structures- isomorphism, solid solution, polymorphism, allotropy. Pseudomorphism and radioactivity

Study of physical properties, chemical properties and mode of occurrence of the following mineral groups: Olivine, Garnet and Aluminium silicates,

Unit-II

Study of physical properties, chemical properties and mode of occurrence of the following mineral groups: Pyroxenes, Amphibole and Mica

Unit-III

Study of physical properties, chemical properties and mode of occurrence of the following mineral groups: Quartz, Feldspars, and feldspathoids
Miscellaneous: Staurolite, Tourmaline, Zircon, Calcite, Corundum and Apatite.

Unit-IV

General Principles of optics, Refraction, Snell's law, Critical angle, total reflection,
Optical properties of minerals – isotropic and anisotropic

Polarised light, refractive index, Double refraction, uniaxial and biaxial minerals – Nicol prism and its constriction – concept of crossed Nicols

Unit-V

Petrological microscope (Polarising) - its mechanical and optical parts – extinction, pleochroism and interference colours. Optical Properties of important minerals

YEAR 2017-18

GEO-114

IGNEOUS AND SEDIMENTARY AND METAMORPHIC PETROLOGY

Unit-I

Nature and scope of petrology - definition of rock, classification of rocks into igneous, sedimentary and metamorphic. Distinguishing features of three types of rocks.

Forms -Lava flows, Instrusions, sills, laccolith, bysmalith, lopolith, dykes, ring Structures - vesicular, amygdaloidal, block lava, ropy lava, pillow, flow, and sheet structures. Columnar and prismatic structures

Textures - Definition of texture, micro-structure, devitrification - Hypidiomorphic, pandiomorphic, porphyritic, poikilitic, ophitic, intergrartular, intersertal, trachytic, graphic and micro-graphic textures.

Unit-II

Classification of igneous rocks - CIPW and Tyrrell tabular classification.

Composition and constitution of magma - Crystallisation of Magma - Uni-component, binary system, eutectic and solid solutions.

Origin of igneous rocks - Bowen's reaction principle, differentiation and assimilation of magma.

Descriptive study of following rock types: Granite, Syenite, Diorite porphyry, Pegmatite, Gabbro, Pyroxenite, Dunite, Dolerite, Rhyolite, Trachyte, and Basalt

Unit-III

Sources of sediments - mechanical and chemical weathering, modes of transportation, stratification. Sedimentary structures, Types of bedding, surface marks, deformed bedding, solution structures

Classification of sedimentary rocks; clastic - rudaceous, arenaceous, argillaceous, non-clastic -calcareous, carbonaceous, evaporities

Descriptive study of the following sedimentary rocks - conglomerate, Breccia, Sandstone, Gritt, Arkose, Shale and limeston.

Unit – IV

Definition of metamorphism, agents of metamorphism, types of metamorphism, grades and Zones, of metamorphism. Metamorphic minerals - stress and antistress minerals. Structures of metamorphic rocks - Cataclastic, maculosc, schistose, granulose and gneissose. Textures of metamorphic rocks- crystalloblastic, xenoblastic.

Unit-V

Classification of metamorphic rocks Cataclastic metamorphism of argillaceous and arenaceous rocks. Thermal metamorphism of argillaceous, arenaceous and calcareous rocks. Dynamo thermal metamorphism of argillaceous, arenaceous and igneous rocks. Plutonic metamorphism, metasomatism. Descriptive study of the following metamorphic rock- Gneiss, schist, slate, phyllite, quartzite, marble, Cliaranockite and khondalite.

YEAR 2017-18

GEO-115

STRUCTURAL GEOLOGY AND STRATIGRAPHY

Unit-I

Definition of structural geology, aim and objectives of the structural Geology; Importance of study of structures, primary and secondary structures; outcrop, attitude of beds - strike, dip and apparent dip. Use of clinometer and Brunton compass. Folds -description, nomenclature of folds - Geometrical and genetic classification. Recognition of folds in the field.

Unit-II

Joints- Classification of Joints- geometrical and genetic classification. Faults – geometrical and Genetic Classification of faults, recognition of faults in the field, effects of faults on the outcrops.

Unit-III

Unconformities- Definition of unconformity- types of unconformities. Recognition of unconformities in the field. Distinguishing the faults from unconformities. Definitions of overlap, outlier, cleavage, schistosity, foliation and lineation

Unit-IV

Stratigraphy: Definition and Principles of Stratigraphy. Nomenclature of Stratigraphy (Lithosratigraphy, Biostratigraphy, Chronostratigraphy, magnetostratigraphy etc.)

Unit -V

Standard geological time scale, Physiographic divisions of India with stratigraphic and structural characterises.

YEAR 2017-18

GEO-116
INDIAN GEOLOGY AND PALAEONTOLOGY

Unit I

Brief study of type area, distribution in India, lithology, fossil content and economic importance of the following systems - Dharwar system, Cuddapah system, Vindhyan system, Kurnool system.

Unit-II

Gondwana system. Triassic of Spitit, Jurassic of Kutch, Cretaceous of Trichinopoly,

Unit III

Deccan Traps and their Age, Siwaliks with vertebrate fossils. (Brief study of type area, distribution in India, Lithology, fossil content and economic importance of the systems)

Geology of Andhra Pradesh

Unit-IV

Definition of Palaeontology, Branches of Palaeontology, conditions of fossilization, modes of preservation and uses of fossils. Index Fossils.

Detailed study of morphology, classification and geological distribution of -

Corals and Brachiopoda,.

Fossils: Calceola, Zabhranthis, Terebratula, Spirifer, Rhynchonella, Products,

Detailed study of morphology, classification and geological distribution of – Mollusca (Gastropods, Cephalopoda and Lamellibranchia)

Turritella, Natica, Physa, Conus, Pecten. Gyphaea.Arca, Cardita, Nautilus. Ammonoids, Ceratites, Bellemnites.

Unit- V

Detailed study of morphology, classification and geological distribution of -Trilobita, Echinodermata, Graptolites and Plant fossils.

Fossils: Calymene, Paradoxide, Cidaris, Micraster, Hemiaster, Monograptus, Diplograptus, glossopteris, gangamopteris and ptylophyllum Lepidodendron.

YEAR 2017-18

GEO-121

GROUND WATER GEOLOGY & EXPLORATION

Unit-I

Introduction**:** Definition of Hydrology, Hydrogeology, Scope and application of Hydrogeology. Hydrological Evaporation, Condensation, Precipitation, Infiltration, Transpiration. Evapotranspiration. runoff, connate water.

Ground Water: Origin, Occurrence, and age of groundwater, Vertical distribution of sub-surface water, zone of aeration-soil water, vadose water, capillary fringe. Zone of saturation - water table. Perched water table. Recharge and discharge areas.

UNIT-II

Aquifers: Definition of aquifer, Aquitard, Aquclude, Aquifuge. Properties of Aquifer - porosity, retension of water in rocks, yield of water from rocks (specific yield and specific retension), Darcy's law, permeability, hydraulic conductivity, velocity of groundwater flow, storage co-efficient. Types of aquifers: confined, semi-confined, unconfined. Homogeneous, Heterogeneous. Isotropic and Anisotropic aquifers. Igneous, sedimentary and metamorphic rocks as aquifers.

UNIT-III

Quality of Ground Water: Physical, chemical and Biological characteristics of groundwater. Suitability of groundwater for drinking, Irrigation and industrial purposes. Pollution of Ground Water; Pollution in relation to urban, industrial and Agricultural sources. Brief account of saline water intrusion.

UNIT – IV

Ground Water Investigations: Scope of investigations, Methods of groundwater explorations, Brief account of Geologic, hydrogeologic, Geobotanical investigations, Introduction to Remote Sensing techniques. Geophysical Exploration: Basic principles of Geophysical exploration methods; Electrical methods - Schluntberger and Wenner configuration, Resistivity profiling and Vertical Electrical Sounding.

Unit-V

Management Of Groundwater: Groundwater balance, recharge, (natural and artificial) and discharge. Safe, yields and over draft. Cojunctive use of surface and groundwater. Utilization of groundwater. Groundwater resource evaluation-water table fluctuation method and rainfall infiltration method. Ground water provinces of India. Concept of water shed management.

YEAR 2017-18

GEO-117
FEILD GEOLOGY

Unit-I

Toposheet and map. Toposheet and map reading. Various methods of locating a point on toposheet and map.

Unit-II

Basic field procedure – Basic field equipments, methods of field work, drawing of geological field sections.

Determination of slopes and gradient, measuring differences in elevation. Basic field observations at a point or out crop.

Unit-III

Geological mapping – General considerations, reconnaissance study of surface features and rocks.

Unit-IV

Transfer of field data collected on to a base map, finalization of map, preparation of geological cross section.

Unit-V

Contouring- Definition, internal characteristic, direct and indirect methods of contouring and uses.

YEAR 2017-18

GEO-118

INTRODUCTION TO ENVIRONMENTAL GEOLOGY

Unit-I

Concept of environmental - Historical perspective - environmental awareness - Role of Geologist in environmental Protection and Planning.

Unit-II

Land **and** use planning: Soils, Types of soils, Classification of soils - Site selections -Constructions and urbanization.
Waste disposal - environmental effects Waste recycling - recycling of resources.
Land cover: Application of remote sensing: mapping soil cover, forest cover, degraded land, surface water reservoirs.

Unit-III

Mining impact on the environment - Health Hazards - Mineral resource depletion. Environmental considerations in location and construction of dams, reservoirs and tunnels

Unit - IV

Geological Hazards - floods, shifting of river courses - land slides - earthquakes - Prediction and Protection. Man - made Hazards.

Unit - V

Beach erosion sedimentation - coastal zone protection & Management – coastal engineering constructions - their effects remedial measures.
Mass Wasting - land scarification
Migration of dunes – stabilization

YEAR 2017-18

GEO-119

INTRODUCTION TO GEO CHEMISTRY

Unit-I: Introduction to geochemistry: basic knowledge about crystal chemistry.

Unit-II : Types of chemical bonds, coordination number; Colloids in geological systems, ion exchanges andgeological evidence for earlier colloids; Elementary idea of Periodic Table.

Unit-III: Cosmic abundance of elements; Composition of the planets and meteorites;

Geochemical evolution of the earth and geochemical cycles;

Unit-IV: Gold Schmidt's geochemical classification of elements; Distribution of major, minor

and trace elements in igneous, metamorphic and sedimentary rocks.

Unit-V: Elements of geochemical thermodynamics; Isomorphism and polymorphism; Isotope geochemistry.

YEAR 2017-18

GEO-120
GEOTECTONICS

UNIT-I Internal structure and mechanics of earth

1.1.Seismic investigations of the earth's interior, waves velocity, velocity curves, density distribution, elastic properties, pressure and temperature within the earth.

1.2. Bulk composition of the earth and of its various zones.

1.3. Composition of the earth's crust and upper mantle and crust-mantle relationship.

1.4. Gravity anomalies.

UNIT-II Sea floor spreading and plate movement

2.1 Concept of continental drift, evidences of movement of continents, modern concept of plate tectonics, fitting of continents together, palaeoclimatic units.

2.2 Evidences of sea floor spreading, magmatic anomaly patterns, age of ocean sediments, oceanic ridges and trenches, benioff zone.

2.3 Geomagnetism-magnetization, types, magnetic field reversals, polar wandering curve, application in geology.

2.4 Nature of plate margins, constructive and destructive geometry of plate motion, mosaic of plates, direction of motion, causes of plate motion, convection plumes and other classical hypothesis.

UNIT-III Tectonic evolution of Himalaya

3.1 Convergence of continents, pre-Himalayan sedimentation, closing of continents, rotation of continental block, phases of deformation, shifting of depositional basins, vertical tectonics.

3.2 Drift and subduction of Indian plate, Andaman subduction zone, Andaman sea spreading centre and Makran subduction zone.

3.3 Indus-Tsangpo suture zone, Main Central Thrust, Main Boundary Fault, Siwalik structure, Himalayan Frontal Fault, evolution of Himalaya.

3.4 Neotectonic evidences in parts of Himalaya.

UNIT-IV Tectonic evolution of Indian craton

4.1 Evolutionary history and structural layout South Indian craton.

4.2 Evolutionary history and structural layout Central Indian craton.

4.3 East Indian region, evolutionary history.

4.4 Gravity conditions in Indian craton.

DEPARTMENT OF HISTORY

2012-2013

PAPER CODE: HIS107

TITLE OF THE PAPER: HISTORY AND CULTURE OF ANDHRA PRADESH (FROM SATAVAHANAS TO 1956 AD) I

5th SEMESTER

3rd B.A History New Curriculum

Paper - I V (a)

History and culture of Andhra Pradesh

(from Satavahanas to 1956 A.D)

Unit I

Influence of Geographical features on Andhra History, Sources for the History of Andhra; An overview of the History of Andhra upto 16th A.D. Social economic and religious conditions in Andhra upto the Kakatiyas contribution of Rayas of Vijayanagara to society, economy religious art and literature.

Unit II :

The qutb Sahis - A Brief Survey of Political History - Society, Economy and Culture. The Asaf Jahis-A Brief Survey of their political history - Society, Economy and Culture - Salarjung's Reforms.

Unit III :

Andhra Under Colonial Rule : Coming of European Merchant Companies - Conquest of Andhra by the British -Early. Uprising - Administration - Land Revenue Settlements - Agrarian Conditions - Famines - Impact of Industrial Revolutions on Andhra Economy -Sir Thomas Munroe - Impact of 1857 Revolt In Andhra.

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DEPARTMENT OF HISTORY

2012-2013

PAPER CODE-HIS108

TITLE OF THE PAPER: HISTORY AND CULTURE OF ANDHRA PRADESH (FROM SATAVAHANAS TO 1956 AD) II

3rd B.A History New Curriculum

Paper - IV (a)

History and culture of Andhra Pradesh

(from Satavahanas to 1956 A.D)

Unit I V

Social Reform and Literary Movements : Veeresalingam, Raghupathi Venkata-Ratnam Naidu, Gurajada Apparao, Komarraju Venkata Lakshmana Rao, Non-Brahmin, Adi Andhra, Dalit, Self-Respect Movements-New Literary Movements-Gurram Jashua, Boyi Bhimanna, Viswantha Satyanarayana, Rayaprolu Subba Rao, Sri Sri.

Unit V :

Freedom Movement in Andhra : Vandemataram, Home Rule, Non Co-Operation Alluri Sitarama Raju - Rampa Rebellion 1922-24 - Civil Disobedience and Quit India Movement.

Political Consciousness in Telangana : Nizam Andhra Maha Sabha, Hyderabad State Congress, Razakars, Police Action and Accession of Telangana into Indian Union.

Unit V I :

Leftist Movements in Andhra and Telangana : Peasant Armed Struggle - Tribal Uprisings - Komaram Bhimu-Bhoodan Movement.

Movement for Separate Andhra State : Andhra Mahila Sabha-Sree Bagh pact-Martyrdom of Potti Sree Ramulu Formation of Andhra State, 1953 - Vishalandra Movement - State's Re-organzation Commission - Gentleman's Agreement - Formation of Andhra Pradesh in 1956.

DEPARTMENT OF HISTORY

2012-13

PAPERCODE HIS101

TITLE: HISTORY AND CULTURE OF INDIA UPTO 1526 AD-I

1St SEMESTER

1st B.A History New Curriculum

Paper - 1

History and culture of Indian up to AD 1526 Paper

Unit I :

Influence of Geography on History - Survey of the Sources - Pre-Historic period Paleolithic. Mosolithic and Neolithic cultures - Role of Technology. Indus valley Civilization - Its characteristic features - Vedic Culture - Early and later Vedic Period - Post-Vedic period Emergence of Varna and Caste system - Rise of New Religious Movements - Jainism and Buddhism in 6th Century B.C Impact of Society and Culture.

Unit II:

A brief survey of political conditions in ancient India - Magadha, Alexander's Invasion and Mauryas - Ashoka's Dhamma. Its nature and propagation - Mauryan Administration - Economy - Art and Architecture.

Unit IV :

Post-Mauryan period in North India-A brief political survey of Kushanas, Guptas, Pusuabuthi and Rajputs : Polity and Administration - Social Conditions - Caste System - Position of Women-Economy-Indian Feudalism, Art - Architecture-Education, Literature, Philosophy - Science and Technology.

U-IV

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DEPARTMENT OF HISTORY

2012-2013

PAPER COD: HIS102

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA UPTO 1526AD-II

2nd SEMESTER

1st B.A History New Curriculum

Paper - 1

History and culture of Indian up to AD 1526 Paper

Unit ~~IV~~ : VI

A brief political survey of South India - Sangam Age-Satavahanas - Pallavas - Cholas - Chalukyas, and Rashtrakutas- Kakatiya and Vijayanagara - Polity and Administration, Society, Economy - Art and Architecture.

Unit V : VII

Invasions of ~~Arabs~~, Ghaznivads and Ghoris and Delhi Sultanate ~~- A brief~~ Political Survey, Polity and Administration under Delhi Sultanate, Society, Composition of rural Society, Nobility - Status of Women, Economic and Technological developments. Agriculture - Industry - Trade and Commerce - Urbanisation, Art and Architecture - Fine Arts - Education and Literature.

Unit VI

Impact of Islam on Indian Society and culture - Bhakti and Sufi Movements Emergence of Composite culture.

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DEPARTMENT OF HISTORY

2012-2013

PAPER CODE-HIS103

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA UPTO AD (1526-1950) I

3rd SEMESTER

2nd B.A History New Curriculum

Paper - I I

History and culture of Indian up to AD 1526 - 1950

Unit I : Survey of Sources

Establishment of Mughal Empire - Shursha-Sun - Brief Survey of Political History up to 1707 AD - Polity and administration - Society -Social Composition - Uleme-Nobility-peasantry - artisans - slaves-Status of Women - Economy : Agriculture Industries, Trade and Commerce Economic and Technology Development.

Religion - Hindu - Muslim relations - Composite Culture,
Education, Literature, Art, Architecture and Fine Arts,
Decline and Disintegration of Mughal Empire - Rise of Regional Powers
Marathas - Sikhs.

Unit I I : Advent of European Powers - Portuguese, Dutch, English and French

Expansion and Consolidation of British Empire - Wars - Diplomacy - Policies Pushed - Subsidiary Alliance - Doctrine of Lapse.

Economics Policies and changes - Mercantilism and Fee-trade policies - Land Revenue Settlements - Permanent - Ryotwari - Mahalwari Systems - Irrigation Commercialization of Agriculture - Condition of Peasants - Famines - Decline of Cottage Industries (de-industrialization)

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DEPARTMENT OF HISTORY

2012-2013

PAPER CODE: HIS104

TITLE O F THE PAPER: HISTORY AND CULTURE OF INDIA UPTO AD (1526-1950) II

4th SEMESTER

2nd B.A History New Curriculum

Paper - I I

History and culture of Indian up to AD 1526 - 1950

Unit I I I

Anti-Colonial Upsurge-Peasant and Tribal Revolts - 1857 Revolt Causes-Results and Nature.

Unit I V :

Factors for social change - Christian Missionaries - Western Education - Emergence of New Middle Classes - Growth of press-Socio-Religion Reform Movements-Brahma Samaj - Arya Samaj - Theosophical Society - Rama Krishna Mission - Aligarh Movement - Self - Respect movements, Jyotiba Phule - Narayana Guru, Periyar and Dr. B.R. Ambedkar.

Unit V :

Indian National Movement - Factors for the growth of Nationalism - Indian National congress - Three phase of Freedom struggle - revolutionary. Movements-Left-Wing movement - Peasant and workers movements.

Unit V I :

Emergence of Communal trends - Partition of India-Integration of Princely States into Indian Union.

DEPARTMENT OF HISTORY

2012-2013

PAPER CODE; HIS105

TITLE OF THE PAPER: HISTORY OF MODERN WORLD 1453 TO 1945 AD I

5th SEMESTER

3rd B.A History New Curriculum

Paper - I I I

History of Modern World (1453 - 1945 AD)

Unit I :

Characteristic features of Renaissance-Significance of Reformation and Counter Reformation movement in Europe Geographical Discoveries and Rise of Colonialism, Mercantilism and Commercial Revolution - Emergence of Modern World Economy.

Unit I I :

Emergence of Nation States in Europe - Nature of Feudalism in Europe and Asia..

Unit I I I :

Age of Revolutions - Glorious Revolution (1688) - American Revolution (1776) - French Revolution (1789)

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DEPARTMENT OF HISTORY

2013-2014

PAPER CODE: HIS107

TITLE OF THE PAPER: HISTORY AND CULTURE OF ANDHRA PRADESH (FROM SATAVAHANAS TO 1956 AD) I

5th SEMESTER

3rd B.A History New Curriculum

Paper - I V (a)

History and culture of Andhra Pradesh

(from Satavahanas to 1956 A.D)

Unit I

Influence of Geographical features on Andhra History, Sources for the History of Andhra; An overview of the History of Andhra upto 16th A.D. Social economic and religious conditions in Andhra upto the Kakatiyas contribution of Rayas of Vijayanagara to society, economy religious art and literature.

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DEPARTMENT OF HISTORY

2013-2014

PAPER CODE-HIS108

TITLE OF THE PAPER: HISTORY AND CULTURE OF ANDHRA PRADESH (FROM SATAVAHANAS TO 1956 AD) II

3rd B.A History New Curriculum

Paper - IV (a)

History and culture of Andhra Pradesh

(from Satavahanas to 1956 A.D)

Unit I V

Social Reform and Literary Movements : Veeresalingam, Raghupathi Venkata-Ratnam Naidu, Gurajada Apparao, Komarraju Venkata Lakshmana Rao, Non-Brahmin, Adi Andhra, Dalit, Self-Respect Movements-New Literary Movements-Gurram Jashua, Boyi Bhimanna, Viswantha Satyanarayana, Rayaprolu Subba Rao, Sri Sri.

Unit V :

Freedom Movement in Andhra : Vandemataram, Home Rule, Non Co-Operation Alluri Sitarama Raju - Rampa Rebellion 1922-24 - Civil Disobedience and Quit India Movement.

Political Consciousness in Telangana : Nizam Andhra Maha Sabha, Hyderabad State Congress, Razakars, Police Action and Accession of Telangana into Indian Union.

Unit V I :

Leftist Movements in Andhra and Telangana : Peasant Armed Struggle - Tribal Uprisings - Komaram Bhimu-Bhoodan Movement.

Movement for Separate Andhra State : Andhra Mahila Sabha-Sree Bagh pact-Martyrdom of Potti Sree Ramulu Formation of Andhra State, 1953 - Vishalandra Movement - State's Re-organzation Commission - Gentleman's Agreement - Formation of Andhra Pradesh in 1956.

DEPARTMENT OF HISTORY

2013-14

PAPERCODE HIS101

TITLE: HISTORY AND CULTURE OF INDIA UPTO 1526 AD-I

1St SEMESTER

1st B.A History New Curriculum

Paper - 1

History and culture of Indian up to AD 1526 Paper

Unit I :

Influence of Geography on History - Survey of the Sources - Pre-Historic period Paleolithic. Mosolithic and Neolithic cultures - Role of Technology. Indus valley Civilization - Its characteristic features - Vedic Culture - Early and later Vedic Period - Post-Vedic period Emergence of Varna and Caste system - Rise of New Religious Movements - Jainism and Buddhism in 6th Century B.C Impact of Society and Culture.

Unit II:

A brief survey of political conditions in ancient India - Magadha, Alexander's Invasion and Mauryas - Ashoka's Dhamma. Its nature and propagation - Mauryan Administration - Economy - Art and Architecture.

Unit IV :

Post-Mauryan period in North India-A brief political survey of Kushanas, Guptas, Pusuabuthi and Rajputs : Polity and Administration - Social Conditions - Caste System - Position of Women-Economy-Indian Feudalism, Art - Architecture-Education, Literature, Philosophy - Science and Technology.

U-IV

(K.H Reddy)
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Dr. P. ABEL RAJA BABU
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DEPARTMENT OF HISTORY

2013-2014

PAPER COD: HIS102

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA UPTO 1526AD-II

2nd SEMESTER

1st B.A History New Curriculum

Paper - 1

History and culture of Indian up to AD 1526 Paper

Unit ~~IV~~ : VI

A brief political survey of South India - Sangam Age-Satavahanas - Pallavas - Cholas - Chalukyas, and Rashtrakutas- Kakatiya and Vijayanagara - Polity and Administration, Society, Economy - Art and Architecture.

Unit V : VII

Invasions of ~~Arabs~~, Ghaznivads and Ghoris and Delhi Sultanate ~~- A brief~~ Political Survey, Polity and Administration under Delhi Sultanate, Society, Composition of rural Society, Nobility - Status of Women, Economic and Technological developments. Agriculture - Industry - Trade and Commerce - Urbanisation, Art and Architecture - Fine Arts - Education and Literature.

Unit VI

Impact of Islam on Indian Society and culture - Bhakti and Sufi Movements Emergence of Composite culture.

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DEPARTMENT OF HISTORY

2013-2014

PAPER CODE-HIS103

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA UPTO AD (1526-1950) I

3rd SEMESTER

2nd B.A History New Curriculum

Paper - I I

History and culture of Indian up to AD 1526 - 1950

Unit I : Survey of Sources

Establishment of Mughal Empire - Shursha-Sun - Brief Survey of Political History up to 1707 AD - Polity and administration - Society -Social Composition - Uleme-Nobility-peasantry - artisans - slaves-Status of Women - Economy : Agriculture Industries, Trade and Commerce Economic and Technology Development.

Religion - Hindu - Muslim relations - Composite Culture,
Education, Literature, Art, Architecture and Fine Arts,
Decline and Disintegration of Mughal Empire - Rise of Regional Powers
Marathas - Sikhs.

Unit I I : Advent of European Powers - Portuguese, Dutch, English and French

Expansion and Consolidation of British Empire - Wars - Diplomacy - Policies Pushed - Subsidiary Alliance - Doctrine of Lapse.

Economics Policies and changes - Mercantilism and Fee-trade policies - Land Revenue Settlements - Permanent - Ryotwari - Mahalwari Systems - Irrigation Commercialization of Agriculture - Condition of Peasants - Famines - Decline of Cottage Industries (de-industrialization)

(K.H Reddy)
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DEPARTMENT OF HISTORY

2013-2014

PAPER CODE: HIS104

TITLE O F THE PAPER: HISTORY AND CULTURE OF INDIA UPTO AD (1526-1950) II

4th SEMESTER

2nd B.A History New Curriculum

Paper - I I

History and culture of Indian up to AD 1526 - 1950

Unit I I I

Anti-Colonial Upsurge-Peasant and Tribal Revolts - 1857 Revolt Causes-Results and Nature.

Unit I V :

Factors for social change - Christian Missionaries - Western Education - Emergence of New Middle Classes - Growth of press-Socio-Religion Reform Movements-Brahma Samaj - Arya Samaj - Theosophical Society - Rama Krishna Mission - Aligarh Movement - Self - Respect movements, Jyotiba Phule - Narayana Guru, Periyar and Dr. B.R. Ambedkar.

Unit V :

Indian National Movement - Factors for the growth of Nationalism - Indian National congress - Three phase of Freedom struggle - revolutionary. Movements-Left-Wing movement - Peasant and workers movements.

Unit V I :

Emergence of Communal trends - Partition of India-Integration of Princely States into Indian Union.

DEPARTMENT OF HISTORY

2013-2014

PAPER CODE; HIS105

TITLE OF THE PAPER: HISTORY OF MODERN WORLD 1453 TO 1945 AD I

5th SEMESTER

3rd B.A History New Curriculum

Paper - I I I

History of Modern World (1453 - 1945 AD)

Unit I :

Characteristic features of Renaissance-Significance of Reformation and Counter Reformation movement in Europe Geographical Discoveries and Rise of Colonialism, Mercantilism and Commercial Revolution - Emergence of Modern World Economy.

Unit I I :

Emergence of Nation States in Europe - Nature of Feudalism in Europe and Asia..

Unit I I I :

Age of Revolutions - Glorious Revolution (1688) - American Revolution (1776) - French Revolution (1789)

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DEPARTMENT OF HISTORY

2014-2015

PAPER CODE: HIS109

TITLE OF THE PAPER: ANCIANT INDIAN HISTORY UPTO 6TH CENTURY AD

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS) RAJAHMUNDRY

COURSE : I B. A

Subject: HISTORY

Module: I Ancient Indian History upto 6th Century A.D.

Choice Based Credit System

A. K. N. U: Admitted batch: **2014 – 15.**

Semester: I

Unit-I: Influence of Geography on History – Survey of the Sources – Pre-historic period Paleolithic. Mesolithic and Neolithic cultures – Role of technology. Indus valley Civilization – Its characteristic features – Vedic culture – Early and later Vedic Period Post Vedic period – Emergence of Varna in caste system.

Unit-II: Rise of new Religious Movements – Jainism and Buddhism in 6th Century B.C. Impact on Society and culture with special reference of East & West Godavari Districts – Aduru, Guntapalli, Peda Amiram, Kanchumaru, Achanta, Tatipak and Gummeleru. Second urbanizationin 6th century B.C; Rise of territorial states.

Unit-III: A brief survey of political conditions in ancient India – Supremacy of Magadha, Alexander's - invasion and Mauryas – Ashok's Dharma, Its nature and propagation –Mauryan Administration – Economy – Art and Architecture.

Unit- IV: Post-Mauryan period in North India – A brief political survey of Kushans, Guptas, Puswabuthi. Polity and Administration – Social Conditions – Caste System – Position of Women-Economy, Indian Feudalism Art-Architecture-Education, Literature, Philosophy, Science and Technology.

Unit -V: (Additional Syllabus) Position of women in INDIA from Epic Age to 6th Century A.

GPadmini
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DEPARTMENT OF HISTORY

2014-2015

PAPER CODE-HIS113

TITLE OF THE PAPER-EARLY MODERN WORLD HISTORY 1453 TO 1815 AD

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
RAJAHMUNDRY

COURSE : III B. A Sem-V

Subject: HISTORY

Early Modern World History(1453-1815 A.D.)

CBCS – Choice Based Credit System.

A. K. N. U: Admitted batch: **2014 – 15.**

Unit-I: Characteristic features of Renaissance – Significance of Reformation and Counter Reformation movements in Europe – Geographical Discoveries and Rise of Colonialism, Mercantilism and Commercial Revolution – Emergence of Modern World Economy

Unit-II: - Emergence of Nation States in Europe.

Unit-III: Age of Revolutions – Glorious Revolution (1688) – American Revolution (1776) – French Revolution (1789).

Unit-IV: Rise & fall of Napoleon Bonaparte – Administration. Congress of Vienna 1815.

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DEPARTMENT OF HISTORY

2014-2015

PAPER CODE-HIS112

TITLE OF THE PAPER-FREEDOM MOVEMENT IN INDIA 1857 TO 1950 AD

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
RAJAHMUNDRY

COURSE : II B. A

Subject: HISTORY Sem IV

Module-IV: Freedom Movement in INDIA (1857 – 1950 A.D)

CBCS – Choice Based Credit System.

A. K. N. U: Admitted batch: **2015 – 16**

Unit-V: Peasent and Tribal Revolts; 1857 Revolt – Causes – Results and Nature.

Unit-VI: Factors for social change- Western Education, Emergence of New Middle Class, Socio-Religious Reform Movements – Brahma Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission, Aligarh Movement, Self Respect movement, Jyotiba Phule, Narayana Guru, Periyar Rama Swamy, Dr. B.R.Ambedkar.

Unit-VII: Indian National Movement – Factors for the Growth of Nationalism – Indian National Congress – Three Phases of Freedom Struggle – Revolutionary Movement – Left Wing Movement.

Unit-VIII: Mahatma Gandhi: The Role of Gandhi in Freedom Movement - Emergence of Communal Trends – Partition of India – Integration of Princely States into Indian Union.

Text Books:

1. Bharatha Desa Charitra, Telugu Academy.
2. Alladi Vaidehi, Bharatha Swatharyodyama Charitra

Books for Reference:

1. Sharma R.S, Studies in Medieval Indian History.
2. S.R.Sharma, Mughal Empire.
3. A.L. Srivastava, Mughal Empire.
4. Sumit Sarkar, Modern India.
5. Bipen Chandra, India's Struggle for Freedom.
6. Tara Chandh, Freedom Movement of India. Vol – I,II,III

12/5/14

DEPARTMENT OF HISTORY

2014-2015

PAPER COD: HIS110

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA (SANGAM AGE TO 1526 AD)

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS) RAJAHMUNDRY

COURSE : I B. A

Subject: HISTORY

Module: II **History and Culture of India Sangam age to 1526 A.D**

Choice Based Credit System

Semester: II

Unit -VI: A brief political survey of South India-Sangam Age-Satavahanas-Pallavas – CholasEastern Chalukyas.

Unit-VII:A brief survey of Arbas – Ghajini, Ghori invasions and the administration under Slaves, Khilji; and Tughlukh Dynasties. Socio, Economic and Cultural Conditions under Delhi Sultanates

Unit-VIII:Kakatiya and Vijayanagara Dynasties – Polity and Administration Society, Economy and Architecture. Impact of Islam on Indian Society and culture-Bhakti and Sufi Moements Emergence of Composite culture.

Unit IX : (Additional Syllabus) Caste System & position of Women in Muslim & Hindu Society

Text Books:

1. Indian History and Culture up to 1526 AD, Telugu Academy.
2. Bharata Desa Charitra Samskriti,Vol.I,Telugu Academy
3. K Neelakanta Sastry, History of India Vol.I & II, Telugu Academy.
4. Ray Chodhary, Majundar & Datta, Advanced History of India Vol.I & II , Telugu Academy.
5. Puri, Chopra & Das, Economic Social and Cultural History, Telugu Academy.

Books for Reference:

1. AL Bhasham, The wonder that was India.
2. B.S.L. Hanumantha Rao & Basaveswara Rao, Indian History & Culture Vol.I & II,.
3. R.S. Tripathi, Ancient India,
4. R.C. Majumdar, History & Culture of the Indian People Vol.I, II & III.
5. Thoper Romilla, Ancient Indian Social History.
6. Robert Sewel, Vijayanagara Charitra, Telugu Version.

12/5/14

DEPARTMENT OF HISTORY

2014-2015

PAPER CODE: HIS111

TITLE OF THE PAPER: HISTORY AND CULTURE OF INDIA 1526 AD TO 1856 AD

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
RAJAHMUNDRY

COURSE : II B. A
Subject: HISTORY Sem -III
Module -III: History and Culture of India (1526-1856 A.D)
CBCS – Choice Based Credit System.
A. K. N. U: Admitted batch: **2015 – 16.**

Unit-I: Establishment of Mughal Empire – Shersha Sur – Brief survey of Political History upto 1707 AD – Polity and administration – Society – Social Composition &Economy – Artisans – Slaves, Status of Women – Economy; Agriculture.

Unit-II: Hindu, Muslim relations – Composite culture, Education, Literature, Art, Architecture and Fine Arts under Mughals - Decline of Mughal Empire – Rise of Marathas – Sikhs.

Unit -III : Advent of European powers – Portuguese, Dutch, English and French. Expansion and consolidation of British Empire – Carnatic and Mysore Wars – Policies Subsidiary Alliance – Doctrine of Lapse.

Unit -IV:Economic and Mercantilistic Policies Revenue Settlements – Permanent-Ryotwari-Mahalwari Systems – Condition of peasants – Famines, Decline of Cottage industries.

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DEPARTMENT OF HISTORY

2014-2015

PAPER CODE-HIS114

TITLE OF THE PAPER-MODERN ANDHRA HISTORY UPTO EARLY BRITISH PERIOD

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
RAJAHMUNDRY

COURSE : III B. A Sem - V

Subject: HISTORY

Modern Andhra History(upto Early British Period)

CBCS – Choice Based Credit System.

A. K. N. U: Admitted batch: **2014 – 15.**

Paper-4:

Unit-I: Influence of Geographical features on Andhra History, Sources – The Qutb Sahis – A brief survey of Political History – Society, Economy and Culture.

Unit -II The Asaf Jahis – A Brief Survey of their political history – Society, Economy and Culture – Salarjung's Reforms.

Unit-III: Andhra Under Colonial Rule: Coming of European Merchant Companies – Conquest of Andhra by the British

Unit -IV: Early Uprising – Administration. Impact of Industrial Revolution on Andhra Economy – Sir Thomas Munroe – Impact of 1857 Revolt in Andhra.

12/5/14

DEPARTMENT OF HISTORY

2014-2015

PAPER CODE-116

TITLE OF THE PAPER-SOCIO - LITERARY MOVEMENT IN MODERN ANDHRA (UPTO 1956 AD)

GOVERNMENT DEGREE COLLEGE (AUTONOMOUS) RAJAHMUNDRY

COURSE : III B. A

Subject: HISTORY Sem - VI

Socio – Literary Movement in Modern Andhra upto 1956 A.D.

CBCS – Choice Based Credit System.

A. K. N. U: Admitted batch: **2014 – 15.**

Unit-V: Social Reform and Literary Movements: Veeresalingam, Raghupathi VenkataRatnam Naidu, Gurajada Appa Rao, And Komarraju Venkata Lakshmana Rao. NonBrahmin, Adi- Andhra, Dalit, Self-Respect Movements - New Literary Movements Gurram Jashua, Boyi Bhimanna, Viswanatha Satyanarayana, Rayaprolu Subba Rao, Sri Sri.

Unit-VI: Freedom Movement in Andhra: Vandemataram with special reference to East Godavari District, Home Rule and Non Co-Operation Movements and Alluri Sitarama Raju – Rampa Rebellion 1922-24 - Civil Disobedience, Quit India Movements with special reference to West Godavari District.

Unit-VII: Freedom Fighters – Durgabhai Deshmukh, Bulusu Samba Murthy, Nyapathi Subba-Rao Pantulu, Dr. Brahma Jyotsula Subrahmanyam, Madduri Annapurnnayya, Krovvidi Linga Raju. Maganti Annapurna Devi, Dandhu Narayana Raju and Atmakuri Govindachari.

Unit-VIII: Movement for separate Andhra state – Andhra Maha Sabha – Sree Bagh pactMartyrdom of Sri Potti SriRamulu – Formation of Andhra State 1953 – Political consciousness in Telangana – Nizam Andhra Mahasabha – Accession of Hyderabad state to Indian Union. Leftist movements in Andhra and Telangana – Peasant. armed struggle in Telangana – Tribal uprisings – komaram Bhimu – Bhoodan Movement – Vishalandra movement – state's re-organization commission – Gentlemen's agreement – Formation of Andhra Pradesh in 1956.

Text Books:

1. A.V.Koti Reddy, Adhunika Andhra Desa Charitra, Telugu Academy.
2. Dr.Chirangeevini Kumari Editor, Tuurpu Godavari Charitra Samskruti.
3. Prof.K.A.N.Sastri, A History of South India.

Books for Reference:

1. Suravaram Pratap Reddy, Andhrula Sanghika Charitra.
2. Dr. B.Raja Rao, Seeta Nagara Sevasrama Charitra.
3. K.Satya Murthy, Survey of Andhra Pradesh History.
4. Robbert Sewell, A Forgotten Employee.
5. Kampati Satyanarayana, Andhrula Charitra Samskruti

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12/5/14

DEPARTMENT OF HISTORY

2015-2016

PAPER CODE-HIS117

TITLE OF THE PAPER-ANCIENT INDIAN HISTORY UPTO 6th CENTURY AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I B. A., - MODULE - I :

ANCIENT INDIAN HISTORY UPTO 6TH CENTURY A.D.,

AT THE END OF 1st CORE - SYLLABUS

UNIT - I

1. Influence of Geography on History - Survey of the Sources - Pre-historic period Paleolithic. Mesolithic and Neolithic cultures - Role of technology. Indus Valley Civilization - Its characteristic features - Vedic culture - Early and later Vedic Period Post Vedic Period - Emergence of Varna in Caste system. ***- 25 Hrs***

UNIT - II

2. Rise of new Religious Movements - Jainism and Buddhism in 6th Century B.C. Impact on Society and culture with special reference of East & West Godavari Districts - Aduru, Guntapalli, Peda Amiram, Kanchumaru, Achanta, Tatipaka and Gummileru. Second urbanization in 6th century B.C., Rise of territorial states. ***- 24 Hrs***

UNIT - III

3. A brief survey of political conditions in ancient India - Supremacy of Magadha, Alexander's - Invasion and Mayuras - Ashok's Dharma, Its nature and propagation - Mauryan Administration - Economy - Art and Architecture. ***- 15 Hrs***

UNIT - IV

4. Post - Mauryan period in North India - A brief political survey of Kushans, Guptas, Pushyabuthi. Polity and Administration - Social Conditions - Caste system - Position of Women - Economy, Indian Feudalism Art - Architecture - Education, Literature, Philosophy, Science and Technology. ***- 20 Hrs***

UNIT - IV (A)

4. (a). **(Additional Syllabus)** Position of women in India from Epic Age to 6th century A.D.- ***6 Hrs***

BLUE PRINT

Unit No.	Essay Question	Short Answer Questions	
	10 M	4 M	1½ M
Unit - I	02	03	03
Unit - II	02	01	03
Unit - III	02	02	03
Unit - IV	02	01	02
Unit - IV (A)	00	01	00

20/3/15

DEPARTMENT OF HISTORY

2015-2016

PAPER CODE-HIS119

TITLE OF THE PAPER-HISTORY AND CULTURE OF ANDHRA FROM SATAVAHANAS TO 1857 AD

HISTORY AND CULTURE OF ANDHRA - 1(A) (From Sathavahanas to 1857 A.D.) AT THE END OF V CORE SYLLABUS

UNIT - I

1. Influence of Geographical features on Andhra History, Sources of A.P. History. A brief survey of political history from Satavahanas to Vijayanagara period - Socio, Economic cultural conditions Satavahanas, Kakatiyas and Vijayanagara Rulers. ***- 15 Hrs***

UNIT - II

2. The Qutab Sahis - A Brief Survey of Political History - Society, Economy and Culture. The Asaf Jahis - A Brief Survey of their political history - Society, Economy and Culture - Salarjung's Reforms. ***- 15 Hrs***

UNIT - III

3. Andhra Under Colonial Rule : Coming of European Merchant Companies Conquest of Andhra by the British. Conquest of Andhra by the Britishers - Karnatic war, Mysore wars - Datta Mandals - Land Revenue Settlements. ***- 15 Hrs***

UNIT - IV

4. Early Uprising - Administration - Famines - Impact of Industrial Revolution on Andhra Economy - Sir Thomas Munro - Impact of 1857 Revolt in Andhra. ***- 15 Hrs***

Additional Syllabus :

Cotton Irrigation Policy

BLUE PRINT

Unit No.	Essay (10M)	Short Answer (5M)	Very Short Answer (2M)	Total
Unit - I	2	2	2	34
Unit - II	2	1	3	31
Unit - III	2	1	3	31
Unit - IV	2	2	2	34

4-4-16

DEPARTMENT OF HISTORY

2015-2016

PAPER CODE-HIS118

TITLE OF THE PAPER-HISTORY AND CULTURE OF INDIA SANGAM AGE TO 1526 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

I B. A., - MODULE - II :

HISTORY AND CULTURE OF INDIA SANGAM AGE TO 1526 A.D.

AT THE END OF 2nd CORE - SYLLABUS

UNIT - V

5. A brief political survey of South India - Sangam Age - Satavahanas - Pallavas - Cholas Eastern Chalukyas. ***- 25 Hrs***

UNIT - VI

6. A brief survey of Arbas - Ghajini, Ghori invasions, and the administration under The Delhi Sultanates Slaves, Khilji and Tughlukh Dynasties. Socio, Economic and Cultural Conditions under Delhi Sultanates. ***- 30 Hrs***

UNIT - VII

7. Kakatiya and Vijayanagara Dynasties - Polity and Administration Society, Economy and Architecture. Impact of Islam on Indian Society and culture - Bhakti and Sufi Movements, Emergence of Composite Culture. ***- 29 Hrs***

UNIT - VII (A)

7a. (**Additional Syllabus**) Caste system & position of women in Muslim & Hindu Society ***- 06 Hrs***

BLUE PRINT

Unit No.	Essay Question	Short Answer Questions	
	10 M	4 M	1½ M
Unit - V	02	03	03
Unit - VI	03	02	03
Unit - VII	03	02	03
Unit - VII (A)	00	01	01

DEPARTMENT OF HISTORY

2015-2016

PAPER CODE-HIS121

TITLE OF THE PAPER-HISTORY OF MODERN ANDHRA 1858 TO 1956

HISTORY OF MODERN ANDHRA - 1(B) (1858 - 1956 A.D.)
AT THE END OF THE VI CORE SYLLABUS

UNIT - V

5. Social Reformsand Literary Movements : Veeresalingam, Raghupathi Venkata Ratnam Naidu, Gurajada Appa Rao and Komarraju Venkata Lakshmana Rao, Non Brahmin, Adi-Andhra, Dalit, Self - Respect Movements - New Literary Movements Gurram Jashua, Boyi Bhimanna, Viswanatha Satyanarayana, Rayaprolu Subba Rao, Sri Sri. ***- 15 Hrs***

UNIT - VI

6. Freedom Movement in Andhra : Vademataram with Special reference to East Godavari District, Home Rule and Non Co-Operation Movements and Alluri Sitarama Raju - Rampa Rebellion 1922 - 24

Additional Syllabus :

Durgabhai Deshmukh, Nyapath Subba Rao, Bulusu Samba Murthy, Maganti Annapurna Devi, Brahma Jyotsula Subrahmanyam. ***- 15 Hrs***

UNIT - VII

7. Civil Disobedience, Quit India Movement, Political Consciousness in Telangana - Nizam Andhra Mahasabha, Razakars, Police action Accession of Telangana in to Indian Union. ***- 10 Hrs***

UNIT - VIII

8. Leftist Movements in Andhra and Telangana - Peasant, Tribal Movements - Komaram Bhimu - Bhoodan Movement - Movement for separate Andhra State - Andhra Maha Sabha - Sree Bagh pact Maryrdom of Sri Potti Sriramulu - Formation of Andhra State 1953 - Vishalandra Movement - State's re-organization commission - Gentleman's agreement - Formation of Andhra Pradesh in 1956. ***- 10 Hrs***

DEPARTMENT OF HISTORY

2015-2016

PAPER CODE-HIS120

TITLE OF THE PAPER- WORLD HISTORY 1815 TO 1945 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

III B. A., - PAPER III : VI SEMESTER

HISTORY OF MODERN WORLD (1815 - 1945 A.D.)

SYLLABUS

UNIT - V

5. Industrial Revolution and Rise of Capitalism - Impact on Asia and Africa - Meizi Restoration and Modernization of Japan - Unification Movements in Germany and Italy.

UNIT - VI

6. World between 1914 - 1945, Rivarly among colonial powers, Imperialist Hegmony - Causes and consequences of first world war - World between the wars - League of Nations, Fascism in Italy, Nazism in Germany, Militarism in Japan - Communist Movements in Russia and China.

UNIT - VII

7. Causes and consequences of Second World War - UNO.

DEPARTMENT OF HISTORY

2016-2017

PAPER CODE- HIS121

TITLE OF THE PAPER-HISTORY OF MODERN ANDHRA 1858 TO 1956

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

III B. A., - PAPER IV (A) : VI MODULE : 2016 - 2017

HISTORY OF MODERN ANDHRA - 1(B) (1858 - 1956 A.D.)

AT THE END OF THE VI CORE SYLLABUS

UNIT - V

5. Social Reformsand Literary Movements : Veeresalingam, Raghupathi Venkata Ratnam Naidu, Gurajada Appa Rao and Komarraju Venkata Lakshmana Rao, Non Brahmin, Adi-Andhra, Dalit, Self - Respect Movements - New Literary Movements Gurram Jashua, Boyi Bhimanna, Viswanatha Satyanarayana, Rayaprolu Subba Rao, Sri Sri. ***- 15 Hrs***

UNIT - VI

6. Freedom Movement in Andhra : Vademataram with Special reference to East Godavari District, Home Rule and Non Co-Operation Movements and Alluri Sitarama Raju - Rampa Rebellion 1922 - 24

Additional Syllabus :

Durgabhai Deshmukh, Nyapath Subba Rao, Bulusu Samba Murthy, Maganti Annapurna Devi, Brahma Jyotsula Subrahmanyam. ***- 15 Hrs***

UNIT - VII

7. Civil Disobedience, Quit India Movement, Political Consciousness in Telangana - Nizam Andhra Mahasabha, Razakars, Police action Accession of Telangana in to Indian Union. ***- 10 Hrs***

UNIT - VIII

8. Leftist Movements in Andhra and Telangana - Peasant, Tribal Movements - Komaram Bhimu - Bhoodan Movement - Movement for separate Andhra State - Andhra Maha Sabha - Sree Bagh pact Maryrdom of Sri Potti Sriramulu - Formation of Andhra State 1953 - Vishalandra Movement - State's re-organization commission - Gentleman's agreement - Formation of Andhra Pradesh in 1956. ***- 10 Hrs***

DEPARTMENT OF HISTORY

2016-2017

PAPER CODE-HIS123

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE FROM 647 AD TO 1526 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

I B. A., HISTORY : MODULE - II : 2016 - 2017

At the End of 2nd CORE SYLLABUS

INDIAN HISTORY AND CULTURE (from 647 to 1526 A.D.)

UNIT - VI

6. A brief political survey of South India - Sangam Age, Literature, Society and Culture - Pullavas - Political History their contribution of Society and Culture - Art and Architecture - Chalukyas of Badami Period : Vatapi Chalukyas - Eastern Chalukyas of Vengi - Rashtrakutas - Chalukyas of Kalyani - Polity, Society, Economy, Evolution of Bhakti Tradition Art and Architecture.

- 20 Hrs

UNIT - VII

7. The Cholas : Overview of the History of Administration - Social and religious treads - Indian Culture - Contacts with South - East Asia and Sri Lanka - Age of the Rajputs : Political History of Rajputs - Socio - Cultural Conditions - Muslim Invasions : Arabs, Ghazani and Ghoti and their impact.

- 15 Hrs

UNIT - VIII

8. Age of Delhi Sultanate : Slave Dynasty, Khilji Dynasty and Tughlak Dynasty - Polity and Administration under Delhiu Sultanate, Society - Composition of Rural Society, Nobility - Status of Women, Economic and Technological Developments. Agriculture - Industry - Trade and Commerce - Urbanization, Art and Architecture - Education and Literance - 3

- 20 Hrs

UNIT - IX

9. Impact of Islam on Indian Society and Culture - Bhakti and Sufi Movements - Ramanujacharya Kabir, Meerabai - Emergence of Composite Culture. The Kakatiya : Outline of Political History Religious Conditions and Architecture, Literature - 2.

- 10 Hrs

UNIT - X

10. Vijayanagara Empire : Brief Political History - Bahamani - Vijayanagara Relations Srikrishnadevaraya - Administration Society. Development of Literature References - Sum - II Books : Telugu Academy Text Books - Indian History and Culture - I

- 20 Hrs

Additional Syllabus :

Cast system & position of women in Muslim & Hindu Society. - 5 Hrs

DEPARTMENT OF HISTORY

2016-2017

PAPER CODE-HIS124

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE FROM 1526 AD TO 1857 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

II B. A., HISTORY : MODULE - III : 2016 - 2017

At the End of III CORE SYLLABUS

HISTORY AND CULTURE OF INDIA 1526 A.D. TO 1856 A.D.

UNIT - I

1. Survey of Sources - Establishment of Mughal Rule - Babar and Humayun - Sur Dynasty - Shersha Administrative Reforms - Brief Survey of Political History upto 1707 A.D. - Rajput and Religion - Administration - Revenue Reforms - Deccan Policy under the Mughals from Akbar to Aurangazeb.

- 30 Hrs

UNIT - II

2. Society - Social Composition and Economy - Artisans - Slaves, Status of Women - Agriculture - Hindu, Muslim Relations - Composite Culture, Education, Literature, Art and Architecture and Fine Arts under Mughals - Decline and Downfall of Mughal Empire - Rise of Marathas - Achievements and Administration of Shivaji - Peshwas - Third Battle of Panipat (1761 A.D.) Causes and Result - Sikhs. ***- 20 Hrs***

UNIT - III

3. Advent of Europen powers - Portuguese - Dutch, English and French - Expansion and Consolidation of British Empire : Conquest of Bengal, Battle of Plassey and Buxer - Carnatic and Mysore Wars - Administrative Reform's - Policies Subsidiary Alliance - Doctrine of Lapse.

- 20 Hrs

UNIT - IV

4. Economic and Mercantilistic Policies - Land Revenue Settlements - Permanent - Ryotwari - Mahalwari - Conditions - Famines - Decline of Cottage Industries.

- 14 Hrs

Additional Syllabus :

Life History of Sir. Arthur Cotton - and His Servcices to Andhra Pradesh - ***- 6 Hrs***

BLUE PRINT

Unit No.	Essay (10M)	Short Answer (5M)	Very Short Answer (2M)	Total
Unit - I	2	2	02	34
Unit - II	2	2	02	34
Unit - III	2	01	04	33
Unit - IV	2	01	04	33

G Padmaja

DEPARTMENT OF HISTORY

2016-2017

PAPER CODE-HIS125

TITLE OF THE PAPER- INDIAN HISTORY AND CULTURE FROM 1857 AD TO 1950 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

II B. A., HISTORY : MODULE - IV : 2016 - 2017

At the End of IV CORE SYLLABUS

INDIAN HISTORY AND CULTURE (1856 - 1950 A.D.)

UNIT - V

5. Peasant and Tribal Revolts in 19th Century India : Causes, Nature, Course and Result - 1857 Revolt - Causes, Nature, Course and Result - Mangal Pande, Bahadur Shah - II, Tantiya tope, Jhansi Lakshmi Bai, Nanasaheb - Queen Victoria's Proclamation on 1858 A.D.

- 15 Hrs

UNIT - VI

6. Factors for social change - Western Education, Emergence of New Middle Class, Socio - Religions Movements in 19th Century - Brahma Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission, Aligarh Movement, Self Respect Movement, Jyothibhaphule, Narayana Guru, Periyar Rama Swamy, Dr. B.R. Ambedkar.

- 30 Hrs

UNIT - VII

7. Indian National Movement - Causes for the rise of Indian Nationalism - Foundation of the Indian National Congress Era of the Moderates (1885 to 1905 A.D). and Rise of the extremists (1906 to 1919 A.D.) - Partition of Bengal & Swadeshi Movements - Home Rule Movement - Revolutionary Movements - Left wing Movement - Constitutional Reform's.

- 20 Hrs

UNIT - VIII

8. Gandhi Era (1920 to 1947 A.D.) - Rowlatt Satyagraha - Khilafat - Non Co-operation - Civil Disobedience - Quit India. Emergence of Communal Trends - Subhash Chandra Bose and INA - Partition of India - Integration of Princely starts into Indian Union Sardar Vallabhai Patel.

- 20 Hrs

Additional Syllabus :

Role of Women Freedomfighters in Andhra : Durgabai Deshmukh, Majanti Annapurna Devi, Duvvuru Subbamma.

- 5 Hrs

The following activity is added at the End of Semester

Student Study Projects.

DEPARTMENT OF HISTORY

2016-2017

PAPER CODE-HIS122

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE FROM EARLIEST TIME TO 647 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

I B. A., HISTORY : MODULE - I : 2016 - 2017

At the End of 1st CORE SYLLABUS

INDIAN HISTORY AND CULTURE (from Earliest time to 647 A.D.)

UNIT - I

1. Survey of the Sources - Literacy Sources - Archaeological Sources - Influence of Geography on History - Unity in Diversity - Prehistoric period - Paleolithic, Mesolithic and Neolithic cultures - Harappan Civilization : Origin, Extent, Urban Planning - Nature of Polity and Economic Organization, Society - Religious Conditions - Downfall of the Civilization.

- 25 Hrs

UNIT - II

2. Vedic Civilization : Vedic Literature - Early Vedic and later Vedic Civilizations - Political, Economic and Religious Conditons in the Society - Emergence of Varna and Caste System - Rise of New Religious Movements : Conditions of 6th Century B.C. - Jainism - Vardhamana Mahavira, Buddhism - Gauthama Buddha.

- 24 Hrs

UNIT - III

3. A Brief Survey of Political Conditions in Ancient India - Mahajanapadas - Rise and Expansion of Magadha - Persian, Alexander's Invasions - Causes and its effects on India - The Mauryan Empire : Origin - Chandragupta Maurya - Ashoka's Dharma, It's nature and propagation - Mauryan Administration, Society, Economy, Religion, Art and Architecture - Downfall of the Mauryan Empire.

- 15 Hrs

UNIT - IV

4. Post - Mauryan period in North India - Sunga, Kanva dynasties - A brief political survey of Foreign invasions - Kushan - Kanishka - The Age of Satavahanas - Brief Political History - Gauthamiputrasatakarni - Socio Economic Religious Cultural Developments.

- 20 Hrs

UNIT - V

5. Age of Guptas : Brief Political History - Development in the Gupta Period - Administrative System, Society, Economy, Art, Architecture. Literature, Science and Technology - Golden Age of Guptas · Post Gupta Period : Achievements of Harshavardhana - Hiuen Tsang.

- 20 Hrs

Additional Syllabus :

Position of women in India from Epic Age to 6th Century A.D. ***- 6 Hrs***

BLUE PRINT

Unit No.	Essay (8M)	Short Answer (5M)	Very Short Answer (2M)
Unit - I	2	2	0
Unit - II	2	1	1
Unit - III	2	1	1
Unit - IV	1	2	1
Unit - V	1	2	1

DEPARTMENT OF HISTORY

2017-2018

PAPER CODE-HIS131

TITLE OF THE PAPER- HISTORY AND CULTURE OF MODERN ANDHRA PRADESH FROM 1858 TO 1956 AD

GOVERNMENT COLLEGE (A) RAJAHMUNDRY

B. A. HISTORY

III Year B. A. Programme (UG) Courses – Under CBCS

Semester – VI

Paper – VIII-AI (Cluster Elective Paper 1)

History and Culture of Modern Andhra Pradesh (1848 TO 1956 A.D.)

Unit – I	Social & Self Respect Movements: Social Conditions – KandukuriVeeresalingam, Raghupathi Venkata Rathnam Naidu, GuruzadaApparao, Komarraju Venkata Laxmana Rao; New Literary Movements: Causes – RayaproluSubbarao, ViswanathaSathyanarayana, GurramJashua, BoyiBheemanna, SriSri – Impact. – 16 Hrs
Unit – II	Freedom Movement in Andhra (1885-1920): Contributory Factors – Vandemataram Movement – Swadeshi & Boycott programs – Glorious Events at Rajahmundry, Kakinada, Kotappakonda& Tenali – Home Rule Movement in Andhra. - 10 Hrs
Unit - III	Freedom Movement in Andhra (1920-1947): Non-Cooperation Movement – ChiralaPerala, Palanadu&Pedanandipadu Activities – Alluri Seetarama Raju &Rampa Revolt (1922-24) – Anti-Simon Commission Movement – Civil Disobedience Movement – Quit India Movement. Dugabha Deshmukh, Maganti Annpurna, Brahma Jyotusula Subrahmanyam. – 18 Hrs
Unit - IV	Movement for Separate Andhra State (1953): Causes – Andhra Maha Sabha – Andhra Provincial Congress Committee – Andhra University – Conflict between Coastal Andhra &Rayalaseema – Sri Bagh Pact – Constitution of Committees & their Contribution – Martyrdom of PottiSriramulu – Formation of separate Andhra State. – 8 Hrs
Unit – V	Movement for formation of Andhra Pradesh (1956): VisalandhraMahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh. – 8 Hrs.

References:

1	B. Kesava Narayana, Political and Social Factors in Modern Andhra
2	K.V.Narayana Rao, The Emergence of Andhra Pradesh
3	M. Venkata Rangaiah, The Freedom Struggle in Andhra Pradesh
4	P.R.Rao, History of Modern Andhra
5	SarojiniRegani, Highlights of Freedom Movement
6	SarojiniRegani, ఆంధ్రలోస్వాతంత్ర్యోద్యమచరిత్ర
7	V. Ramakrishna, Social Reform Movement in Andhra
8	B. Kesava Narayana, Modern Andhra & Hyderabad – 1858 – 1956 A.D., 2016

Project Work: With the aim of understanding of techniques and methods of research and presentation, students should be encouraged to draft a report on local writers, struggles, human rights movements, different types of social discrimination etc.

Field Trip : Field Trip to Kandukuri veeresalingam's House to better understand with Practical knowledge.

DEPARTMENT OF HOSTORY

2017-2018

PAPER CODE-HIS127

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE (FROM EARLIEST TIME TO 647 AD)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM I B. A., HISTORY : MODULE - I : 2017 - 2018 At the End of 1st CORE SYLLABUS INDIAN HISTORY AND CULTURE (from Earliest time to 647 A.D.)

UNIT – I

1. Survey of the Sources - Literacy Sources - Archaeological Sources - Influence of Geography on History - Unity in Diversity - Prehistoric period - Paleolithic, Mesolithic and Neolithic cultures - Harappan Civilization : Origin, Extent, Urban Planning - Nature of Polity and Economic Organization, Society - Religious Conditions - Downfall of the Civilization. -18 Hrs

Unit-II

2. Vedic Civilization : Vedic Literature - Early Vedic and later Vedic Civilizations - Political, Economic and Religious Conditons in the Society - Emergence of Varna and Caste System Rise of New Religious Movements : Conditions of 6th Century B.C. - Jainism - VardhamanaMahavira, Buddhism - Gauthama Buddha.
– 13 Hrs

UNIT – III

3. A Brief Survey of Political Conditions in Ancient India - Mahajanapadas - Rise and Expansion of Magadha - Persian, Alexander's Invasions - Causes and its effects on India - The Mauryan Empire : Origin - Chandragupta Maurya - Ashoka's Dharma, It's nature and propagation - Mauryan Administration, Society, Economy, Religion, Art and Architecture - Downfall of the Mauryan Empire. – 13 Hrs

UNIT – IV

4. Post - Mauryan period in North India - Sunga, Kanva dynasties - A brief political survey of Foreign invasions - Kushan - Kanishka - The Age of Satavahanas - Brief Political History Gauthamiputrasatakarni - Socio Economic Religious Cultural Developments. – 13 Hrs

UNIT – V

5. Age of Guptas : Brief Political History - Development in the Gupta Period - Administrative System, Society, Economy, Art, Architecture. Literature, Science and Technology - Golden Age of Guptas - Post Gupta Period : Achievements of Harshavardhana - Hiuen Tsang.- 10 Hrs

Additional Syllabus : Position of women in India from Epic Age to 6th Century A.D - 06 Hrs

BLUE PRINT

Unit No..	Essay(8)M	Short Q (5)M	Very short Q (2)	Total
Unit - I	2 (Q)	2 (Q)	0	
Unit – II	2 (Q)	1 (Q)	1 (Q)	
Unit- III	2 (Q)	1 (Q)	1 (Q)	
Unit – IV	1 (Q)	2 (Q)	1 (Q)	
Unit - V	1 (Q)	2 (Q)	1 (Q)	

DEPARTMENT OF HSITORY

2017-2018

PAPER CODE-HIS128

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE FROM 647 TO 1526 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

I B. A., HISTORY : MODULE - II : 2017 – 18 At the End of 2nd CORE SYLLABUS INDIAN HISTORY AND CULTURE (from 647 to 1526 A.D

UNIT – I

1. A brief political survey of South India - Sangam Age, Literature, Society and Culture - Pullavas - Political History their contribution of Society and Culture - Art and Architecture - Chalukyas of Badami Period : Vatapi Chalukyas - Eastern Chalukyas of Vengi - Special Reference to Raja Narendra and Adi kavi Nannayya - Rashtrakutas - Chalukyas of Kalyani - Polity, Society, Economy, Evolution of Bhakti Tradition Art and Architecture. – 18 Hrs

UNIT – II

2. The Cholas : Overview of the History of Administration - Social and religious treads - Indian Culture - Contacts with South - East Asia and Sri Lanka - Age of the Rajputs : Political History of Rajputs - Socio - Cultural Conditions - Muslim Invasions : Arabs, Ghazani and Ghori and their impact - 13 Hrs

UNIT – III

3. Age of Delhi Sultanate : Slave Dynasty, Khilji Dynasty and Tughlak Dynasty - Polity and Administration under Delhiu Sultanate, Society - Composition of Rural Society, Nobility Status of Women, Economic and Technological Developments. Agriculture - Industry - Trade and Commerce - Urbanization, Art and Architecture - Education and Literature - 13 Hrs

UNIT – IV

4. Impact of Islam on Indian Society and Culture - Bhakti and Sufi Movements - Ramanujacharya Kabir, Meerabai - Emergence of Composite Culture. The Kakatiya : Outline of Political History Religious Conditions and Architecture, Literature - 10 Hrs

UNIT – V

5. Vijayanagara Empire : Brief Political History - Bahamani - Vijayanagara Relations Srikrishnadevaraya - Administration Society. Development of Literature References - 10 Hrs

Additional Syllabus ;- position of women in Muslim & Hindu Society. – 06 Hrs

DEPARTMENT OF INDIA

2017-2018

PAPER CODE-HIS130

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE FROM 1857 TO 1950 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

II B. A., HISTORY : MODULE - IV : 2017 - 2018 At the End of IV CORE

SYLLABUS INDIAN HISTORY AND CULTURE (1856 - 1950 A.D.)

UNIT – I

Peasant and Tribal Revolts in 19th Century India : Causes, Nature, Course and Result - 1857 Revolt - Causes, Nature, Course and Result - Mangal Pande, Bahadur Shah - II, Tantiya tope, Jhansi Lakshmi Bai, Nanasaheb - Queen Victoria's Proclamation on 1858 A.D. - 15 Hrs

UNIT - II

Factors for social change - Western Education, Emergence of New Middle Class, Socio Religions Movements in 19th Century - Brahma Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission, Aligarh Movement, Self Respect Movement, Jyothibhaphule, Narayana Guru, Periyar Rama Swamy, Dr. B.R. Ambedkar. - 15 Hrs

UNIT – III

Growth of Nationalism in the 2nd half of 19th century. Impact of British Colonial Policies under Viceroys Rule and the Genesis of Freedom movement British of Indian National Congress. - 10 Hrs

UNIT – IV

9. Indian National Movement - The Moderates (1885 to 1905 A.D). and Rise of the extremists (1906 to 1919 A.D.) - Partition of Bengal & Swadeshi Movements Special Reference to Rajahmundry Movement - Home Rule Movement Revolutionary Movements - Left wing Movement - Constitutional Reform's. - 15 Hrs

UNIT - V

10. Gandhi Era (1920 to 1947 A.D.) - Rowlatt Satyagraha - Khilafat - Non Co-operation - Civil Disobedience - Quit India. Emergence of Communal Trends - Subhash Chandra Bose and INA Partition of India - Integration of Princely starts into Indian Union Sardar Vallabhai Patel. - 10 Hrs

Additional Syllabus : Role of Women Freedomfighters in Andhra : Durgabai Deshmukh, Majanti Annapurna Devi, Duvvuru Subbamma. - 5 Hrs

The following activity is added at the End of Semester Student Study Projects.

DEPARTMENT OF HISTORY

2017-2018

PAPER CODE-HIS129

TITLE OF THE PAPER-INDIAN HITORY AND CULTURE FROM 1526 TO 1857 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

II B. A., HISTORY : MODULE - III : 2017 - 2018

At the End of III CORE SYLLABUS

HISTORY AND CULTURE OF INDIA 1526 A.D. TO 1856 A.D.

UNIT - I

1. Survey of Sources - Establishment of Mughal Rule - Babar and Humayun - Sur Dynasty - Shersha Administrative Reforms - Brief Survey of Political History upto 1707 A.D. - Rajput and Religion - Administration - Revenue Reforms - Deccan Policy under the Mughals from Akbar to Aurangazeb. ***- 18 Hrs***

UNIT - II

2. Society - Social Composition and Economy - Artisans - Slaves, Status of Women - Agriculture - Hindu, Muslim Relations - Composite Culture, Education, Literature, Art and Architecture and Fine Arts under Mughals - Decline and Downfall of Mughal Empire. ***- 15 Hrs***

UNIT - III

3. Rise of Marathas - Achievements and Administration of Shivaji - Peshwas - Third Battle of Panipat (1761 A.D.) Causes and Result - Sikhs. ***- 10 Hrs***

UNIT - IV

4. Advent of Europen powers - Portuguese - Dutch, English and French - Expansion and Consolidation of British Empire : Conquest of Bengal, Battle of Plassey and Buxer - Carnatic and Mysore Wars - Administrative Reform's - Policies Subsidiary Alliance - Doctrine of Lapse. ***- 18 Hrs***

UNIT - V

5. Economic and Mercantilistic Policies - Land Revenue Settlements - Permanent - Ryotwari - Mahalwari - Conditions - Famines - Decline of Cottage Industries. ***- 10 Hrs***

Additional Syllabus :

Life History of Sir. Arthur Cotton - and His Servcices to Andhra Pradesh - ***- 4 Hrs***

BLUE PRINT

Unit No.	Essay (8 M)	Short Answer (5 M)	Very Short Answer (2 M)
Unit - I	3	2	1
Unit - II	1	2	1
Unit - III	2	2	0
Unit - IV	1	1	1
Unit - V	1	1	1

DEPARTMENT OF HISTORY

2017-2018

PAPER CODE-HIS115

TITLE OF THE PAPER-MODERN WORLD HISTORY 1816 TO 1945 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.A. HISTORY : MODULE VI : 2017 - 2018 PAPER - VIIA :

AT THE END OF VII CORE SYLLABUS

HISTORY OF MODERN WORLD (1815 A.D. TO 1945 A.D.)

UNIT – I

1. Industrial Revolution - Origin, Nature, Features, Result and it's Impact - Rise of Capitalism Socialism - Karl Marx's - Meizi restoration and Modernization of Japan. 18 Hrs

UNIT – II

2. Nationalism in Europe : Unification of Italy - Mazzini, Garibaldi and Cavour - Unification of Germany - Role of Bismark. 12 Hrs

UNIT – III

3. World between 1914 to 1945 A.D., Rivalry Colonical powers - Imperialist - Hegemony - Causes and Consequences of the First World War - Paris peace conference - Communist Movements in Russia & China - League of Nations - Rise of Dictators - Fascism in Italy - Nazism in Germany - Militarism in Japan.

20 Hrs

UNIT – VI

4. Causes and consequences of Second World War - Structure of UNO - functions and achievements and failures. 15 Hrs

Additional Syllabus : Indo - Pak Relations from 1947 to 1971 A.D. 05 Hrs

Unit No.	Essay(10)M	Short Q (5)M	Very short Q (2)	Total
Unit - I	2 (Q)	1 (Q)	3 (Q)	
Unit – II	2 (Q)	1 (Q)	3 (Q)	
Unit- III	2 (Q)	2 (Q)	3 (Q)	
Unit – IV	2 (Q)	2 (Q)	3 (Q)	

DEPARTMENT OF HISTORY

2017-2018

PAPER CODE-HIS132

TITLE OF THE PAPER - SOUTH INDIAN HISTORY FROM SATAVAHANAS TO 1653 AD

GOVERNMENT COLLEGE (A) RAJAHMUNDRY

III B.A., HISTORY PAPER VIII – A2 CLUSTER VIII A2 MODULE – VI

SYLLABUS SOUTH INDIAN HISTORY AND CULTURE

(FROM SATHAVAHNAS TO 1653

UNIT – I

Sources of South Indian History – Sangam Age, Literature. Satavahanas – Gowthami Putra Satakarni and their Administration. 12 H

UNIT – II

Pullavas Political History and Administration Art & Architecture . Chalukyas of Badami – Vatapi Chalukyas – Vengi Chalukyas – and their Administration. 12 H

UNIT _ III

The Cholas – political History and Administration , Local Self Government – Art & Architecture. The Rashtakuts – Political History, Economic, Art & Architecture. 12 H

UNIT – IV

Age of Kakatiyas – Ganapathi Deva – Rudrama Devi – II PratapRudra – Administration – Art & Architecture – Literature, Delhi Sultans Invasions. 12 H

UNIT – V

Glorious age of Vijiyanagara Kingdom – Establishment – II Dev Raya – Sri Krishna Dev Raya – their Administration and Art & Architecture - Rakshsi – Tangadi war. 12 H

Books for Reference :

1. Telugu Academy Book

2.K.A. Neelakanta Sastry – A History of South India.

3. G. Yezdani - History of the Deccan Vol II, 1960.

4. Robert Sewell – A Forgotten Empire.

5. A.S. Altekar – The Position of Women in Hindu Civilization.

GP
1-12-17

DEPARTMENT OF HISTORY

2018-2019

PAPER CODE-113

TITLE OF THE PAPER - EARLY MODERN WORLD HISTORY 1453 TO 1815 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.A. HISTORY : MODULE VII : 2018 - 2019 PAPER - V

AT THE END OF THE V CORE SYLLABUS

EARLY MODERN WORLD HISTORY (1453 A.D. TO 1815 A.D.)

UNIT - I

1. Renaissance : Meaning, Causes, Nature, Spread, Limitations - Growth of Humanism Reformation : Origin and Significance - Martin Luther - Protestant Movement - Counter Reformation Movements in Europe - Modern Science and Technology : Leonardo Davinci, Copernicus, Galileo and Newton, Printing, Revolution - Impact. - 18 Hrs

UNIT - II

2. Geographical Discoveries - Rise of Colonialism, Mercantilism and Commercial revolution Emergence of Modern World Economy - Emergence of Nation states in Europe - Spain France and England - Nature of Feudalism in Europe and Asia. - 15 Hrs

UNIT - III

3. Age of Revolutions - Origin, Nature and Results - Glorious Revolution (1688) - American Revolution (1776 A.D.) - French Revolution (1789) - 16 Hrs

UNIT – IV

4. Rise of Napoleon Bonaparte - Military Achievements - Administrative Reforms - Downfall, Congress of Vienna (1815) - Metternich. - 15 Hrs

Additional Syllabus : The Eastern Question from 1875 A.D. - Big Power Interests and Conflict in the Balkan's. – 06 Hrs

Unit No.	Essay(10)M	Short Q (5)M	Very short Q (2)	Total
Unit - I	2 (Q)	1 (Q)	3 (Q)	
Unit – II	2 (Q)	1 (Q)	3 (Q)	
Unit- III	2 (Q)	2 (Q)	3 (Q)	
Unit – IV	2 (Q)	2 (Q)	3 (Q)	

23.4.18

23/4/18

DEPARTMENT OF HISTORY

2018-2019

PAPER CODE-HIS107

TITLE OF THE PAPER- HISTORY AND CULTURE OF MODERN ANDHRA PRADESH FROM EARLIEST TIME TO 1857 AD

GOVERNMENT (AUTONOMOUS) RAJAHMUNDRY

III B. A PAPER- VI MODULE; V ; 2018 - 2019

HISTORY AND CULTURE OF ANDHRA (From Sathavahanas to 1857 A.D.)

AT THE END OF V CORE SYLLABUS

UNIT - I

1. Influence of Geographical features on Andhra History, Sources of A.P. History. A brief survey ofpolitical history from Satavahanas to Vijayanagara period - Socio, Economic cultural conditions and capital city of Amravati of Satavahanas, Kakatiyas and Vijayanagara Rulers. – 18 Hrs

UNIT - II

2. The Qutab Sahis - A Brief Survey of Political History - Society, Economy and Culture. The AsafJahis - A Brief Survey of their political history - Society, Economy and Culture - Salarjung'sReforms. - 15 Hrs

UNIT - III

3. Andhra Under Colonial Rule : Coming of European Merchant Companies Conquest of Andhra bythe British. Conquest of Andhra by the Britishers - Karnatic war, Mysore wars - Datta Mandals Land Revenue Settlements. - 15 Hrs

UNIT - IV

4. Early Uprising - Administration - Famines - Impact of Industrial Revolution on Andhra Economy- Sir Thomas Munro - Impact of 1857 Revolt in Andhra- 15H rs

Additional Syllabus : Capital city of Amravati, Cotton Irrigation Policy - 6 Hrs

Unit No.	Essay(10)M	Short Q (5)M	Very short Q (2)	
Unit – I	2 (Q)	1 (Q)	3 (Q)	
Unit – II	2 (Q)	1 (Q)	3 (Q)	
Unit- III	2 (Q)	2 (Q)	3 (Q)	
Unit – IV	2 (Q)	2 (Q)	3 (Q)	

23/4/18

DEPARTMENT OF HISTORY

2018-2019

PAPER CODE-HIS127

TITLE OF THE PAPER-INDIAN HISTORY AND CULTURE (FROM EARLIEST TIME TO 647 AD)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM
IB.A.,HISTORY : MODULE - I : 2018 - 2019 At the End of 1st CORE SYLLABUS
INDIAN HISTORY AND CULTURE (from Earliest time to 647 A.D.)

UNIT – I

1. Survey of the Sources - Literacy Sources - Archaeological Sources - Influence of Geography on History - Unity in Diversity - Prehistoric period - Paleolithic, Mesolithic and Neolithic cultures - Harappan Civilization : Origin, Extent, Urban Planning - Nature of Polity and Economic Organization, Society - Religious Conditions - Downfall of the Civilization. -18 Hrs

Unit-II

2. Vedic Civilization : Vedic Literature - Early Vedic and later Vedic Civilizations - Political, Economic and Religious Conditons in the Society - Emergence of Varna and Caste System Rise of New Religious Movements : Conditions of 6th Century B.C. - Jainism - Vardhamana Mahavira, Buddhism - Gauthama Buddha. – 13 Hrs

UNIT – III

3. A Brief Survey of Political Conditions in Ancient India - Mahajanapadas - Rise and Expansion of Magadha - Persian, Alexander's Invasions - Causes and its effects on India - The Mauryan Empire : Origin - Chandragupta Maurya - Ashoka's Dharma, It's nature and propagation - Mauryan Administration, Society, Economy, Religion, Art and Architecture - Downfall of the Mauryan Empire. – 13 Hrs

UNIT – IV

4. Post - Mauryan period in North India - Sunga, Kanva dynasties - A brief political survey of Foreign invasions - Kushan - Kanishka - The Age of Satavahanas - Brief Political History Gauthamiputrasatakarni - Socio Economic Religious Cultural Developments. – 13 Hrs

UNIT – V

5. Age of Guptas : Brief Political History - Development in the Gupta Period - Administrative System, Society, Economy, Art, Architecture. Literature, Science and Technology - Golden Age of Guptas - Post Gupta Period : Achievements of Harshavardhana - Hiuen Tsang.- 10 Hrs

Additional Syllabus : Position of women in India from Epic Age to 6th Century A.D - 06 Hrs

BLUE PRINT

Unit No.	Essay(8)M	Short Q (5)M	Very short Q (2)	Total
Unit – I	2 (Q)	2 (Q)	0	
Unit – II	2 (Q)	1 (Q)	1 (Q)	
Unit- III	2 (Q)	1 (Q)	1 (Q)	
Unit – IV	1 (Q)	2 (Q)	1 (Q)	
Unit - V	1 (Q)	2 (Q)	1 (Q)	

G. Pad 23.4.18

25/4/18

DEPARTMENT OF HISTORY

2018-2019

PAPER CODE-HIS135

TITLE OF THE PAPER- MEDIVAL INDIAN HISTORY 1526 TO 1857 AD

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.A. HISTORY : MODULE VII : 2018 - 2019 PAPER - V

AT THE END OF THE V CORE SYLLABUS

EARLY MODERN WORLD HISTORY (1453 A.D. TO 1815 A.D.)

UNIT - I

1. Renaissance : Meaning, Causes, Nature, Spread, Limitations - Growth of Humanism Reformation : Origin and Significance - Martin Luther - Protestant Movement - Counter Reformation Movements in Europe - Modern Science and Technology : Leonardo Davinci, Copernicus, Galileo and Newton, Printing, Revolution - Impact. - 18 Hrs

UNIT - II

2. Geographical Discoveries - Rise of Colonialism, Mercantilism and Commercial revolution Emergence of Modern World Economy - Emergence of Nation states in Europe - Spain France and England - Nature of Feudalism in Europe and Asia. - 15 Hrs

UNIT - III

3. Age of Revolutions - Origin, Nature and Results - Glorious Revolution (1688) - American Revolution (1776 A.D.) - French Revolution (1789) - 16 Hrs

UNIT – IV

4. Rise of Napoleon Bonaparte - Military Achievements - Administrative Reforms - Downfall, Congress of Vienna (1815) - Metternich. - 15 Hrs

Additional Syllabus : The Eastern Question from 1875 A.D. - Big Power Interests and Conflict in the Balkan's. – 06 Hrs

Unit No.	Essay(10)M	Short Q (5)M	Very short Q (2)	Total
Unit - I	2 (Q)	1 (Q)	3 (Q)	
Unit – II	2 (Q)	1 (Q)	3 (Q)	
Unit- III	2 (Q)	2 (Q)	3 (Q)	
Unit – IV	2 (Q)	2 (Q)	3 (Q)	

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M. Pushpanjali 23/4/18

I B.Sc., Mathematics

7. Choice Based Credit System

Semester-1 Module – I (Regular)

(Differential Equations)

(w.e.f. from 2014-2015 Admitted Batch)

UNIT – I : Differential Equations of first Order and first Degree.

Linear Differential Equations, Equations reducible to linear form. Exact Differential Equations, Equations reducible to Exact Equation, Integrating Factors, Methods of finding Integrating factors. General solution. Change of Variables. Simultaneous Total Differential Equations . Equation of the from $\frac{dx}{p} = \frac{dy}{q} = \frac{dz}{r}$ Solution by (i) Method of grouping and (ii) Method of Multipliers, Orthogonal trajectories.

(Two Essay Questions and Two Short Questions are to be set)

UNIT – II : Differential Equations of first Order but not first Degree.

Equations solvable for p, solvable for x, solvable for y. Equations that do not contain x (or y). Equations of 1^{st} degree in x and y. Clairaut's Equation.

(Two Essay Questions and Two Short Questions are to be set)

UNIT – III : Higher Order Linear Differential Equations.

Solution of Homogeneous Linear differential equations of order n with constant coefficients. Particular Integral, Complementary Function and general Solution. Solutions of the Non – Homogeneous Linear Differential Equations with constant coefficients f(D)y = Q by means of polynomial operators. Legendar Equation. Method of undetermined coefficients.

(Two Essay Questions and Two Short Questions are to be set)

UNIT – IV: Linear Equation Of 2^{nd} Order With Variable Coefficients:

Change of dependent variable, method of variation of parameters. Cauchy-Euler Equation. Simultaneous Linear Equation with constant coefficients. An Equivalent Triangular System, Degenerate Case :$P_1(D)\,P_4(D) - P_2(D)\,.\,P_3(D) = 0$

(Two Essay Questions and Two Short Questions are to be set)

I B.Sc., Mathematics
Semester-2 Module – 2 (Regular)
Solid Geometry (3-D)
(w.e.f. from 2014-2015 Admitted Batch)

Unit – I: The Plane:

Every equation of the first degree in x,y,z represents a plane.- Converse of the preceding theorem. - Transformation to the normal form. - Determination of a plane under given conditions. – (1) Equation of a plane interms of its intercepts on the axes. (2). Equations of the plane through three given points. - Systems of planes - two sides of a plane. - Length of the perpendicular from a given point to a givn plane. - Bisectors of angles between two planes. - Joint equation of two planes.

Straight line : Equations of a line. - Angle between line and plane. The condition that two given lines are coplanar. - Number of arbitrary constants in the equations of a straight line. - Sets of conditions which determine a line.

Unit – II: Straight line :

The shortest distance between two lines. Equation of the line of shortest distance between two straight lines and the distance between them. Length of the perpendicular from a given point to a given line. Intersection of three planes, triangular prism.

The Sphere: Definition and equation of the sphere. - Equation of the sphere through four given points. Plane sections of a sphere. - Intersection of two spheres. - Equation of a circle. Sphere through a given circle - intersection of a sphere and a line. - Power of a point Tangent plane. Plane of contact. - Polar plane. –pole of plane - Angle between 2 intersecting spheres. - Conditions for two spheres to be orthogonal. Radical plane Coaxal system of spheres – simplified form of Coaxal system of spheres. Limiting points.

UNIT – III: Cones :

Definition of a cone, - Vertex, guiding curve, generators. - Equation of the cone with a given vertex and guiding curve. - Enveloping Cone of a sphere. - Equation of cones with vertex at origin are homogeneous. Condition that the general equation of the second degree should represent a cone. - Condition that a cone may have three mutually perpendecular generators. Intersection of a line and quadric cone. - Tangent lines and tangent plane at a point. - Condition that a plane may touch a cone. Reciprocal cones. - Intersection of two cones with a common vertex. - Right circular cone. Equation of the right circular cone with a given vertex, axis and semi vertical angle.

GOVT. COLLEGE (AUTONOMOUS), RAJAHMUNDRY

II B.Sc., MATHEMATICS(REGULAR)

Syllabus For Semester-III Module– III
(From 2014-2015 Admitted Batch Onwards)

REAL ANALYSYS

UNIT–I

The Real Numbers- The completeness axiom of R and its applications.

(No question is to be set from this part).

Sequences and Series: Sequences, Convergent Sequences and their limits. Limit Theorems: Cauchys 1st Theorem on limits, Cauchys 2nd Theorem or Limits. Monotone Sequences. Sub Sequences. Bolzano–Weierstrass Theorem. Cauchy Criterion for convergent sequences. Series: Convergent series, Basic Theorems, Cauchy's Criterion for convergent series, Geometric series, p–series, Comparison tests, Limit comparison test, Cauchy's n^{th} Root Test, D'Alemberts Ratio Test, Cauchy's condensation test, Cauchy's Integral Test, Leibnitz Test, Absolute convergence, Conditional convergence.

UNIT – II

Continuous functions: Continuity, Combinations of continuous functions, Algebra of continuous functions.Properties of continuous functions.continuous functions on intervals, Intermediate Value theorem. Uniform Continuity.

UNIT – III Differentiation

The Derivative. Algebra of differentiable functions and applications of differentiation. Darboux Theorem.The Mean value theorems- Rolles Theorem. Lagranges mean value theorem, Cauchy's mean value theorems and their alternative Forms, L'Hospital's Rule, and Taylor's Theorem.

UNIT – IV The Riemann Integral

The Riemann Integral. Definition- Darboux Theorem- A Necessary and Sufficient Condition for a function to be Riemann Integrable. Some classes of Integrable functions. Algebra of Integrable functions. Integral function. Fundamental theorem of Integral calculus. Integral as the limit of a sum. Mean value theorems of Integral calculus. Integration by substitution and integration by parts.

GOVT. COLLEGE (AUTONOMOUS), RAJAHMUNDRY
II B.Sc., MATHEMATICS(REGULAR)

Syllabus For Semester-IV

Module-4: Group and Ring Theory

(From 20014-2015 Admitted Batch Onwards)

Groups

UNIT I

Binary operations- Definitions and properties, Groups-definition and elementary properties, Finite groups and group composition tables, Subgroups and elementary properties of Subgroups, Group of Cosets - Lagranges Theorem, Normalizer of an element, Normal Subgroups and Factor groups-criteria for the existence of a coset group and Normal subgroups, factor groups & simple groups..

UNIT – II

Homomorphism- Definition and Elementary Properties. Kernel of a homomorphism. Fundamental theorem of homomorphism of groups. Isomorphism, Inner and Outer Automorphism. Permutation groups- Functions and Permutations. Groups of permutations. Cycles and cyclic Notation. Even and Odd Permutations. Alternating Groups. Cayley's Theorem. Cyclic Groups- Elementary Properties. The Classification of Cyclic groups. Sub groups of finite cyclic groups.

RINGS

UNIT – III

Rings, Integral domains and fields, some non–commutative rings

Rings – Definition – Basic properties – Boolean rings – zero divisors of a rings – cancellation laws in a ring – some special types of rings – Integral domain – divisor of 0 and cancellation – divison ring – fields – definitions – Idempotent element and Nil potent element of a ring – The Characterstic of a ring – some Non–Commutative examples– Matrices over a field and quaternions– ring of endomorphism of an abelian groups– subrings– Ideals & quotient rings.

SYLLABUS FOR SEMESTER-V PAPER – III

LINEAR ALGEBRA (Module-5)

(For the Batches admitted in 2014-15 and 2015-16 only)

Unit – I

Linear algebra

Vector spaces, General properties of vector spaces, Vector subspaces, Algebra of subspaces, linear combination of vectors, Linear span, linear sum of two subspaces, Linear independence and dependence of vectors, Basis of vector space, Finite dimensional vector spaces, Dimension of a vector space, Dimension of a subspace,

Unit – II

Linear Transformations, Linear operators, Range and null space of linear transformation, Rank and nullity of linear transformations, Linear transformations as vectors, Product of linear transformations, Invertible linear transformation.

Unit-III

The adjoint or transpose of a linear transformation, Sylvester's law of nullity, Characteristic vectors and Characteristic values, Cayley – Hamilton theorem, Diagonalizable operators.

Unit-IV

Inner product spaces, Euclidean and unitary spaces, Norm or length of a vector, Schwartz inequality, Orthogonality, Orthonormal set, complete orthonormal set, Gram-Schmidt Orthogonalisaton process.

Prescribed Text Book for Paper-V:

III year B.A. / B.Sc. Mathematics, Telugu Academy, Hyderabad.

Reference Books for Paper-V:

1. Linear algebra by J.N.Sharma and A.R.Vasista, Krishna Prakasham Mandir,Meerut.
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, Pearson Education,New Delhi.
3. Linear Algebra by Stephen H. Friedberg et al Prentice Hall of India Pvt.Ltd. 4th edt. 2007.
4. B.Sc., Mathematics – Vol III, S.Chand & Co., 2006, New Delhi.
5. B.Sc. Mathematics – Paper III, Deepthi Publications, Tenali.

Guidelines and Evaluation pattern of the project of the cluster:

The student who wants to do the project should follow the following.

1. He/She has to select the topic with clear Aim & objectives.
2. He/She has to collect the previous information regarding the topic.
3. He/She has to get the clear idea after getting the reference material, i.e., how to proceed and what to do (methodology).
4. before going to discuss the topic, every student has to do at least three Seminars on his/her chosen topic.
5. Finally he/She has to come with Results &conclusions.
6. Bibliography (Reference Journals/books should be mentioned).

Evaluation pattern for Project Work: Seminars 25 Marks (Internal)	**Report of the project : 50 Marks** (external 25+ Internal 25)	**Project Viva voce (External) 25 Marks**	
1 After 15 days(5 M) 2 After 30 days(5 M) 3 After 45 days(15M)	1.Introduction (Selection of the topic, Aim & objectives) 2.Review of information 3.Methodology 4. Analysis& Discussion 5.Suggestions & Conclusion	Presentation 15 Marks	Viva 10 Marks

III BSC , SYLLABUS FOR SEMESTER-VI

ELECTIVE : PAPER – VII (A)

MAT 114 - MULTIPLE INTEGRALS AND VECTOR CALCULUS

(For the Batches admitted in 2015-16 and 2016-17 only) 60Hrs

Unit-I -(12 hrs)

Multiple integrals: Introduction, the concept of a plane curve, line integral – Sufficient condition for the existence of the integral - The area of a subset of $R^{2.}$

Unit-II-(12 hrs)

Calculation of double integrals, Jordan curve, Area, Change of the order of integration, Double integral as a limit, Change of variable in a double integration

Unit-III-(12 hrs)

Vector differentiation, Ordinary derivatives of vectors, Space curves, Continuity, Differentiability, Gradient, Divergence, Curl operators, Formulae involving these operators.

Unit-IV - (12 hrs)

Vector integration, Theorems of Gauss and Stokes, Green's theorem in plane and applications of these theorems.

UNIT – V- (12 hrs) RINGS-II

Definition of Homomorphism – Homorphic Image – Elementary Properties of Homomorphism – Kernel of a Homomorphism – Fundamental theorem of Homomorhphism – Maximal Ideals – Prime Ideals.

Additional Syllabus: Determinants-determinants functions-Additional properties of determinants- Conjugate spaces- Bilinear forms-symmetric and skew-symmetric bilinear forms.

Prescribed Text Book for Paper-III: III year B.A./B.Sc. Mathematics, Telugu Academy, Hyderabad.

Reference Books:

1. Linear algebra by J.N. Sharma and A.R. Vasista, Krishna Prakashan Mandir, Meerut.
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, Pearson Education,New Delhi.
3. Linear Algebra by Stphen H.Friedberg et al Prentice Hall of India Pvt.Ltd. 4th edtn. 2007.
4. Vector Analysis by Murray. R. Spiegel, Schaum series Publishing company.
5. Text book of Vector Analysis by Shanti Narayana and P.K. Mittal, S.Chand & Company Ltd., New Delhi.
6. Mathematical Analysis by S.C.Mallik and Savitha Arora, Wiley Eastern Ltd.
7. B.Sc., Mathematics – Vol III, S.Chand & Co., New Delhi.
8. B.Sc. Mathematics – Paper III, Deepthi Publications, Tenali.

GOVT. COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

II B.Sc. MATHEMATICS(REGULAR)

Syllabus For Semester-III
PAPER III : MAT 115- GROUP THEORY

(From the Batch admitted in 2016-17) hours:60

UNIT - I (10 Hrs) Groups:-

Binary operation- Algebraic structure –semi group – monoid –Group definition and elementary properties – Finite and Infinite groups- examples –order of a Group. Composition tables with examples. Order of an element of a group .

UNIT- II (14 Hrs) SUBGROUPS:-

Complex definition – Multiplication of two complexes - Inverse of a complex-Subgroup definition-examples- criterion for a complex to be a Subgroup.

Criterion for the product of two subgroups to be a subgroup – union and intersection of subgroups.

Cosets and Lagrange´S Theorem:-

Cosets definition –properties of coset –index of a subgroup of a finite group-

Lagrange's Theorem- Appilications.

UNIT –III: (12Hrs) NORMAL SUBGROUPS:-

Definition of normal subgroup - proper and improper normal subgroup - Hamilton group – criterion for a subgroup to be a normal subgroup – intersection of two normal subgroups – Sub group of index 2 is a normal sub group – simple group – quotient group – criteria for the existence of a quotient group.

UNIT-IV (10Hrs) HOMOMORPHISM:-

Definition of homomorphism- Image of homomorphism- Elementary Properties of homomorphism- Isomorphism- Automorphism definitions and elementary properties- Kernel of a homomorphism- Fundamental theorem on homomorphism of groups and applications

UNIT-V (14Hrs)PERMUTATIONS AND CYCLIC GROUPS:

Definition of Permutation - Permutation multiplication- inverse of a permutation- Cyclic permutations- transpositions .Even and Odd Permutations. Alternating Groups. Cayley's Theorem- Applications.

Cyclic Groups:-

Definition of Cyclic Group - Elementary Properties. The Classification of Cyclic groups. Sub groups of finite cyclic group and applications

Reference Books :

1. Abstract Algebra, by J.B Fraleigh, Published by Narosa Publishing house.

2. A Text book of Mathematics for B.A / B.Sc by B.V.S S Sarma and others Published by

S.Chand and company , New Delhi

3. Modern Algebra by M.L .Khanna

Suggested Activities:

Seminar / Quiz / Assignments / Project on Group theory and it′s applications in Graphics and Medical image Analysis.

B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VII-(B)

ELECTIVE– VII-(B):

MAT 116 - GRAPH THEORY **60 Hours**

(For the Batches admitted in 2015-16 and 2016-17 only)

UNIT – I (12 hrs) Graphs and Sub Graphs

Graphs , simple graph, graph isomorphism, the incidence and adjacency matrices, sub graphs, vertex degree, hand shaking theorem, paths and connection, cycles.

UNIT – II (12 hrs)

Applications, the shortest path problem, Sperner's lemma.

Trees : Trees, cut edges and bonds, cut vertices, Cayley's formula.

UNIT – III (12 hrs)

Applications of trees - the connector problem.

Connectivity

Connectivity, blocks and applications, construction of reliable communication networks.

UNIT – IV (12 hrs) Euler tours and Hamilton cycles

Euler tours, Euler trail, Hamilton path, Hamilton cycles , Dodecahedron graph, Petersen graph, Hamiltonian graph, closure of a graph.

UNIT – V(12 hrs)

Applications of Eulerian graphs, the Chinese postman problem, Fleury's algorithm ,the Travelling salesman problem.

Additional module: Planar graphs,Euler theorem, Kuratoski's theorem.

Reference Books:

1. Graph theory with applications by J.A. Bondy and U.S.R. Murthy published by Mac. Millan Press.

2. Introduction to Graph Theory by s. Arumugham and s. Ramachandran, published by Scitech publications, chennai-17.

3. A text book of Discrete Mathamatics by dr. Swapan kumar sankar, published by S.Chand & co.publishers, New Delhi.

4. Graph theory and combinations by H.S. Govinda rao published by Galgotia publications.

III BSC- SYLLABUS FOR SEMESTER-VI

PAPER–VIII (A-1)

CLUSTER-A-1

MAT 117 - Advanced Numerical Analysis

(For the Batches admitted in 2015-16 and 2016-17 only) 60Hrs

Unit – I (10 Hours)

Curve Fitting: Least – Squares curve fitting procedures, fitting a straight line, nonlinear curve fitting, Curve fitting by a sum of exponentials.

UNIT-II-(12hrs)

Numerical Differentiation- Errors in numerical differentiation, Maximum and minimum values of a tabulated function- Numerical integration-Definitions - General quadrature formula- Trapezoidal rule, Simpson's 1/3- rule.

UNIT-III-(12hrs)

Numerial integration - Simpson's 3/8 – rule, Boole's and Weddle's rule- Linear systems of equations-Definitions- Solution of linear systems- Direct methods, Matrix inversion method-Gaussian elimination method,.

UNIT-IV-(14hrs)

Linear systems of equations- Method of factorization, Ill-conditioned linear systems. Iterative methods: Jacobi's method, Gauss-Siedel method- Numerical solution of ordinary differential equations -Introduction, Solution by Taylor's series.

UNIT-V-(12hrs)

Numerical solution of ordinary differential equations - Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge–Kutta methods, Predictor–Corrector methods, Milne's method.

Additional Syllabus: Central differences – Bessel's central difference formula- Laplace-Everette's formula-Numerical integration- Error in quadrature formula-Cote's method-Gaussian integration - Romberg integration.

Prescribed Text Book for Paper-IV: IIIrd B.Sc., Numerical Analysis,
Deepti Publications, Tenali.

Reference Books for Paper-IV:

1. Introductory methods of Numerical Analysis by S.S Sastry, Prentice Hall India, New Delhi.
2. Numerical Analysis by G. Sankar Rao, New Age Intn. Publishers, New – Hyderabad.
3. Finite Differences and Numerical Analysis by H. C. Saxena, S. Chand Co. New Delhi.
4. Calculus of Finite differences and Numerical Analysis by Gupta & Malik, Krishna Prakasan media (p) Ltd., Meerut.
5. A text book of Numerical Analysis by D.Chitti babu, Pragati Prakashan publications, Meerut.
6. Numerical Analysis by B.D. Gupta, Konark publishers Pvt., Ltd.,
7. Numerical Analysis by R. Gupta, Lakshmi publications, Delhi.

B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI PAPER – VIII (A-2)

CLUSTER ELECTIVE-VIII(A-2):

MAT 118-LAPLACE TRANSFORMS 60Hrs

(For the Batches admitted in 2015-16 and 2016-17 only)

UNIT – 1 (12 hrs) Laplace Transform I

Definition of Integral transform – Laplace transform linearity, property, piecewise continuous functions, existence of Laplace transform, functions of exponential order, and of class A.

UNIT – 2 (12 hrs) Laplace Transform II

First shifting theorem, Second shifting theorem, Change of scale property, Laplace transform of the derivative of f(t), initial value theorem and final value theorem.

UNIT – 3 (12 hrs) Laplace Transform III

Laplace transform of integrals – multiplication by t, multiplication by t^n – division by t. Laplace transform of Bessel function, Laplace transform of error function, Laplace transform of sine and cosine integrals.

UNIT –4 (12 hrs) Inverse Laplace Transform I

Definition of inverse Laplace transform. Linearity, property, First shifting theorem,Second shifting theorem, Change of scale property, use of partial fractions, examples.

UNIT –5 (12 hrs) Inverse Laplace Transform II

Inverse Laplace transforms of derivatives–inverse Laplace transforms of integrals – multiplication by powers of 'p'– division by powers of 'p'– Convolution definition – Convolution theorem – proof and applications – Heaviside's expansion theorem and its applications.

ADDITIONAL MODULE: Application of Laplace Transform to solutions of Differential Equations : -

Solutions of Ordinary Differential Equations- Solutions of Differential Equations with constants

coefficient - Solutions of Differential Equations with Variable co-efficient..

Reference Books :-

1. Laplace Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Co., Pvt.Ltd., New Delhi.
3. Laplace and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
4. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S. Chand and Co., Pvt.Ltd., New Delhi.

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM

III BSC , SYLLABUS FOR SEMESTER-VI

CLUSTER ELECTIVE : PAPER – VIII (B-1)

MAT 119 - DISCRETE MATHEMATICS

(For the Batches admitted in 2015-16 and 2016-17 only) 60Hrs

Unit-l (12 Hours)

Sets, relations, partially ordered sets, Hasse diagrams, lattices, properties of lattices.

Unit-II (12 Hours)

Modular Lattices and properties, Characterization theorems.

Unit-III (12 Hours)

Distributive Lattices and properties, Characterization theorems.

Unit-IV (12 Hours)

Boolean Algebras, DeMorgan laws, Boolean homomorphism, Boolean rings

Unit-V (12 Hours)

Boolean Polynomials, Minimal form of Boolean Polynomials.

Additional Module: Ideals, Filters, Switching circuits, Application of switching circuits.

Prescribed Books

1) Discrete Mathematical structures by kolman and Bus by and share poss, Prentice Hall of India.

2) Applied abstract Algebra of Rudolf Lidl & Gunter Pilz published by Springer Verlag.

B.SC. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI: PAPER – VIII-B-2

CLUSTER ELECTIVE – VIII-B-2:

MAT 120 - SPECIAL FUNCTIONS

(For the Batches admitted in 2015-16 and 2016-17 only) 60Hrs

UNIT-I : HERMITE POLYNOMIAL (12 Hours)

Hermite Differential Equations, Solution of Hermite Equation, Hermite's Polynomials, Generating function, Other forms for Hermite Polynomial, To find first few Hermite Polynomials, Orthogonal properties of Hermite Polynomials, Recurrence formulae for Hermite Polynomials.

UNIT-II : LAGUERRE POLYNOMIALS-I (12 Hours)

Laguerre's Differential equation, Solution of Laguerre's equation, Laguerre Polynomials, Generating function, Other forms for the Laguerre Poynomials, To find first few Laguerre Polynomials,Orthogonal property of the Laguerre Polynomials, Recurrence formula for Laguerre Polynomials, Associated Laguerre Equation.

UNIT-III : LEGENDRE'S EQUATION (12 Hours)

Definition, Solution of Legendre's Equation, Definition of Pn(x) and Qn(x) , General solution of Legendre's Equation(derivation is not required).To show that Pn(x) is the coefficient of hn in the expansion of (1-2xh+h2)-12, Orthogonal properties of Legendre's Equation, Recurrence formula, Rodrigues formula.

UNIT – 1V: BESSEL'S EQUATION (12 Hours)

Definition, Solution of Bessel's General Differential Equations, General solution of Bessel's Equation, Integration of Bessel's equation in series for n=0,Definition of Jn(x), Recurrence formulae for Jn(x) ,Generating function for Jn(x).

UNIT-V: BETA AND GAMMA FUNCTIONS (12 Hours)

Euler's Integrals-Beta and Gamma Functions, Elementary properties of Gamma Functions, Transformation of Gamma Functions, Another form of Beta Function, Relation between Beta and Gamma Functions, Other Transformations.

Prescribed Text Book: Special Functions by J.N.Sharma and Dr.R.K.Gupta.

2014-2015

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

I BSC; MICROBIOLOGY

MODULE- I: History, Microscopy & techniques

1ST CORE SYLLABUS (2014-2015)

UNIT- I: History of Microbiology and Microscopy

Meaning; Definition and History of Microbiology

Contribution of Antony von Leeuwenhoek; Edward Jenner; Louis Pasteur; Robert Koch

Iwanowsky, Beijerinck, Winograsdsky, and Alexander Fleming

Importance and Applications of Microbiology

Principles of Microscopy –Bright field, Dark field, Phase contrast, Fiuorescent and Electron microscophy (SEM and TEM)

Principals and types of stains –simple stain (positive stain and negative stain),Gram stain, Structural stains spore,capsule,hanging drop method.

Unit II: Micro biological techniques

Sterization and disinfection techniques

Physical methods: Autoclave, Hotairoven, Pressurecookar, Laminarairflow, filter sterilization.

Radiation methds: UV rays, gamma rays, ultrasonic methods

Chemical methods: use of alcohols, aldehydes, fumigants, phenols, halogens and hypochlorite.

Isolation of Pure culture techniques- enrichment culturing, dilution-plating, streak, spread plate and micromanipulator.

Preservation of microbial cultures - sub culturing, overlaying cultures with minaral oils,

Iyophilization, sand cultures. Storage at low temperature. Organic waste management.

Text and reference books

1. Dube,R C and maheswari,D K (2000)General microbiology ,S.Chand new Delhi
2. sing R P (2007) genral microbiology , kalyani publishers New Delhi
3. Prescott M J harley J P and klein D A (2002) microbiology 5th edikion WCB MC Graw hill.New york
4. pelezer M J –microbiology edn (2007)tata M c. grew hills , N.Delhi
5. Ram reddy, S and reddy S.M (2007University microbiology, Galgotia publications. Delhi

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

I BSC; MICROBIOLOGY

MODULE -I: Biology of Microorganisms&Biomolecules

2nd CORE SYLLABUS (2014-15)

UNIT III: Biology of Prokaryotic and Eukaryotic Microorganisms

Outline Classification of Living Organisms: Heckel, Whittakar andCarl woese systems, outline classification for bacteria as per the 2nd edition of bogeys manual of systemic bacteriology.

Differentiation of Prokaryotes and Eukaryotes.

Prokaryotes-General characters of bacteria, archaebacteria, recketissia, mycoplasms, cynobacteria, and actinomycetes.

Ultra structure of a Bacterial cell: Invariant components-cellwall, cellmembrane, Ribosomes, nueleoid, variant components - Capsule, Flagella, Fimbriae, Endospore, and storage granules

General characteristics and Classification of viruses. Morphology and structure of TMV and HIV.

Structure and multiplication of lambda bacteriophase.

Eukaryotes-General characteristics' and classification (up to the order level) of eukaryotes – Protozoa, microalgae, Fungi.

UNIT IV: Biomolecules

Biomolucules of microorganisms

Outline classicification and characteristics of carbohydrates (monosaccharides, disaccharides, and polysaccharides)

Gneral characteristics of amino acids and proteins

Structure of nitrogen bases, nucleotides, nucleosides

Fatty acids (saturated and unsaturated) lipids, (spingilipids, sterols, and phosphor lipids) pH measurement.

Types of buffers and their use in biological reation.

Principles and application of colorimetry and chromatography (paper and thin layer)

Test and Reference books:

1. Dube,R C and maheswari,D K (2000)General microbiology ,S.Chand new Delhi
2. sing R P (2007) genral microbiology , kalyani publishers New Delhi
3. Prescott M J harley J P and klein D A (2002) microbiology 5th edikion WCB MC Graw hill.New york
4. pelezer M J –microbiology edn (2007)tata M c. grew hills , N.Delhi

2016-2017

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM
I BSC: MICROBIOLOGY (2016-2017)
CBCS Pattern
SEMESTER-I

Paper I: MBY-111: Introductory Microbiology, Microbial Techniques and Biology of Microorganisms

UNIT-I

- History and Mile stones in Microbiology- Meaning, definition and history of Microbiology.
- Contributions of Antony von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Iwanowsky, Beijerinck, Winogradsky and Alexander Fleming.
- Importance and applications of Microbiology.
- Virology- Basics of virology, history, milestones, taxonomy and significans of virology

UNIT-II

- Classification of microorganisms – Hackel‘s three -kingdom concept – Whittaker‘s five kingdom concept and three domain concept of Carl Woese and phylogenetic trees. Basis of modern microbial classification and their concepts, nomenclature and taxonomic ranks.
- General characters of Fungi (Yeasts, Candida) – Algae (Cyanobacteria, Chlorella), Protozoa (Entameoba, Leishmania, Plasmodium) microalgae.
- Isolation and identification of Microorganisms- Principles and types of stains (Simple, differential and negative stains), structural stains - spore, capsule, flagella.
- Hanging-drop method.

UNIT-III

- Sterilization and disinfection techniques Principles and methods of sterilization. Physical methods - autoclave, hot-air oven, pressure cooker, laminar air flow, filter sterilization.
- Radiation methods - UV rays, gamma rays, ultrasonic methods. Chemical methods - Use of alcohols, aldehydes, fumigants, phenols, halogens and hypochlorites. Phenol coefficient.

UNIT-IV

- Isolation of pure culture techniques - Enrichment culturing, dilution-plating, streak-plate, spread plate and micromanipulator.
- Preservation of microbial cultures - sub culturing, overlaying cultures with mineral oils, lyophilization, sand cultures, storage at low temperature (ultra low temperature).

UNIT-V

- Differentiation of prokaryotes and eukaryotes. General characteristics of bacteria, archaebacteria, rickettsias, mycoplasmas, cyanobacteria and Actinomycetes.

- Outline classification for bacteria as per the second edition of Bergey‘s Manual of Systematic Bacteriology (up to order level).
- Ultra structure of a bacterial cell: Invariant components - cell wall, cell membrane, ribosomes, nucleoid. Variant components - Capsule, flagella, fimbriae, endospore and storage granules.
- General characteristics and classification of viruses- animal, plant and microbial. Morphology, structure and replication of TMV, HIV and lambda bacteriophage.
- Eukaryotes – General characteristics and classification (up to the order level) of Eukaryotic organisms – micro protozoa, microalgae, moulds and yeasts.

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM

I BSC: MICROBIOLOGY (2016 – 2017)

II Semester Syllabus

MICROBIAL BIOCHEMISTRY & METABOLISM

UNIT-I: **No. of hours: 10 Hrs**

- Outline classification and general characteristics of carbohydrates (monosaccharides, disaccharides and polysaccharides).
- General characteristics of amino acids and proteins.
- Structure of nitrogenous bases, nucleotides, nucleic acids.
- Fatty acids (saturated and unsaturated)
- Lipids (spingolipds, sterols and phospholipids).

UNIT-II: **No. of hours: 8 Hrs**

- Principle and applications of
  Colorimerty, Chromatography (paper, thin-layer and column), Spectrophotometry(UV & visible), Centrifugation and Gel Electrophoresis.

UNIT-III: **No. of hours:10 Hrs**

- Properties and classification of Enzymes.
- Biocatalysis- induced fit and lock and key models.
- Coenzymes and Cofactors.
- Factors affecting catalytic activity.
- Inhibition of enzyme activity- competitive, noncompetitive, uncompetitive and allosteric.

UNIT-IV: **No. of hours:10 Hrs**

- Microbial Nutrition –Nutritional requirements and uptake of nutrients by cells.
- Nutritional groups of microcroorganisms- autotrophs, heterotrophs, and mixotrophs.
- Growth media- synthetic, complex, selective, enrichment and differential media.
- Microbial Growth- different phases of growth in batch cultures, Synchronous, continuous, biphasic growth.
- Factors influencing microbial growth.
- Methods for measuring microbial growth – Direct microscopy, viable count estimates, turbiodometry and biomass.

UNIT-V: **No. of hours:10 Hrs**

- Aerobic respiration -Glycolysis, HMP path way, ED path way, TCA cycle, Electron transport, oxidative and substrate level phosphorylation.
- Anaerobic respiration (Nitrate).
- Fermentation - Alcohol and lactic acid fermentations.
- Outlines of oxygenic and an oxygenic photosynthesis in bacteria.

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM
III BSC: MICROBIOLOGY
6th SEMESTER SYLLABUS
ELECTIVE 1

FOOD MICROBIOLOGY

- Microorganisms of Food Spoilage and their source.
- General account of Food Preservation
- Spoilage of different food materials-fruits, vegetables, meat, fish. Canned foods.
- Food intoxication (Botulism and Staphylococcal Poisoning)
- Food borne diseases (Salmonellasis and Shegellosis) and their detection.
- Microbiological production of fermented foods-Bread, Cheese, Yoghurt.
- Biochemical activities of microbes in milk
- Concept of Probiotics
- Microorganisms as food-SCP
- Cultivation of Edible Mushrooms in India (white button, oyster and paddy Straw)
- Role of microorganisms in Diary

Additional inputs: - Survey of Food industries in East Godavari.

TEXT AND REFERENCE BOOKS:

- Stanbury P.F.whittaker.A.and hall.S.J. (1997).principles of fermentation technology aditya books (P) ltd.new Delhi.
- Doyle M.P.Beauchat.L.R and montwille.T.J (41997).Food microbiology: fundamentals and frontiers.ASM Press, Washington.D.C.USA.
- Frazier.w.c and westhoff: D.c (1998).food microbiology: Mc grew-hill, New York J.M. (1996).modern food microbiology.chap man and hall, New York.

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM
III BSC: MICROBIOLOGY
6th SEMESTER SYLLABUS
ELECTIVE 2

INDUSTRIAL MICROBIOLOGY

- Microorganisms of Industrial Importance-Yeasts, Moulds, Bacteria, Actinomycetes.
- Screening and isolation of industrially-important microorganisms.
- Types of Fermentation-aerobic, anaerobic, batch, continuous, submerged surface, solid state.
- Design of a stirred tank reactor Fermenter (Bioreactor)
- Fermentation media
- Industrial production of :
- Alcohol (ethyl alcohol)
- Beverage (beer).
- Antibiotics (pencillium),
- Enzymes
- Organic acids (citric acid),
- Amino acids
- Vitamins (B12),
- Biofuels (biogas, methane).

Additional inputs: - Recycling of industrial wastes.

TEXT AND REFERENCE BOOKS:

Stanbury P.F.whittaker A. and hall.S.J. (1997).principles of fermentation technology aditya books (P) ltd. New Delhi.
Doyle M.P.Beauchat.L.R and montwille.T.J (41997).Food microbiology: fundamentals and frontiers.ASM Press, Washington.D.C.USA.
Frazier.w.c and westhoff: D.c (1998).food microbiology: Mc graw-hill, New York J.M. (1996).modern food microbiology. chap man and hall, New York.

2017-2018

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM

II BSC: 3 rd Semester: MICROBIOLOGY

PAPER II: MBY-115: MICROBIAL GENETICS AND MOLECULAR BIOLOGY

UNIT- I: **No. of hours: 10**

- DNA and RNA as genetic material.
- Structure and organization of prokaryotic DNA.
- Extra chromosomal genetic elements – Plasmids and transposons in bacteria.
- Replication of DNA – Semi conservative mechanism, Enzymes involved in replication.

UNIT – II: **No . Of hours: 10**

- Mutations – spontaneous and induced, base pair changes, frame shifts, deletions, inversions, tandem duplications, insertions.
- Mutagens - Physical and Chemical mutagens.
- Outlines of DNA damage and repair mechanisms.
- Genetic recombination in bacteria – Conjugation, Transformation and Transduction.

UNIT-III **No. of hours: 10**

- Types of RNA and their functions.
- Genetic code. Structure of ribosomes.

UNIT-IV **No. of hours: 8**

- Types of genes – structural, constitutive, regulatory
- Protein synthesis – Transcription and translation, regulation of gene expression in bacteria – *lac* operon.

UNIT-V **No. of hours: 10**

- Basic principles of genetic engineering.
- Restriction endonucleases, DNA polymerases and ligases.Vectors like Pbr 322, M13.
- Outlines of gene cloning methods.
- Polymerase chain reaction. Genomic and cDNA libraries.
- General account on application of genetic engineering in industry, agriculture and medicine

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM

II BSC; MICROBIOLOGY

MBY : IMMUNOLOGY AND MEDICAL MICROBIOLOGY

Semester – 4, Syllabus (2017-18)

TOTAL HOURS: 48 **CREDITS: 4**

UNIT – I: **No. of hours : 10**

- Types of immunity – innate and acquired; active and passive; humoral and cell-mediated immunity.
- Primary and secondary organs of immune system – thymus, bursa fabricus, bone marrow, spleen and lymph nodes.
- Cells of immune system.
- Identification and function of B and T lymphocytes, null cells, monocytes, macrophages, neutrophils, basophiles and eosinophils.
- Antibodies – basic structure, types, properties and functions of immunoglobulins.
- Types of antigen-antibody reactions - Agglutinations, Precipitation, Neutralization, complement fixation, blood groups.
- Labeled antibody based techniques – ELISA, RIA and Immunofluroscence.
- Monoclonal antibodies – production and applications.
- Concept of hypersensitivity and Autoimmunity.

UNIT – II : No. of hours : 10

- Antigens – types, chemical nature, antigenic determinants, haptens.
- Factors affecting antigenicity.

UNIT – III : **No. of hours :10**

- Normal flora of human body.
- Host pathogen interactions: infection, invasion, pathogen, pathogenicity, virulence and opportunistic infection, General account on nosocomial infection.
- General principles of diagnostic microbiology- collection, transport and processing of clinical samples.
- General methods of laboratory diagnosis - cultural, biochemical, serological and molecular methods.
- Antibacterial Agents- Penicillin, Streptomycin and Tetracycline.
- Antifungal agents – Amphotericin B, Griseofulvin
- Antiviral substances - Amantadine and Acyclovir
- Tests for antimicrobial susceptibility.
- Brief account on antibiotic resistance in bacteria - Methicillin-resistant Staphylococcus aureus (MRSA).
- Vaccines – Natural and recombinant

UNIT – IV : No. of hours : 8

UNIT – V : **No. of hours : 10**

- General account on microbial diseases – causal organism, pathogenesis, epidemiology, diagnosis, prevention and control
- Bacterial diseases – Tuberculosis and Typhoid
- Fungal diseases – Candidiasis.
- Protozoal diseases – Malaria.
- Viral Diseases - Hepatitis- A and AIDS

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th- SEMESTER –PAPER 8A

CLUSTER PAPERS UNDER ELECTIVE (8A1, 8A2 & 8A3)

8A1 - Food and Industrial Microbiology

TOTAL HOURS: **CREDITS: 3**

UNIT – I:

No. of Hours: 6

- Microorganisms of industrial importance.
- Fermentation media & materials required for industrial microbial process.
- Inoculum development for large scale processes.
- Recovery & purification of fermentation products.

UNIT – II:

No. of Hours: 8

- Screening & isolation of industrially important microorganisms.
- Types of fermentation & Design of a stirred tank reactor fermentor (Bioreactor)
- Industrial production of – Alcohols(Ethyl alcohol), Beverage(Beer), Antibiotics(Penicillium), Enzymes, Organic acids(citric acid), Amino acids, Vitamins(B12). & Microbial groups involved in Biogas production.

UNIT – III:

No. of Hours: 8

- Microorganisms of Food spoilage and their source.
- General account of food preservation.
- Spoilage of different food materials-Fruits, vegetables, meat, fish, canned foods.
- Food intoxication(Botulism and staphylococcus poisoning)

UNIT – IV:

No. of Hours: 8

- Food borne diseases.
- Microbiological production of fermented foods- Bread, Cheese, Yoghurt.
- Microorganisms as food – SCP.
- Microbial examination of foods - Standard plate count, Most probable numbers, Direct microscopic counts

UNIT –V: **No. of Hours: 6**

- Basic concepts of Ecology and environment – concept, components, food chains, food webs and tropic levels.
- Biological factors influencing the growth and survival of microorganisms
- Eutrofication.

- Role of microorganisms in Nutrient cycles (Biogeochemical cycles)

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th - SEMESTER PAPER

8A2 - INSTRUMENTATION AND BIOTECHNIQUES

TOTAL HOURS: 36 **CREDITS: 3**

UNIT-I **No. of Hours: 6**

- Bright field and dark field microscopy. Fluorescence Microscopy, Phase contrast Microscopy, Confocal Microscopy and Micrometry

UNIT – II

No. of Hours: 8

- Principles and applications of paper chromatography (including Descending and 2D), Column packing and fraction collection. Gel filtration
- chromatography, ion-exchange chromatography' GLC and HPLC'

UNIT-III

No. of Hours: 8

- Principle and applications of native polyacrylamide gel electrophoresis, SDS polyacrylamide gel electrophoresis, 2D gel electrophoresis and Iso electric focusing.

UNIT- IV **No. of Hours: 5**

- Principle and applications of study of absorption Spectra of bimolecular.
- Analysis of bimolecular using UV and visible range Turbidometry.

UNIT- V **No. of Hours: 8**

- Preparative and analytical centrifugation, fixed angle and swinging bucket rotors. RCF and sedimentation coefficient, differential centrifugation, density gradient centrifugation and ultracentrifugation'

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th - SEMESTER PAPER

8A3 - DIAGNOSTIC MICROBIOLOGY

TOTAL HOURS: 36 **CREDITS: 3**

UNIT- I **No. of hours: 8**

- Study of Bacterial,(Tuberculosis and Typhoid) Viral,(Influenza and HIV) Fungal (Aspergillosis and Candidiasis)and Protozoan Malaria and Amebiasis)Diseases affecting humans.

UNIT- II **No. of hours: 8**

- Collection of clinical samples (oral cavity, throat, skin, blood, CSF, urine and faeces) and precautions required.
- Method of transport of clinical samples to laboratory and storage.

UNIT- III **No. of hours: 8**

- Examination of sample by staining - Gram stain, Ziehl-Neelson staining for tuberculosis, Giemsa-stained thin blood film for malaria
- Preparation and use of culture media - Blood agar, Chocolate agar, Lowenstein-Jensen medium, MacConkey agar, Distinct colony properties of various bacterial pathogens.

UNIT- IV **No. of hours: 6**

- Serological Methods - Agglutination, ELISA, immunofluorescence, Nucleic acid based methods - PCR, Nucleic acid probes.
- Typhoid, Dengue and HIV, Swine flu.

UNIT- V **No. of hours: 6**

- Importance, Determination of resistance/sensitivity of bacteria using disc diffusion method, Determination of minimal inhibitory concentration (MIC) of an antibiotic by serial double dilution method

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th- SEMESTER –PAPER 8B

CLUSTER PAPERS UNDER ELECTIVE (8B1, 8B2 & 8B3)

8B1 - Microbes in Sustainable Agriculture

TOTALHOURS: 36 **CREDITS: 3**

UNIT – I: **No of Hours 8**

- Soil as Microbial Habitat, soil properties. Diversity and distribution of Microorganisms in soil. Mineralization of cellulose, hemicelluloses, lignin, Phosphate, nitrate.

UNIT - II: **No of Hours :6**

- Carbon dioxide, methane, nitrous oxide, nitric oxide -production and control

UNIT – III: **No of hours :6**

- Biocontrol mechanisms - Microorganisms used as biocontrol agents against Microbial plant pathogens, Insects, Weeds.

UNIT - IV: **No of Hours: 8**

- plant growth promoting bacteria, biofertilizers - symbiotic (Bradgrhizobium, Rhizobium, Frankia), Non symbiotic (Azospirillum, Azotobacter, Mycorrhizae, MHBs, phosphate solubilizers, algae).
- Novel combination of microbes as biofertilizers, PGPRs

UNIT – V: **No of Hours: 8**

- Biotech feed, silage, Biomanure, biogas, biofuels - advantages and processing parameters. Advantages,
- Social and environmental aspects of GM crops, BT crops, golden rice, transgenic animals.

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th - SEMESTER PAPER

8B2 - BIOFERTILIZERS AND BIOPESTICIDES

TOTAL HOURS: 36 **CREDITS: 3**

UNIT – I No of Hours: 10

- General account of the microbes used as biofertilizers for various crop plants and their advantages over chemical fertilizers.
- Symbiotic N2 fixers: Rhizobium - Isolation, characteristics, types, inoculum production and field application, legume/pulses plants
- Frankia from non-legumes and characterization.
- Cyanobacteria and Azolla, characterization, mass multiplication, Role in rice cultivation, Crop response, field application.

UNIT – II No of Hours: 6

- Free living Azospirillum, Azotobacter - isolation, characteristics, mass inoculum production and field application.

UNIT – III No of Hours: 6

- Phosphate solubilizing microbes - Isolation, characterization, mass inoculum production, field application

UNIT – IV No of Hours: 7

- Importance of mycorrizal inoculum, types of mycorrhizae and associated plants, Mass inoculum production of VAM, field applications of Ectomycorrhizae and VAM.

UNIT – V No of Hours: 7

- General account of microbes used as bioinsecticides and their advantages over synthetic pesticides. Bacillus thuringiensis - production, Field applications.
- Viruses – NPV cultivation and field applications.

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

6th - SEMESTER PAPER

8B3 - Microbial Quality Control in Food and Pharmaceutical Industries

TOTAL HOURS: 36 **CREDITS: 3**

UNIT – I **No of Hours: 8**

- Good laboratory practices - Good microbiological practices.
- Biosafety cabinets – Working of biosafety cabinets, using protective clothing, specification for BSL-1, BSL-2, BSL-3.
- Discarding biohazardous waste – Methodology of Disinfection, Autoclaving & Incineration

UNIT – II **No. of Hours: 8**

- Culture and microscopic methods - Standard plate count, Most probable numbers, Direct microscopic counts,
- Biochemical and immunological methods: Limulus lysate test for endotoxin, gel diffusion, sterility testing for pharmaceutical products

UNIT – III **No. of Hours: 8**

- Molecular methods - Nucleic acid probes, PCR based detection, biosensors.

UNIT – IV **No. of Hours: 8**

- Enrichment culture technique, Detection of specific microorganisms - on XLD agar, Salmonella Shigella Agar, Manitol salt agar, EMB agar, McConkey Agar, Saboraud Agar
- Ascertaining microbial quality of milk by MBRT, Rapid detection methods of microbiological quality of milk at milk collection centres (COB, 10 min Resazurin assay).

UNIT – V **No. of Hours: 4**

- Hazard analysis of critical control point (HACCP) - Principles, flow diagrams, limitations.
- Microbial Standards for Different Foods and Water – BIS standards for common foods and drinking water.

2018-2019

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
III B.Sc MICROBIOLOGY (CBCS) SYLLABUS
SEMESTER- V, PAPER – III

MBY – 126 : ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY

TOTAL HOURS: 36 **CREDITS: 3**

UNIT – I
No. of hours: 8

- Terrestrial Environment: Soil profile and soil micro flora
- Aquatic Environment: Micro flora of fresh water and marine habitats Atmosphere: Aeromicroflora and dispersal of microbes

UNIT – II
No. of hours: 8

- Role of microorganisms in nutrient cycling (Carbon, nitrogen, phosphorus).
- Treatment and safety of drinking (potable) water, methods to detect potability of water samples: (a) standard qualitative procedure: presumptive test/MPN test, confirmed and completed tests for fecal coli forms (b) Membrane filter technique. Microbial interactions – mutualism, commensalism, antagonism, competition, parasitism, predation.

UNIT – III
No. of hours: 6

- Outlines of Solid Waste management: Sources and types of solid waste, Methods of solid waste disposal (composting and sanitary landfill).
- Liquid waste management: Composition and strength of sewage (BOD and COD), Primary, secondary (oxidation ponds, trickling filter, activated sludge process and septic tank) and tertiary sewage treatment.

UNIT – IV
No. of hours: 7

- Plant Growth Promoting Microorganisms - Mycorrhizae, Rhizobia, *Azospirillum, Azotobacter, Frankie,*
- Phosphate-solubilizers and Cyanobacteria.
- Outlines of biological nitrogen fixation (symbiotic, non-symbiotic). Biofertilizers -*Rhizobium*.

UNIT – V
No. of hours: 7

- Concept of disease in plants. Symptoms of plant diseases caused by fungi, bacteria, and viruses. Plant diseases - groundnut rust, Citrus canker and tomato leafcurl.
- Principles of plant disease control**.**

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
III B.Sc MICROBIOLOGY (CBCS) SYLLABUS
SEMESTER- V, PAPER – IV

MBY - 117 : FOOD AND INDUSTRIAL MICROBIOLOGY

TOTAL HOURS: 36 CREDITS: 3

UNIT- I **No. of hours: 8**

- Intrinsic and extrinsic parameters that affect microbial growth in food
- Microbial spoilage of food - fruits, vegetables, milk, meat, egg, bread and canned foods Food intoxication (botulism).
- Food-borne diseases (salmonellosis) and their detection.

UNIT – II **No. of hours: 7**

- Principles of food preservation - Physical and chemical methods. Fermented Dairy foods – cheese and yogurt.
- Microorganisms as food – SCP, edible mushrooms (white button, oyster and paddy straw). Probiotics and their benefits.

UNIT – III **No. of hours: 6**

- Microorganisms of industrial importance – yeasts,(Saccharomyces cerevisiae) moulds,(Aspergillus niger) Bacteria(E.coli), actinomycetes (Streptomyces griseous).
- Outlines of Isolation and Screening and strain improvement of industrially-important microorganisms.

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UNIT – IV **No. of hours: 8**

- Types of fermentation processes – solid state, liquid state, batch, fed-batch, continuous. Basic concepts of Design of Fermentor.
- Ingredients of Fermentation media
- Downstream processing - filtration, centrifugation, cell disruption, solvent extraction.

UNIT – V **No. of hours: 7**

- Microbial production of Industrial products - Citric acid, Ethanol, amylases, penicillin, glutamic acid and vitamin B12.

- Additional input: Recycling of industrial wastes

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM

III B.Sc MICROBIOLOGY (CBCS) SYLLABUS

IV- SEMESTER -PAPER-VII (Elective – 1)

MICROBIAL BIOTECHNOLOGY

TOTAL HOURS: 36CREDITS: 3

UNIT- INo. of Hours: 8

- Microbial biotechnology: Scope and its applications in human therapeutics, agriculture (Biofertilizers, PGPR, Mycorrhizae), environmental, and food technology.
- Genetically engineered microbes for industrial application: Bacteria and yeast

UNIT- IINo. of Hours: 7

- Recombinant microbial production processes in pharmaceutical industries - Streptokinase, recombinant vaccines (Hepatitis B vaccine).
- Over view of production and applications of Microbial polysaccharides, Bioplastics and Microbial biosensors

UNIT- IIINo. of Hours: 10

- Microbial based transformation of steroids and sterols.
- Bio-catalytic processes and their industrial applications: Production of high fructose syrup and production of cocoa butter substitute.
- Immobilization methods and their application: Whole cell immobilization

UNIT- IVNo. of Hours: 7

- Bio-ethanol and bio-diesel production: commercial production from lignocellulosic waste and algal biomass.
- Biogas production: Methane and hydrogen production using microbial culture. Microorganisms in bioremediation: Degradation of xenobiotics.
- Mineral recovery, removal of heavy metals from aqueous effluents.

UNIT- VNo. of Hours: 4

- Outlines of Intellectual Property Rights: Patents, Copyrights, Trademarks

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM
III B.Sc MICROBIOLOGY (CBCS) SYLLABUS
VI – SEMESTER – PAPER-VII (Elective – 2)

ADVANCES IN MICROBIOLOGY

TOTAL HOURS: 36 **CREDITS:3**

UNIT- I

No. of Hours:8

- Salient features of sequenced microbial genomes, core genome pool, flexible genome pool and concept of pangenome. Evolution of bacterial virulence - Genomic islands, Pathogenicity islands (PAI) and their characteristics.

UNIT- II

No. of Hours: 8

- Brief history and development of Metagenomics. Understanding bacterial diversity using metagenomics approach. Prospecting genes of biotechnological importance using metagenomics. Basic knowledge of viral metagenome, metatranscriptomics, metaproteomics and metabolomics

UNIT- III

No. of Hours: 8

- Epiphytic fitness and its mechanism in plant pathogens. Hypersensitive response (HR) to plant pathogens and its mechanism. 'Ilpe three secretion systems (TTSS) of plant and animal pathogens.

UNIT - IV

No. of Hours: 5

- Biofilms: Tlpes of microorganisms, molecular aspects and signilicance in environment, health care, virulence and antimicrobial resistance

UNIT.V

No. of Hours: 7

- Networking in biological systems, Quorum sensing in bacteria. Co-ordinated regulation of bacterial virulence factors. Basics of synthesis of poliovirus in laboratory. Future implications of synthetic biolory with respect to bacteria and viruses.

GOVERNMENT COLLEGE OF (A), RAJAMAHENDRAVARAM
III B.Sc MICROBIOLOGY (CBCS) SYLLABUS
VI – SEMESTER – PAPER 8B
8B2 - MUSHROOM CULTTVATION

TOTAL HOURS:36 CREDITS:3

UNIT - INo of Hours: 8

- History and scope of mushroom cultivation. Types of edible mushrooms Available in India. Mushroom morphology. Different parts of a typical Mushroom & variations in mushroom morphology. Button, Paddy straw& Oyster- General Morphology, distinguishing characteristics.

UNIT - II No of Hours: 6

- Classification Based on occurrence, natural habitats, color of spores, Morphology of fruiting layers, Structure and texture of fruiting bodies. Key to Differentiate edible from Poisonous mushrooms. Economic importance of edible Mushrooms.

UNIT - III No of Hours: 10

- Cultivation of Button, Oyster and Paddy straw Mushrooms: Collection of raw Materials, compost & composting, spawn & spawning, casing & case run, Cropping, picking & packing, marketing.

UNIT - IV No of Hours: 6

- Nutritional profile of mushrooms, health benefits of mushrooms. Mushroom Toxins and illness, mushroom recipes.

UNIT - VNo of Hours: 6

- Effect of physical and chemical factors on the growth of mushrooms. crop Management during spawn running, casing to mushroom period, the cropping Period. Post harvest management.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Certificate Course

Name of the Course: *Journalism and Mass Communication*

Unit-I: Introduction

1. History of Indian Journalism
2. Early Journalism in India – Hick's Gazettee – Origin of Vernacular Press in India
3. Indian Press and Social Reforms – Raja Ram Mohan Roy
4. Indian Press and Freedom Movement – Contribution of Mahatma Gandhi – Annebesent – Bala Gangadhar Tilak – Dr. B.R. Ambedkar

Unit – II: Growth of Telugu Newspapers

1. The Origin and Growth of Telugu Newspapers
2. Telugu Press and Social Reforms – Kandukuri – Kasinadhuni Nageswara Rao – Konda Venkatappaiah Pantulu – Mutnuri Krishna Rao

Unit – III: Advertising

1. Evolution of Advertising – Types of Advertising
2. Recent Trends in Indian Advertising

Unit – IV: Report Writing for Print Media

1. News - Definition – News Value – Sources of News
2. Structure of News – 5 W and 1 H
3. Features of News

Unit – V: Television Journalism

1. Television as a Medium of Mass Communication
2. Types of TV Programmes
3. Radio

Unit – VI: New Social Media

1. Whatsapp – Twitter – Facebook – Web Page – Blogs – Content Writing

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

CERTIFICATE COURSE OFFERED BY DEPARTMENT OF POLITICAL SCIENCE

Name of the Course: *HUMAN RIGHTS*

SYLLABUS

Unit –I: Introduction to Human Rights and Duties

Basic Concepts – Human Values – Dignity – Liberty – Equality – Justice – Rights – Meaning, Kinds and Importance

Unit –II: Emergence of Human Rights as an important issue after World War-II

UNO Charter

Indian Context & Constitution – Preamble, Fundamental Rights, Directive Principles of State Policy, Fundamental Duties

Human Rights Act-1993

Judicial Organs - Human Rights Commissions – National and Andhra Pradesh

Commissions for Women and Children

Unit-III: Human Rights and Vulnerable Groups

Meaning and Concept of Vulnerable and Disadvantaged Groups

Human Rights of Women, Children, SC, ST, Minorities, old aged, sex workers, HIV/AIDS and migrant workers

Unit-IV: Human Rights Violation and Indian Polity

Human Rights and good governance

Role of advocacy groups, Press, lawyers, Legal Aid

Educational Institutions

Role of Corporate Sector

NGOs

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GOVERNMENT AUTONOMOUS COLLEGE, RAJAMAHENDRAVARAM

Course: B.A. Subject: Journalism and Mass Communication

I Year Semester-I

Paper-I (core): *HISTORY OF INDIAN JOURNALISM*

Unit 1: Early Journalism in India - Hick's Gazette –Origin of Vernacular Press in India – Indian Press and Social Reforms – Contribution of Raja Ram Mohan Ray.

Unit 2: - Indian Press and Freedom Movement - Contribution of Mahatma Gandhi, Bala Gangadhar Tilak, Anne Besent – Dr.B.R.Ambedkar

Unit 3: Contribution of national eminent newspapers - Amrit Bazaar Patrika, Hitvad, Times of India, The Statesman, The Hindu, Free Press Journal, Indian Express, Leader.

Unit 4: The origin and growth of Telugu newspapers –Vrutathini, Dina Vruthamani - Telugu Press and Social Reforms - KandukuriVeeresalingam – Freedom Movement –Kasinadhuni NageswaraRao, Konda Venkatappaiah Panthulu,Mutnuri Krishna Rao, PattabhiSeetharamaiah.

Unit 5: Krishna Patrika, Andhra Patrika, Andhra Prabha - Telugu Press after 1970s - Changing trends in Telugu Journalism - Eenadu, Udayam, Andhra Jyothi, Visalandra, Prajasakhti – Vartha - Sakshi

Reference Books:

1. RangaswamyParthasarathy, (Reprint 2011)Journalism in India, Sterling publishers private limited
2. S.C.Bhatt, (2010), Indian press since 1955, Publication division
3. J.Natarajan,(2000)History of Indian Journalism, Publication division
4. Bangore, (1973)Brown jabulu-Telugu Journalism Charitra, Bangoreprachurana.
5. Potturi VenkateswaraRao, Telugu Patrikalu :, Press academy

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
Course: B.A. Subject: Public Administration Module-III (core)
Name of the Module: ***Indian Constitution & Administration Of Indian Union***
(CBCS Pattern)

III SEMESTER

SYLLABUS

Unit I :
Historical Background

1. Evolution of Indian Administration – Ancient, Medieval and British Periods – Continuity and change in Indian Administration after Independence.
2. Context of Indian Administration – Social, Economic and Political.

Unit II:
Central Administration

3. Union Government and Administration – President, Prime Minister, Council of Ministers, Central Secretariat, Cabinet Secretariat, Cabinet Committees and Prime Minister Office.
4. Union and State Relations and Agencies – Administrative Relations – Inter State Council, Finance Commission, All India Services, Planning Commission and National Development Council.
5. Public Enterprises in India: a) Forms of Public Enterprises; b) Privatization and Dis-investment.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Course: B.A. Subject: Public Administration Module-IV (core)

Name of the Module: STATE AND LOCAL GOVERNANCE IN INDIA

(CBCS Pattern)

IV SEMESTER

SYLLABUS

Unit I :

State and District Administration

1. State Government and Administration: Governor, Chief Minister, Council of Ministers, Secretariat & Directorates, General Administration Department and Chief Secretary.
2. District Administration : Changing Role of District Collector, Mandal and Village Administration in Andhra Pradesh.
3. Local Governments – Rural and Urban – Structure and functions – 73rd and 74th constitutional amendments.

Unit II:

Administrative Accountablility

4. Control over Administration :
   a. Legislative and Judicial Control
   b. Lok Pal, Lokayukta and Central Vigilance Commission.
   c. Consumer Protection Forums
   d. Right to Information Act (RTI)
   e. National and State Human Rights Commissions.
5. Administration of Welfare Programmes for Weaker Sections – SCs, STs, BCs Women and Minorities

Block V :

Emerging Issues

6. Administrative Reforms, Recommendations of important Commissions and Committees.
7. Good Governance and E-Governance

GOVERNMENT COLLEGE (AUTONOMOUS) :: RAJAHMUNDRY

IIInd B.A. PUBLIC ADMINISTRATION

PAPER – III: MANAGEMENT OF RESOURCES

V SEMESTER

SYLLABUS

Unit I :
Human Resource management

1. Meaning, Nature, Scope and Significance of Human Resource Management.
2. Human Resource Strategy and Planning
3. Recruitment, Selection, Appointment and Promotion
4. Pay – Components, Principles of Pay & Pay Commission.

Unit II:
Capacity Building

5. Performance Appraisal – Rewards and Incentives Management.
6. Human Resource Development – Concept of HRD; Training – Objectives, Types, Evaluation.
7. Employee Capacity Building Strategies and Total Quality Management.
8. Human Resource Management Effectiveness and Human Resource Audit.
9. Issue in HRM – Downsizing, Outsourcing, Consultancies.

GOVERNMENT COLLEGE (AUTONOMOUS) :: RAJAHMUNDRY

IIIrd B.A. PUBLIC ADMINISTRATION

PAPER – IV : RURAL AND URBAN GOVERNANCE IN INDIA

V SEMESTER

SYLLABUS

Block – I :
Cencepts of Democratic Decentralization.

1. Local Governance: Concepts, Features and Importance.
2. Democratic Decentralization: Concepts, Evolution and Significance.
3. Evolution of Local Governance in India: Community, Development program and National Extension service.

Block – II:
Rural Local Governance

4. Balvant Rai Mehta and Ashok Mehta Committee: Report, Structures Functions and Finance, Second Generation and Third Generation Panchayaths.
5. Reform in Panchayati Raj – Features of 73rd CAA and organization structures for Panchayaths.
6. Intra – Rural Local Governance Relationship: Grama Sabha and Grama Panchayaths of powers and functions, Intra Tier responsibility (The Eleventh Schedule)
7. Sustainable Development and Challenges to Decentralized Governance.

GOVERNMENT COLLEGE (AUTONOMOUS) :: RAJAHMUNDRY

IIIrd B.A. PUBLIC ADMINISTRATION

PAPER – III : MANAGEMENT OF RESOURCES

VI SEMESTER

SYLLABUS

Unit I :
Financial Management

1. Meaning, Scope and Importance of Financial Management.
2. Budget – Concept, Principles of Budgeting; Preparation, Enactment and Execution of the Budget.
3. Parliamentary Financial Committees – Public Account Committee, Estimates Committee.
4. Accounting and Auditing.
5. Comptroller and Auditor General of India.
6. Union – State financial relations and the role of the Finance Commission.
7. Organization and functions of the Finance Ministry.

Since the success of any Administration depends on how best it uses its material resources also the following concepts and practices of management o material resources are added to the syllabi.

PART-C- Material Resource Management

1. Meaning, cope an importance o material resource Management
2. Procurement-Storage-Distribution

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY

IIIrd B.A. PUBLIC ADMINISTRATION

PAPER – IV : RURAL AND URBAN GOVERNANCE IN INDIA

VI SEMESTER

SYLLABUS

Block – III :

1. Urbanization in India and Policies and Strategies.
2. Evolution of Urban Local Governance in India Reforms in Urban Bodies, Features 74th CAA.
3. Urban Local Government, Structure, Functions, Officials, Committee System, Finances, Officials and Political Executives (with suitable reference to Andhra Pradesh).
4. Municipal Corporations: Structure, Committee System Finance Officials and Political Executives (with Special Reference in Andhra Pradesh)
5. Urban Development Authorities in Andhra Pradesh and their ….

Block – IV :

6. State Control and Supervision over local Bodies.
7. Micro Planning and Implementation Social Audit, Capacity …. Grassroots Functioning.
8. Parallel Bodies and Voluntary Sector: Self Help Group Associations and Parstatals.
9. Development Planning.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. Subject: Public Administration Module-III (core)

Name of the Module: *Indian Administration*

Semester-III

UNIT-I: Historical Background

Evolution of Indian Administration - Ancient. Medieval and British Periods-Changing trends in Indian Administration after Independence.

Context of Indian Administration-Social. Economic and Political

UNIT-II: Central Administration

Union Government and Administration - President. Role of Prime Minister in the coalition era. Cabinet.

Cabinet Secretariat. Cabinet Committees and Prime Minister's Office. Central Secretariat

Union and State Relations and Agencies - Administrative Relations- Inter State Council. Finance Commission. All India Services. NeetiAyog. .Staff Selection Commission.

UNIT-III: Local Administration

Public Enterprises in India: a) Forms of Public Enterprises b) Privatization and Dis-investment

State Government and Administration: Governor. Chief Minister. Council of Ministers. Secretariat &

Directorates. General Administration Department and Chief Secretary

UNIT-IV:

District Administration: Changing role of District Collector. Mandal and Village Administration in Andhra Pradesh

Local Governments-Rural and Urban-Structure and functions - 73rd Constitutional Amendment

74th Constitutional Amendment

UNIT-V: Administrative Accountability

Control over Administration

Legislative and Judicial Control

The following topic is added in Unit-5:

Popular Control

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. Subject: Public Administration Module-IV (core)

Name of the Module: *Indian Administration – Emerging Issues*

Semester-IV

UNIT-I: Control over Government Administration

- Lokpal, Lokayukta and Central Vigilance Commission
- Consumer Protection Forums

UNIT - II:

- Right to Information Act (RTI)
- National and State Human Rights Commissions

UNIT - III:

- Administration of Welfare Programmes for Weaker Section - SCs, STs, BCs, Women and Minorities, SC and ST Atrocity Act
- Administrative Reforms: Recommendations of important Commissions and Second ARC

UNIT - IV Emerging Issues

- Mechanisms for Disaster Management - Cyclones, Earth Quakes and Floods
- Governance and e-Governance Applications in Indian Administration.

UNIT – V

- Public Private Partnerships and Voluntary Sector.
- Public Corporations - Independent Regulatory Commissions

The following topic is added in Unit-1:

The functioning and importance of Lok Adalat organisations in India

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. **Subject: Public Administration**

Module-VIII: (Cluster Elective A-2): *Financial Administration in India*

Semester-VI

Unit-I: Financial Administration - Introduction

1. Meaning, Nature, Scope and Significance of Financial Administration
2. Goals, Objectives and Principles of Financial Administration
3. Mixed Economy
4. Planning Commission (Neeti Aayog)

Unit-II: Budgeting and Budgeting Systems

1. Budget – Concept, Principles of Budgeting; Preparation, Approval and Execution.
2. Organization and functions of the Finance Ministry.
3. Union – State Financial relations and the role of the Finance Commission.

Unit-III: Resource Mobilisation and Funds – Fiscal Federalism

1. Sources of Revenue – Tax and Non-Tax
2. Deficit Financing
3. Public Debt Management and Role of Reserve Bank of India
4. Financial Appraisal
5. Economic and Social Appraisal

Unit-IV: Financial Control and Accounts and Audit

1. Legislative Control
2. Parliamentary Financial Committees – Public Accounts Committee, Estimates Committee,
3. Executive Control
4. Accounting and Auditing System in India

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. **Subject: Public Administration**

Module-VIII: (Cluster Elective A-3): *Urban Governance in India*

Semester-VI

Unit-I: Urban Governance

1. Urbanization in India - Policies and Strategies.
2. Evolution of Urban Local Governance in India: Reforms in Urban Local Bodies – Features of 74th CAA.
3. Urban Local Government – Structure, functions, officials, Committee System, Finances, Officials and Political executives (with special reference to Andhra Pradesh).

Unit-II: Urban Bodies/Control

4. Municipal Corporations: Structure, Committee System, Finances, Officials and Political executives (with special reference to Andhra Pradesh).
5. Urban Development Authorities in Andhra Pradesh and their working. Issues and Trends
6. State Control and Supervision over Local Bodies.

Unit-III:

7. Micro planning and implementation, Social Audit, Capacity Building of Grassroot functionaries.
8. Parallel bodies and Voluntary Sector: Self Help Groups, Users Associations.
9. Rural and Urban Development Programmes, Employment and Poverty Alleviation Programmes

The following topic is added in Unit-III

10. Development Planning

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Course: B.A. Subject: Political Science Module-III (core)

Name of the Module: *Introduction to Indian Constitution and Polity*

(CBCS Pattern)

Semester-III

Unit-I:

Evolution of Indian Constitution - A brief sketch of 1909, 1919, 1935 Govt. of India Acts.

Unit-II:

Constituent Assembly Salient Features of Indian Constitution.

Unit-III

Indian Federation –Centre – State Relations – Recent Trends.Fundamental Rights and Duties, DirectivePrincipals of state policy.

Unit-IV

President – Election, Powers and Functions – Prime Minister and Council of Ministers.

Parliament – Composition, Powers and Functions. Judiciary – Supreme Court, Composition, Powers, Functions and Judicial Review.

The following unit is added:

Unit-V

Indian Nationalist Movement From 1885 to 1947

Books for Reference:

1. Rajini Kothari, *Politics in India*.
2. M.V. Pylee, *Indian Constitution*.
3. S.S. Awasti, *Indian Government and Politics*.
4. D.D. Basu, *Introduction for Constitution of India*.
5. *Telugu Akademi: Bharat Prabutvamu and Rajakeeyalu,* Latest Edition.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Course: B.A. Subject: Political Science Module-IV (core)

Name of the Module: State Government and Political Parties in India

(CBCS Pattern)

Semester-IV

Unit-I: Party System:

(i) National Parties: Indian National Congress, BJP, Communist Parties

(ii) Regional Parties; TDP, TRS, DMK, AIADMK, AkalidalLoksatta.

(iii) Election Commission – Electoral Reforms.

Unit-II: State Government – Governor, Chief Minister and Council of Ministers – Powers and Functions.

Unit-III: Social and Economics Factors- Language, Religion, Caste and Regional identities.

Unit-IV: Social movements: Women, Environmental.

Unit-V: Local Government Institutions – 73rd & 74th Constitutional Amendments.

Books for Reference:

1. Rajini Kothari, *Politics in India.*
2. M.V. Pylee, *Indian Constitution.*
3. S.S. Awasti, *Indian Government and Politics.*
4. D.D. Basu, *Introduction for Constitution of India.*
5. *Telugu Akademi: Bharat Prabutvamu and Rajakeeyalu,* Latest Edition.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Course: B.A. Subject: Political Science Module-VI (elective- I A)

Name of the Module: *Principles Of Public Administration*

(CBCS Pattern)

V SEMESTER

Unit-I:

1. Meaning, Scope and Importance of Public Administration – Relation with Political Science, Sociology and Economics.

2. Public Administration and PrivateAdministration, Difference and Similarities.

Unit-II:

3. Chief Executive – Role and Functions. Line and Staff Agencies.

Unit-III:

4. Principles of Organization – Hierarchy, Span of Control, Coordination, Unity of Command, Delegation of Authority, Centralization and Decentralization.

The following topics are added:

5. Importance of Public Administration in the context of Globalization, Privatisation and Liberalisation.

6. Basis of Departmental Organisation.

Books for Reference:

1. Avasthi and Maheshwari, *Public Administration Theory & Practice.*
2. Prof. Mohit Bhattacharya, *New Horizons of Public Administration.*
3. M.P. Sarma, *Public Administration Theory and Practice.*
4. R.K. Arora, *Indian Administration.*
5. S.L.Goel, *Financial Management & Administration.*
6. *Telugu Akademi,* Text Book latest revised edition.

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Course: B.A. Subject: Political Science Module- VIII (elective-2A)

Name of the Module: *PRINCIPLES OF PUBLIC POLICY*

(CBCS Pattern)

SYLLABUS

Unit I :

Public Policy Formulation – Decision Making.

Unit-II:

Human Resource Management - Recruitment, Training, Promotion Morale andRetirement, UPSC & APPSC Financial Administration – Budget – Principles –Budgetary Process – Accounting and Auditing – Comptroller and Auditor General,Finance Commission.

Unit-III:

Administrative Accountability – Legislative – Executive – Judicial and Popular Control, Administrative Tribunals.

Unit-IV:

1. Public Relations–Meaning and Importance.
2. Good Governance.

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

Course: B.A. Subject: Political Science Module-I (core)

Name of the Module: *Basic Concepts of Political Science*

(CBCS Pattern)

Semester-I

UNIT – I

Introduction: Nature, scope and significance of political science

UNIT – II

State – Nation and Nationality

Theories of Origin of The State: The Theory of Divine Right, The Social Contract Theory of Hobbes, Locke and Rousseau, The Historical or Evolutionary Theory

UNIT – III

Sovereignty: Meaning and definitions, Characteristics of sovereignty, Kinds of sovereignty, Austin's theory of sovereignty, The theory of pluralists

UNIT – IV

Law- Liberty- Equality: Definition, meaning, features and kinds of law; Sources of law. Definition, meaning and importance of liberty; Kinds of liberty; Safeguards of liberty; Relation between liberty and equality. Definition, meaning and importance of equality; Kinds of equality

UNIT – V

Rights and Duties: Definition, meaning and features of Rights. Classification of Rights. Women's Rights. Duties of citizen. Relationship between Rights and Duties

The Following topic is added in Unit – I

- Approaches to the study of Political Science: Liberal and Marxist

The Following topic is added in Unit – IV

- Concept of Rule of Law

The Following topic is added in Unit – V

- Theories of Rights

Books Recommended: 1. Principles of Political Science : Prof.A.C. Kapoor.
2. Grammar of Politics : Laski H.J.
3. Substance of Politics : A. Appadorai
4. Political Theory: Ashirvadam
5. Political Theory: O P Gauba
6. Political Ideologies: Their Origins and Impact, Baradar, Prentice Hall of India
7. Telugu Academy: Political Science, Concepts, Theories and Institutions

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

Course: B.A. Subject: Political Science Module-II (Core)

Name of the Module: *Concepts, Theories and Institutions*

(CBCS Pattern)

Semester-II

Unit-I: Democracy

Definition and Meaning of Democracy, Forms of Democracy, Conditions necessary for the Success of Democracy, Merits and demerits of democracy

Unit-II: Ideologies

(A) Individualism, Anarchism, Fascism, Marxism and Gandhism
(B) Theory of Separation of Powers: Montesquieu's theory of separation of powers

Unit: III Constitutionalism

Legislation: Unicameralism and Bicameralism - Powers and functions of Legislature - Role of opposition parties in the legislature - Committee system- stages of making the law - Reasons for the decline of the importance of the legislature

Unit-IV: Executive

(A) Meaning and Importance of Executive – Types of Executive - Functions of Executive - Delegated Legislation - Features of Parliamentary Executive – Merits and demerits - Features of presidential executive – merits and demerits

(B) Judiciary – meaning and importance of judiciary - Structure of judiciary – powers and functions of judiciary

Unit – V: Popular Control

Welfare state and human rights - Meaning and importance of popular control, methods of popular control - Meaning and definition of welfare state - Functions of welfare state – reasons for the growing importance to the welfare state - reasons for the growing importance of human rights - United Nations Declaration of Human Rights

The Following topics are added in Unit – IV

- Unitary and Federal Executive
- Independence of Judiciary
- Judicial Review

(P-SYLLABUS)

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. Subject: Political Science Module-III (core)

Name of the Module: *Indian Constitution*

Semester-III

Unit-1: The Making of the Constitution

1. The ideological legacy of the Indian National Movement on the Constituent Assembly
2. The Nature and Composition of the Constituent Assembly

Unit-2: Philosophical Premises of the Indian Constitution

1. Preamble: The underlying values of the Indian Constitution
2. Salient features of the Constitution of India

Unit-3: Fundamental rights and Directive principles of State Policy

1. Individual and Collective Rights: Limitations on the fundamental Rights
2. Judicial Interpretation of Fundamental Rights
3. The doctrine of 'Basic Structure' of the Constitution: Kesavananda Bharathi Case

Unit-4: Indian Federalism

1. Unitary and Federal features in the Indian Constitution
2. Tension Areas between the Union and State Governments Legislative. Administrative and Financial Spheres

Unit-5: Working of the Indian Constitution

1. The Values of the Indian Constitution and Ushering of Social Revolution in India
2. The causes for the Ascendency of the Executive over legislature and Judiciary: Major Controversies regarding the Amendments to the Constitution
3. Nature and Role of Higher Judiciary in India: Recent Debates on the mode of appointment of Judges

The following topic is added in Unit-1:

Evolution of Indian Constitution: A Brief Sketch of 1909, 1919 and 1935 Government of India Acts

The following topic is added in Unit-3:

Fundamental Duties

The following topics are added in Unit-5:

Supreme Court: Composition, Powers and Functions

Judicial Review

B. V. V. Bala

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. Subject: Political Science Module-IV (core)

Name of the Module: *Indian Political Process*

Semester-IV

Unit-1: Approaches to Study the Political Processes in India

1. Theory of Modernization: Transition from Tradition to Modernity
2. Marxian Approach: Transition from pre-capitalism to capitalism

Unit-2: Social Structure and Democratic Process

1. Transition of Caste System: From Hierarchy to Identity: Role of Agency
2. Politicisation of Intermediate and Dalit Caste Communities
3. Evolution of Modernity in India

Unit-3: Religion and Politics

1. Competing Communalisms: Majoritarian and Minoritarian
2. Debates on Secularism: Role of the State towards religion

Unit-4: Party and Electoral Processes in India

1. Electoral Trends of the lokSabha from 1952 to 2014:From the One Party Congress System to Multi Party Coalitions
2. Determinants of Voting Behavior in India:Caste,Class,Patronage, Money etc.
3. Evolution of Party System in India: the Ideology and Social bases of major Political Parties: INC,BJP,CPM, DMK,BSP, TDP

The following topics are added in Unit-3:

Regional Identities

Social Movements: Women and Environmental

The following topics are added in Unit-4:

Election Commission

Electoral Reforms

Reference books:

1. Chandhoke N and Priyadarshini P (Eds) (2009) Contemporary India Economy, society, politics, Pearson, NewDelhi.
2. Vanaik A and Bhargava R (Eds) (2010) Understanding Contemporary India Critical perspectives orient black swan New Delhi.
3. Jayal N G and Mehta PB (Eds) (2010) Oxford Companion to Indian Politics Oxford University Press, New Delhi.
4. Kohliatul and Prema Singh (Ed) (2013) Routledge Hand book of Indian Politics Routledge, New York.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A. Subject: Political Science Module-VII: (Elective A)

Name of the Module: *Principles of Public Administration*

Semester-VI

Unit I : Administrative Theories

1. Classical Theory-Henry Fayol
2. Human Relations theory-Elton Mayo
3. Rational Decision making theory-Herbert Simon

Unit-II:

1. Public Policy Formulation – Decision Making.
2. Human Resource Management - Recruitment, Training, Promotion, Morale and Retirement
3. UPSC & APPSC
4. Financial Administration – Budget – Principles –Budgetary Process
5. Accounting and Auditing – Comptroller and Auditor General

Unit-III:

1. Administrative Accountability: Legislative, Executive, Judicial and Popular Control
2. Administrative Tribunals.

Unit-IV:

1. Public Relations–Meaning and Importance.
2. Good Governance

Unit – V: Theories of Motivation

1. Meaning and importance of Motivation
2. Hierarchy of needs theory; Abraham Maslow
3. Theories of X and Y ; Donglas Mc Gregor

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM
Course: B.A.Subject: Political Science Module-VIII:(Cluster Elective A1)
Name of the Module: *Western Political Thought*
Semester-VI

Unit-I: Ancient Western Political Thought

1. Plato
2. Aristotle

Unit-II: Medieval Political Thought

1. Machiavelli

Unit-III: Modern Political Thought

1. Thomas Hobbes
2. John Locke
3. J.J. Rousseau
4. Jeremy Bentham
5. J.S. Mill
6. Karl Marx

The following topics are added in the syllabus

Unit –II

Thomas Aquinas

Unit –III

Hegel

Books for Reference:

1. Amal Kumar Mukopadhyay, *Western Political Thought.*
2. Sabine G.H, *A History of Political Thought.*

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

Course: B.A.Subject: Political Science Module-VIII:(Cluster Elective A2)

Name of the Module: *International Relations*

Semester-VI

Unit- I: Basic Concepts of International Relations

1. Meaning, Nature and Scope of International Relations
2. (a). Balance of power
   (b). National interests
   (c). Collective Security
   (d). Diplomacy

Unit-II: Approaches to the study of International Relations

1. Idealism – Woodrow Wilson
2. Classical Realism – Hans Morgenthau
3. Neo – realism – Kenneth Waltz

Unit-III: Phases of International Relations (1914-1945)

1. Causes for the First World War
2. Causes for the Second World War

Unit-IV: Phases of International Relations (1945 onwards)

1. Origins of First Cold War
2. Rise and Fall of Détente
3. Origins and the End of Second Cold War

Unit-V: International Organisation

1. The role of UNO in the protection of International Peace
2. Problems of the Third World : Struggle for New International Economic Order

Reference Books:

1. Jackson, R and Sorensan Y, Introduction to International Relations: Theories and approaches, New York, OUP, 2008.

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GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM
Course: B.A.Subject: Political Science Module-VIII:(Cluster Elective A3)
Name of the Module: *Indian Foreign Policy*
Semester-VI

Unit- I: Evolution of Indian Foreign of Policy

1. Determinants of Indian Foreign of Policy
2. Continuity and change in Indian Foreign Policy

Unit-II: Non-Alignment and UNO

1. The role of India in the Non-Alignment Movement
2. Relevance of Non-Aligned Movement in the Contemporary World
3. Role of India in the UNO in protection of International Peace

Unit-III: India's Relation with USA and China

1. Indo- US Relations: Pre- Cold War Era, Post- Cold War Era
2. India – China Relations: Pre- Cold War Era, Post- Cold War Era

Unit-IV: India and her Neighbours

1. Indo- Pakistan Relations
2. India's role in South Asian Association of Regions Cooperation (SAARC)

Reference Books:

1. David Scott (Ed), Handbook of India's International Relations, London, Routledge,2011
2. Ganguly, S (Ed), India as an Emerging Power,Portland, Franck class, 2003
3. Pant, H, Contemporary Debates in Indian Foreign and Security Policy, London, Palgrave Macmillian,2008
4. Tellis, A and Mirski, S (Eds), Crux of Asia; China, India, and the Emerging global Order, Washington, Carnegie endowment for international peace,2013
5. Muni, S.D, India's Foreign Policy Delhi CUP, 2009
6. Alyssa Ayres and Raja Mohan, C (Eds), Power Realignment in Asia: China, India and the United States, New Delhi, Sage, 2002.
7. Appadorai, A, Domestic roots of Indian Foreign Policy, New Delhi, OUP,1971

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!QAC 2016-2017

Government College [A] Rajahmhendravaram
CBCS SYLLABUS (Semester Wise)
I B.A. Statistics/Semester-II
(Non-Mathematics Combination)
Descriptive Statistics Paper - II

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Introduction to Statistics: Statistics, Definition, application, scope, limitation, primary and secondary data, methods of collecting primary and secondary data. Statistical enquiry, questionnaire and schedule, Editing of data.

Unit-II:

Classification and tabulation: Classification of data, frequency distribution, rules of tabulation, simple and complex tables, single, double and manifold tables.

Unit-III:

Diagrammatic Representation: Bar diagrams, square, rectangle, pie-charts, Histogram, frequency polygon, Ogives.

Unit-IV:

Measures of Central Tendency: Mean, Median, Mode, G.M & H.M, merits and demerits, finding median by graphic method, quartiles, deciles & percentiles.

Unit-V:

Measures of Dispersion: Range, Q.D, S.D, M.D, Coefficient of variation, Lorenz curve.

Practical's- Semester-II

Conduct any 6 Practical's.

1. Bar diagrams
2. Pie diagrams
3. Histogram
4. Frequency Polygon.
5. Arithmetic Mean, Median, Mode, GM, HM.
6. Calculation of Quartile Deviation & Mean Deviation.
7. Calculation of CV and its comparisons.
8. Ogive curves

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Demography (Option-2) Paper –VII-B

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Introduction of demography nature and scope, Brief history of the Development of demographic work in India, Evolution of indian census 1872 – 1981

Rates and ratios standardization of rates.

Unit-II:

Techniques of measuring mortality factors effecting mortality

Unit-III:

Techniques of measuring fertility – factors effecting fertility

Unit-IV:

Life tables, components of RT and its uses.

Unit-V:

Population growth medals – linear, exponential.

Reference books:

1. B.D. Misra, The study of population
2. D.J. Bogue: Principles of demography
3. Sarma P.V.S.: Statistical techiniques in population studies (Telugu Academy)

PRACTICALS:

1. Calculation of crude death rate, crude birth rate, sex ratio, child women rate
2. Drawing of age sex pyramid
3. Measures of mortality – infant mortality standardized mortality rate
4. Measures of fertility general fertility rate, age specific rate, total fertility rate
5. Gross reproduction rate and net reproduction rate
6. Life tables
7. Growth models linear
8. Growth models exponential the end.

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CBCS SYLLABUS (Semester Wise)
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Official Statistics and Design of Experiments (Cluster-2, Paper-1)
Paper -VIII

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Official Statistics: National income, methods to estimate national income, problems involved in estimating national income, agricultural statistics.

Unit-II

Area, yield of statistics, Functions and organization of CSO, NSSO

Unit-III

Analysis of variance: Meaning, definition, assumptions, one way and two way classifications.

Unit-IV

Principles of design of experiments: Principles of experiment, Completely Randomized design, Randomized block design and Latin square design.

Unit-V

Missing plot techniques: RBD, LSD, Concepts of Factorial experiments 2^2 & 2^3

Text Books:

1. Fundamentals of Statistics: Goon Gupta, Das Gupta
2. Applied Statistics-Parimal Mukhopadhyaya

Reference Books

1. Design of Experiments by Gupta Kapoor:
2. Applied Statistics-V.K.Kapoor & S.C.Gupta
3. Anuvarthitha Sankyaka Sastramu – Telugu Academy book.

PRACTICALS:

1. ANOVA-equal one way classifications
2. ANOVA-unequal one way classifications
3. ANOVA-Two way classifications
4. CRD
5. RBD
6. LS

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
B.A I Year: Statistics Syllabus
(For Non-Mathematics Combination)
Semester-I CBCS
Elementary Mathematics
(Without Mathematical Derivations)

Total Hrs required: 60 **Total Credits: 03**

Unit-1

Concept of sequences and series, fundamentals of sets and functions, types of functions;
solution of simultaneous linear equations, quadratic equations.

Unit-II

Progressions- AP, GP, HP; permutations, combinations, Binomial theorem and their
related problems.

Unit-III

Elementary Matrices: Definition and types of matrices, addition, subtraction, scalar multiplication of matrices.

Unit-IV

Determinant of matrix, Transpose of a matrix, inverse and rank of 3 X 3 matrices only. Solution of simultaneous linear equations by matrix methods- Cramer's Rule and Matrix Inversion methods.

Unit-V

Differentiations: Derivatives of algebraic and exponential functions. Maxima and minima of a function. Integration basics, Integration by parts and by substitutions.

Practical's- Semester-I

Conduct any 6 Practical's.

1. Solution to Simultaneous Linear equations
2. Progressions- AP, GP, HP
3. Addition, Subtraction, Multiplication of Matrices.
4. Determinant of a Matrix
5. Solution of equations by Matrix methods.
6. Simple differentiation
7. Integrations

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Operations Research (Option-1) Paper –VII-A

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Operations Research: Definition and scope of operations research, phases and models in OR, Linear programming problems, formulation of LPP, solving the LPP by graphical method.

Unit-II:

Transportation problem: Definition of transportation problem, TPP as a special case of LPP, feasible solutions by North-West, Matrix minimum and VAM methods.

Unit-III:

Game theory: Two person games, pure and mixed strategies, zero sum games finding solutions in 2x2 and 2xM games.

Unit-IV:

Assignment problem: formulation and description of assignment problem and its variations, Assignment problem, traveling salesman problem, Optional solution using Hungarian method.

Unit-V:

Sequencing problem : elements of sequencing problem with jobs on two machines and their solution.

Reference Books:

1. Operations Research, S. Kalavathi, Vikas publishing house Pvt Ltd.
2. Hamdy A. Taha (1987): Operations Research – An Introduction, 4/e, Prentice Hall of India,Private Ltd, New Delhi.
3. Hillier F S and Libermann G J(2002): Introduction to Operations Research, 7th Edition, McGraw Hill
4. Kanti Swarup, P.K. Gupta and Man Mohan(2004): Operations Research, Sultan Chand and Sons, New Delhi.

Practicals:

1. Solving LPP by graphical method
2. Solving the TP by NWCR, matrix minimum and VAM methods
3. Game theory – obtaining saddle point and pure mixed strategies
4. Finding solution for 2x2 and 2xm games
5. Optimal solution for assignment problem
6. Solving sequencing problem for jobs on two machines

GOVERNMENT COLLEGE(A) RAJAMAHENDRAVARAM
CBCS SYLLABUS (Semester Wise)
I B.Sc. Statistics/Semester-I
(With Mathematics Combination)
Descriptive Statistics and Probability

Total hrs required : 60 **Total credits:03**

Unit- I

Introduction to Statistics: Concepts of primary and secondary data. Methods of collection and editing of primary data, Secondary data. Designing a questionnaire and a schedule. Measures of central tendency- Mean median, mode, Geometric mean and Harmonic mean.

Unit-II

Measures of dispersion: Range, Quartile deviation, Mean deviation and Standard deviation. Descriptive Statistics- Central and non-central moments, and their interrelationships, Sheppard's corrections for moments. Skewness and kurtosis.

Unit-III

Introduction to Probability: Basic concepts of probability, random experiments, trail, outcome, sample space, event, mutually exclusive and exhaustive events, equally likely and favorable outcomes.. Mathematical, statistical and axiomatic definitions of probabability. Conditional probability and independence of events.

Unit-IV

Probability theorems: Addition and multiplication theorems for 2 and for n events. Boole's inequality and Bayes' theorems and problems based on Baye's theorem.

Unit-V

Random Variables: Definition of random variable, discrete and continuous random variables, functions of random variables, probability mass function and probability density function Distribution function and its properties.Bivariate random variable-meaning, joint, marginal and conditional distributions, independence of random variables.

Practical's Semester-I

Conduct any 6 (Ms-excel is compulsory)

1. **Computation of mean, median and mode**
2. **Computation of Quartile deviation**
3. **Computation of mean deviation**
4. **Computation of Standard deviation.**

5. **Non-Central moments and central moments, Sheppard's corrections & Skewness based on moments and Kurtosis.**
6. **MS-Excel methods for the above Serial numbers 1, 2,3,4**

Text Books:

1. **V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics, Sultan.**

2. **BA/BSc I year Statistics-descriptive statistics, probability distribution-Telugu Academy-Dr M. Jaganmohan Rao, Dr. N.Srinivasa Rao, Dr P.Tirupathi Rao, Smt. D.Vijayalakshmi.**

3. **K.V.S. Sarma: statistics Made Simple: do it yourself on PC. PHI**

4. **B.A/B.Sc Statistics Descriptive Statistics and Probability, Kalyani Publishers by D.V.L.N. Jogiraju, C. Srikala and L.P. Raj Kumar.**

Reference books:

1. Willam Feller: Introduction to Probability theory and its applications. Volume –I,
Wiley

2. Goon AM, Gupta MK, Das Gupta B: Fundamentals of Statistics, Vol-I, the
World Press Pvt.Ltd. Kolkata.

3. Hoel P.G: Introduction to mathematical statistics, Asia Publishing house.

4. M.JaganMohan Rao and Papa Rao: A Text book of Statistics Paper-I.

5. Sanjay Arora and Bansi Lal: New Mathematical Statistics: Satya Prakashan,New
Delhi

6. Hogg.Tanis.Rao: Probability and Statistical Inference. 7th edition. Pearson

7. Sambhavyata Avadhi Siddantalu—Telugu Academy.

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)
I B.Sc Statistics/Semester-II
(With Mathematics Combination)
Mathematical Expectation and Probability Distributions
Paper - II

Total hrs per week: 04 **Total credits: 03**

Unit –I

Mathematical Expectation: Mathematical expectation (ME) of a random variable and function of a random variable. Moments and covariance using mathematical expectation with examples. Addition and multiplication theorems on expectation. Definitions of M.G.F, C.G.F, P.G.F, C.F its properties Chebyshev and Cauchy-Schwartz inequalities

Unit-II

Discrete distributions: Binomial and Poisson distributions, their definitions, ist to 4 central moments, M.G.F, C.F, C.G.F, P.G.F, mean, variance, additive property if exists Poisson approximation to Binomial distribution.

Unit-III

Negative binomial, Geometric and Hyper-geometric distributions- Definitions, means, Variances, M.G.F, C.F, C.G.F, P.G.F, reproductive property if exists Binomial approximation to Hyper-geometric Distribution, Poisson approximation to Negative binomial distribution.

Unit-IV

Continuous distributions: Rectangular, Exponential, Gamma, Beta distributions of two kinds. Other properties such as mean, variance, M.G.F, C.G.F, C.F, reproductive property.

Unit-V

Normal Distribution: Definition, Importance, Properties, M.G.F, additive properties, Interrelation between Normal and Binomial, Normal & Poisson distribution, Cauchy Distribution.

Practical's-Semester-II

Conduct any 6 (MS-excel is compulsory)

1. Fitting of Binomial Distribution- Recurrence relation method
2. Fitting of Poisson Distribution- Recurrence relation method
3. Fitting of Negative Binomial Distribution.
4. Fitting of Geometric Distribution.
5. Fitting of Normal Distribution- Areas Method.
6. Fitting of Normal Distribution- Ordinates method.
7. MS-Excel methods for the above Serial Numbers 1 and

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
B.Sc II YEAR. STATISTICS SYLLABUS
(With Mathematics Combination)
Semester-III CBCS
Statististical Methods

Total hrs required : 60 **Total credits: 03**

Unit – I

Correlation: Definition, Scatter diagram its coefficient and its properties. Scatter diagram, computation of correlation coefficient for ungrouped data. Spearman's rank correlation coefficient, properties of spearman's correlation coefficients and problems.

Unit-II

Regression: simple linear regression, properties of regression coefficients. Regression lines, Concept of Correlation ratio, partial and multiple correlation coefficients, correlation verses regression and their problems.

Unit-III

Curve fitting: Method of least square-Fitting of linear, quadratic, Exponential and power curves and their problems.

Unit-IV

Attributes: Introduction, Nature, and consistency and mention its conditions. Independence and association of attributes, co-efficient of association and Colligation, coefficient of contingency and their problems

Unit-V

Exact Sampling distributions: Concept of Population, Parameter, random sample, statistic, sampling distribution, standard error, Statement and Properties of X^2, t, F distributions and their interrelationships.

Practical's-Semester-III

Conduct any 6 (MS-Excel is compulsory)

1. **Fitting of straight line**
2. **Fitting of exponential curves**
3. **Fitting of power curve**
4. **Computation of correlation coefficient & Fitting of regression lines**
5. **Rank correlation coefficient**
6. **Computation of Contingency coefficients.**
7. **M.S-Excel methods any for the Derial Numbers 1, 2, 4, 5.**

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)
II B.Sc Statistics/Semester-IV
(With Mathematics Combination)
Statistical Inference
Paper – IV

Total hrs per week: 04 **Total credits: 03** ----

Unit – I

Theory of estimation: Estimation of a parameter, criteria of a good estimator-Unbiasedness, consistency, efficiency and sufficiency. Statement of Neyman's factorization theorem. Estimation of parameters by the methods of moments and maximum likelihood (M.L), Properties of MLE's. Binomial, poisson & Normal Population parameters estimation by ML Method. Confidence intervals of the parameters of normal population.

Unit-II

Concepts of Statistical hypothesis: Null and alternative hypothesis, critical region, two types of errors, level of significance and power of a test. One and two tailed tests. Neyman-Pearson's fundamental lemma. Examples in case of Binomial, Poisson, Exponential and Normal distributions.

Unit – III

Large sample tests: Large sample tests for single mean, two means, single proportion, two proportions, Standard deviation of single and double samples and Fisher's Z transformation.

Unit – IV

Small sample tests: Tests of significance based on $\chi 2$, t and F. $\chi 2$-test for goodness of fit and test for independence of attributes. T-test for single, double and paired tests, Variance Ratio Test (F-test).

Unit – V

Non-parametric tests: Advantages and disadvantages, Two sample run test, Two sample Median test and Two sample sign test.

Practical's Semester (IV)
Conduct any 6 (MS-Excel is compulsory)

1. Large sample tests for mean(s)
2. Large sample tests for proportion(s)
3. Large sample test for standard deviation(s)
4. Large sample tests for Fisher's Z-transformation
5. Small sample tests for Single and Doublet-test
6. Small sample tests for Paired t-test
7. F-test

8. Chi-Square test for independence of attributes.
9. Non-Parametric tests-run test
10. Non-parametric tests-median test.
11. Non-Parametric tests-sign tests.
12. MS-Excel methods for the above serial numbers 1, 2, 3, 4(any one of above).

Text Books:

1. B.A/B.Sc II Year statistics-statistical methods and inference-Telugu Academy by A.Mohanrao, N.SrinivasaRao, Dr.R.Sudhakara Reddy,Dr.T.C. Ravichandrakumar

2. K.V.S.Sarma Statistics Made simple: Do it yourself on PC, PHI.

3. B.A/B.Sc Statistics Descriptive Statistics and Probability, Kalyani Publishers by D.V.L.N. Jogiraju, C. Srikala and L.P. Raj Kumar.

Reference Books:

1. V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics, Sultan
   Chand&Sons, New Delhi

2. Goon AM, Gupta MK,Das Gupta B : Outlines of Statistics , Vol-II, the World
   Press Pvt.Ltd, Kolkata.

3. Hoel P.G: Introduction to matehematical statistics, Asia Publishing house.

GOVERNMENT COLLEGE (AUTONOMOUS)
B.SC IIIYr Statistics Syllabus
(With Mathematics Combination)
Semester-V CBCS
Sampling Techniques & Design of Experiments
Total hrs required : 50 **Total Credits: 03**

Unit – I

Sampling theory:

Concepts of population, sample, sampling unit, parameter, statistic, sampling errors, sampling distribution, sample frame and standard error. Principal steps in a sample survey- need for sampling, census versus sample surveys, sampling and non- sampling errors, Types of sampling- Subjective, probability and mixed sampling methods.

Unit-II

Simple random Sampling:

Methods of drawing random samples with and without replacement. Estimation of population mean, total, variances and the estimates in SRSWR and SRSWOR Advantages and Disadvantages of simple random sampling.

Unit-III

Stratified random Sampling:

Proportional and optimum allocation of sample sizes in stratification. Variances in these methods**.** Systematic sampling: Systematic sampling when N = nk. Comparison of their relative efficiencies. Advantages and Disadvantages of above methods of sampling.

Unit-IV

Analysis of Variance:

One way with equal and unequal classifications and two way classifications.

Unit-V

Design of experiments:

Principles of experimentation in designs, Analysis of Completely randomized Design (C.R.D), Randomized Block Design (R.B.D) and Latin Square Design (L.S.D) including one missing observation, Comparison of the efficiencies of above designs.

Practicals Semester-V(Paper-V)

Conduct any 6 (MS-Excel is compulsory)

1. Estimation of Population Mean, Variance by SRSWOR.
2. Estimation of Population Mean, Variance by SRSWR.
3. Comparison of Proportional, Optimum allocations with Stratified Random sampling
4. Systematic Sampling.
5. ANOVA-CRD
6. ANOVA-RBD with one missing observation.
7. ANOVA-LSD with one missing observation.
8. MS-Excel Practical's.

Text Books:

1. B.A/B.Sc III Year Paper-III Statistics- Applied Statistics- Telugu Academy by Prof. K. Srinivasa Rao, Dr. D. Giri, Dr. A. Anand, and Dr. V. Papaiah Sastry.

2. K.V.S. Sarma: Statistics made simple: do it yourself on PC. PHI

3. B.A/B.Sc Statistics Applied Statistics, Kalyani Publishers by D.V.L.N. Jogiraju, C. Srikala and L.P. Raj Kumar.

Reference Books:

1. V.K.Kapoor and S.C.Gupta: Fundamentals of Applied Statistics. Sultan Chand

2. Parimal Mukhopadhyay: Applied Statistics. New Central Book agency.

3. Daroga Singh and Chowdhary: Theory and Analysis of Sample survey designs.
   Wiley Eastern.

4. M.R.Saluja: Indian Official Statistics. ISI publications.

5. S.P.Gupta: Statistical Methods. Sultan Chand and Sons.

6. Pratirupa Sidhanthamulu – Telugu Academy.

7. Prayoga Rachana and Visleshana – Telugu Academy.

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
B.SC IIIYr Statistics Syllabus
(With Mathematics Combination)
Semester-V CBCS (Elective-I)

QUALITY & RELIABILITY

Total hrs required : 50 **Total Credits: 03**

Unit-I

Importance of SQC in industry. Statistical basis of Stewart control cha: of control control charts, Interpretation of control charts, control limits, Natural tolerance limits and specification limits.

Unit-II

Variable control chart: Construction of control charts for variables (mean, range and standard deviation) and attribute control charts p , np, and c- charts (with fixed and varying sample sizes). Process capability index. Concept of Six sigma and its importancep

Unit-III

Acceptance sampling plans: Producers risk and consumer's risk. Concept of AQL and LTPD.

Unit-IV

Sampling Plans: Single and Double sampling plans, OC and ASN functions. Design of Single and double sampling plans for attributes using Binomial.

Unit-V

Reliability: Introduction failure rates, Hazard function, estimation of reliability, exponential distribution as life model, its memory less property. System reliability - series, parallel and k out of N systems and their reliabilities.

Practical's- Semester-V (Paper-VI)

1. Construction of X, R Charts
2. Construction of p chart- fixed sample size
3. Construction of np-chart
4. Construction of C-chart
5. MS-Excel methods for the serial numbers1
6. MS-Excel methods for the serial numbers 2 to 4.

Text Books:

1. B.A/B.Sc III year paper-IV Statistics- Applied Statistics- Telugu Academy by Prof K. Srinivasa Rao, Dr. D. Giri, Dr A. Anand, Dr V. Papaiah Sastry.
2. Fundamentals of Applied Statistics: VK Kapoor and SC Gupta
3. S.K.Sinha: Reliability and life testing. Wiley Eastern.
4. B.A/B.Sc Statistics Quality control & Reliability, Kalyani Publishers by D.V.L.N. Jogiraju, C. Srikala and L.P. Raj Kumar.

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
B.SC IIIYr Statistics Syllabus
(With Mathematics Combination)
Semester-V CBCS (Elective-II)

Advanced Experimental designs

Total hrs required: 50 Total Credits: 03

----------Unit-I

Review of Completely randomized Design (C.R.D), Randomized Block Design (R.B.D) and Latin Square Design (L.S.D).

Unit-II

Missing plot technique: Analysis of Randomized Block Design (R.B.D) with one and two missing observations and Latin Square Design (L.S.D) with one missing observation.

Unit-III

Analysis of Covariance (ANCOVA): Analysis of covariance for a one-way classification with one concomitant variable in C.R.D. Layout and for two-way classification with one concomitant variable in R.B.D.

Unit-IV

Factorial Design: Estimation of main effects, interactions and analysis of 2^2, 2^3 and 3^3 factorial experiments

Unit-V

Balanced Incomplete Block design (BIBD) and Partially Incomplete block design (PBIBD).

Practical's (Semester-V) Advanced: Experimental Designs

1. **Analysis of CRD and RBD with missing observation.**
2. **Analysis of CRD and RBD with missing observation using MS Excel or using Stat disk.**
3. **Analysis of LSD with missing observation.**
4. **Analysis of LSD with missing observation using MS Excel.**
5. **Analysis of covariance for a one-way classification with one concomitant variable in C.R.D.**
6. **Analysis of covariance for a one-way classification with one concomitant variable in R.B.D.**
7. **Analysis of 2^2– Factorial Experiment.**
8. **Analysis of 2^3 – Factorial Experiment.**
9. **Analysis of 2^3 – Factorial Experiment using MS Excel.**
10. **2^2– Factorial design - Complete Confounding.**
11. **2^3 – Factorial design – Partial Confounding.**

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)
III B.Sc Statistics/Semester-VI
(With Mathematics Combination)

APPLIED STATISTICS (OPTION – 1)
Paper – VII

Total no. of hrs per week: 03 **Total credits:03**

----------Unit-I

Analysis of Time series: Components of time series: meaning and examples, trend by least squares (straight-line and parabola) methods and moving average methods. Seasonal indices by Simple averages, ratio to moving average, ratio to trend and link relative methods.

Unit-II

Index Numbers: Meaning, problems involved in the construction of index numbers, simple and weighted index numbers, Criteria of good index numbers, fixed base and chain base index numbers. Cost of living index numbers, Wholesale price index numbers, Base shifting, Splicing and deflation of index numbers.

Unit-III

Official Statistics: Functions and organization of CSO and NSSO. Agricultural Statistics, area and yield statistics. National Income and its computation, utility and difficulties in estimation of national income

Unit –IV

Vital statistics: Meaning, Definition, Uses, Sources of vital statistics, Various Death rates- CDR, ASDR, STDR and Birth rates- CBR, ASFR, TFR.

Unit-V

Reproduction Rates: Measurement of population growth, crude rate of natural increase, Pearl's Vital index, Gross reproductive rate(GRR) and Net reproductive rate(NRR), Life tables, construction and uses of life tables and Abridged life tables.

Practical's Semester-VI

Conduct any 6 (MS-Excel is compulsory)

1. Measurement of Linear Trend
2. Measurement of Seasonal Indices-Link Relatives method
3. Reversal tests
4. Cost of Living Index Numbers.
5. Mortality, Fertility and Reproduction rates.
6. Life Tables.
7. MS-Excel Practical

B .A/B.Sc. III Year: Statistics Syllabus
(With Mathematics Combination)
(Examination at the end of VI semester)
Elective-II
Paper 10: FORECASTING METHODS

Unit-I

Smoothing Methods: Averaging methods, exponential smoothing methods, a comparison of methods, general aspects of smoothing methods

Unit-II

Decomposition methods: Trend fitting, the ratio-to moving averages classical Decomposition method, different types of moving averages.

Unit-III

Models for time series data:
Auto-covariance and auto correlation functions, stationary processes, white noise processes, moving average (MA) processes, auto regressive (AR) processes, Auto regressive and moving average (ARMA) processes, Auto regressive integrated and moving average (ARIMA) processes.

Unit-IV

Box-Jenkins Models : Identification, Estimation and diagnostic checking for the Models Simulation and Monto Carlo methods

Unit-V

Application of Time-series analysis: Determining randomness of data, Examining stationery of a time series, removing non-stationarity in a time series, Recognizing seasonality in a time series.

List of Reference Books:

1. Box, G.E.P, and Jenkins, G.M(1976) Time Series Analysis-Forecasting and control, Holden-dav, San Francisco
2. Anderson, T.W (1971). The statistical Analysis of time series, Wiley,N.V
3. Montgomery, D.C. and Johnson, L.A.(1977). Forecasting and Time series Analysis, MC Grawhill.
4. Kendall, Sir Maurice and Ord, J.K.(1990). Time series Arnold (Third Edition) Edward
5. Forecasting methods by Makridakis
6. V.K.Kapoor and S.C.Gupta: Fundamentals of Applied Statistics, Sultan Chand

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
II B.A. Statistics/Semester-IV
(Non-Mathematics Combination)
Probability Distributions Paper-IV

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Discrete distributions: Binomial, Poisson, Geometric distributions-definitions, means, variances and applications of these distributions. Additive property if exists, Simple problems.

Unit-II:

Continuous distributions: Rectangular, Normal, exponential distributions-definitions and their properties, Simple problems.

Unit-III:

Curve fitting: principle of least squares-fitting of straight line, Parabola, exponential and power curves.

Unit-IV:

Correlation and Regression: Meaning, types, scatter diagrams, correlation-coefficient, Spearman's rank correlation, Regression lines, Regression coefficients and their properties.

Unit-V:

Interpolation: Need and meaning of Interpolation, Graphical method. Newton's and Lagrange's formula for Interpolation

PRACTICAL'S- SEMESTER-IV

Conduct any 6 practicals

1. Fitting of Binomial by direct method
2. Fitting of Poisson distribution by Direct method
3. Fitting of Normal distribution by Ordinates method
4. Fitting of Straight line Or Fitting of Parabola
1. Fitting of $Y = a X^b$ Or Fitting of $Y = a b^x$ Or Fitting of $Y = a e^{bx}$
2. Correlation coefficient for ungrouped data
3. Regression lines.
4. Interpolation using Newton's and Lagrange's formulae

Government College [A] Rajahmahendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Applied Statistics (Cluster-1, Paper-1) Paper –VIII-A1
Total hrs per week: 04 Total credits: 03

Unit-I

Vital Statistics: Meaning, definition, uses, source of vital statistics – registration method, Census method Death rates-, crude death rates – age specific death rate, standardized Death rates Birth rates crude birth rate, age specific fertility rate, general fertility rate, Total fertility rate

Unit-II

Reproductive rates: Gross reproductive rate and net Reproductive rate life tables and abridged life tables.

Unit-III

Time series: Meaning components, trend- graphical, semi-averages, straight line, parabola, moving average methods. Seasonal indices methods- simple averages –ration to trend, ratio to moving average, link relatives methods.

Unit-IV

(SQC): Importance of SQC in industry – Concept of chance and assignable causes of variation, Natural tolerance and pacification limits,

Unit-V

Control Charts for variables (Mean, Range, charts) and attribute (p, np and C) Charts for fixed sample size only.

PRACTICALS:
1. Birth rates
2. Death rates
3. Trend-Straight line
4. Seasonal indices-Simple Average
5. X, R charts
6. Attribute control chart p chart
7. Attribute control chart np chart

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Computer Applications (Cluster-1, Paper-2) Paper -VIII

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Introduction to Operating system: Structure of an Operating system The purpose of Operating systems –Features of an Operating systems-Types of an Operating Systems –Proving a User interface-Running Programs-managing Hardware-Enhancing an OS utility software.

Unit-II:

MS Word: Starting word, Creating new documents when Word is running, Standard tool bar, Formatting tool bar, File menu, Edit and manipulating text, Page setup, tab keys ,undo and redo commands, bullets and numbered list, Exiting word, Inserting page breaks, Inserting headers and footers, Inserting page numbers.

Unit-III:

Tables: creating a simple table using table button, creating a table using table menu, entering and editing text in a table, adding rows, changing row heights, deleting rows, inserting columns, deleting columns, Graphics in MS Word-Adding a clipart, editing a graphic, Auto shapes, Template, Mail merge. Macro-recording a macro, running a macro.

Unit-IV:

MS EXCEL: Save and print workbooks, Enter and edit data. Modify a worksheet and workbook. Work with cell references. Learn to use functions and formulas. Create and edit charts and graphics, Filter and sort table data and charts. Import and export data. Excel Basics Work with Cells and Worksheets Calculate Your Data Format your Workbook Add Charts and Graphics Collaborate with Others Analyze your Data Work

Unit-V:

MS POWER POINT: Basics, Creating presentations-auto content wizard, design template. Working with menus-file menu, edit menu, view menu, insert menu, format menu, tools menu, slide show menu, windows, help. Tool bars-standard tool bar, Formatting tool bar, draw tool bar, Slide control tool bar, Picture tool bar. Opening a presentation, Insert a new slide, selecting slides-single, multiple, deleting a slide. Cut, Copy, Paste slides, saving a presentation, closing a presentation, slide numbering, printing presentation. Applying a design to presentation, Slide transition.

Prescribed Books:

1. Working in Microsoft Office by Ron Mansfield, Tata McGraw Hill.
2. Advanced Microsoft office 2000 by Meredith Flynn & Nita rutkosky, BPB publications.
3. Fundamentals of computers by V.Rajaraman,PHI
4. Computer System Architecture by M.Morris Mano
5. Operating System by Dhumdhere

PRACTICALS:

1. Design a visiting card for a managing director of a company as per the following specification. Size of the visiting card should be 31/2 "X2"
2. Name of the company with a big font using word art. Phone number, Fax number and Email address with appropriate left and right margins and page number in the footer and name on top right side.
3. Prepare a resume of an MCA graduate with proper headings, appropriate left and right margins and page number in the footer and name on top right side.
4. Create an interview call letter as the main document and create 10 records for 10 persons. Use mail merge to create letters for 6 selected persons among the 10.
5. Write a macro to format a document as below.
   i) Line spacing is two
   ii) Paragraph indent of 0.10
   iii) Justification formatting style.
   iv) Arial font of 10 point size.
6. Filter and sort table data and charts.
7. Work with Cells and Worksheets Calculation
8. Make a Presentation of a slide for a given DATA
9. Make a Power Point presentation about our college with statistical DATA

Government College [A] RajaHmahendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Official Statistics and Design of Experiments (Cluster-2, Paper-1)
Paper -VIII

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Official Statistics: National income, methods to estimate national income, problems involved in estimating national income, agricultural statistics.

Unit-II

Area, yield of statistics, Functions and organization of CSO, NSSO

Unit-III

Analysis of variance: Meaning, definition, assumptions, one way and two way classifications.

Unit-IV

Principles of design of experiments: Principles of experiment, Completely Randomized design, Randomized block design and Latin square design.

Unit-V

Missing plot techniques: RBD, LSD, Concepts of Factorial experiments 2^2 & 2^3

Text Books:

1. Fundamentals of Statistics: Goon Gupta, Das Gupta
2. Applied Statistics-Parimal Mukhopadhyaya

Reference Books

1. Design of Experiments by Gupta Kapoor:
2. Applied Statistics-V.K.Kapoor & S.C.Gupta
3. Anuvarthitha Sankyaka Sastramu – Telugu Academy book.

PRACTICALS:

1. ANOVA-equal one way classifications
2. ANOVA-unequal one way classifications
3. ANOVA-Two way classifications
4. CRD
5. RBD
6. LSD

Government College [A] Rajahmahendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination)
Mortality and Actuarial Statistics (Cluster-2, Paper-2)
Paper –VIII-B2

Total hrs per week: 04 **Total credits: 03**

Unit-I:

Rates and Ratio's in Mortality- Exposed to Risk Aggregate Rates- Life Year and other rate Intervals

Unit-II

Select Rates – Multiple Decrement Tables – Its role in Actuarial Statistics

Unit-III

Principles and Purposes of Graduation – The Graphic Method - Graduation by reference to a Standard table.

Unit-IV

Compression of Rates of Selection – Social and Economic factors in Mortality – Population Structures and Projections – Age Sex Pyramid

Unit-V

U.K. Assured lives and Annuitants Mortality.- The English life Tables – Individual Policy Sickness Experience – Indian Assured Lives Mortality.

Recommended Books:

Practicals:

1. **Rates and Ratios in Mortality**
2. **Multiple Decrement Tables**
3. **Graphic Method**
4. **Age Sex Pyramid**
5. **Annuitants Mortality**

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
ACTAUARIAL SCIENCE PROPOSED SYLLABUS
I YEAR B.Sc (MSAS) PAPER-I
(COURSE CODE-STT124)
BASICS OF BUSINESS ECONOMICS PAPER-1

Total Hrs required: 60
Total Credits: 03

Unit-I

Nature and scope of economics – Methodology in economics – Concepts of Demand and Supply – Elasticity of demand – price, income, cross.

Unit-II

Cardinal and Ordinal approaches – Law of Diminishing Marginal utility – Indifference curve –Consumer's equilibrium– Consumer surplus.

Unit-III

Market forms – Perfect and Imperfect Markets –Features of various markets – Monopoly, Monopolistic Competition, Oligopoly – Notion of Controlled and Administered prices.

Unit-IV

Concepts of Payback period – Average Annual Rate of return – Net Present Value – Internal Rate of Return criterion – Elements of Social Cost Benefit analysis.

Unit-V

National income and social accounts – concept and measurement of national income –Introduction to Macro economic policy and Money and monetary institutions…. RBI, Commercial banks – Concept of Insurance, Stock exchanges, SEBI, IRDA.Nature, characteristics and phases of Trade cycles – Control of Trade Cycles.

References:

1. CT-7 study material of Institute of Actuaries of India
2. Ackley (1976) Micro Economics – Theory and policy, Macmilan publishing company, Newyork.
3. Gupta S.B(1994), Monetary Economics, S.Chand& Co., New Delhi.4. Heijdra B.J. and F.V.Ploeg (2001) Foundations of Modern Economics, Oxford university Press, Oxford.

Government College [A] Rajahmahendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
I B.Sc Statistics/Semester-II (With Mathematics Combination)
Actuarial science
Paper – II-Basics of Financial Mathematics

Total hrs per week: 04 **Total credits: 03**

Unit-I

Simple and Compound interest, Compound interest tables, Present Value, Normal and Effective rates of interest, Effective rate corresponding to a nominal rate and Vice-Versa, Discount and Discounted value, Varying rates of interest, Equation of Value, Equated time of payment.

Unit-II

Repayment of loan by uniform installments when the frequency of installments is the same as that with which interest is convertible, Repayment of loan by uniform installments consisting of both interest and principle repayment, when the frequency of installment is different from that with which interest is convertible, Redemption of Loans by a sinking fund, Lender's sinking fund, Further consideration on redemption of loan, Capital redemption policies, Office premiums, Surrender Value.

Unit-III

Nominal and Effective rates of Discount, Average interest yield on the life fund, Money weighted rate of return, Time weighted rate of return and linked internal rate of return,.

Unit-IV

Column l_x , Column d_x , Column q_x , Column p_x , The probabilities of survival and death, Stationary population, L_x , T_x , Curate expectation of life, Complete expectation of life, Central death rate M_x , Selection and select rates, Ultimate table, Aggregate table. Construction of Mortality tables, Stages involved in construction of mortality table, The data to be used, Period of investigation, Unit of investigation, The method of investigation, Census method, application of census method to life office data, Determination of exposed to risk and deaths.

Unit-V

Life Assurance premiums-General Considerations, Assurance benefits-Pure Endowment assurance, Endowment assurance, Temporary Assurance or Team assurance, Whole life Assurance, Double Endowment assurance , Increasing Temporary Assurance, Increasing Whole life Assurance, Commutation functions D_x , C_x , M_x , and R_x , Expressions for present values of assurance benefits in terms of Commutation functions, Fixed term (Marriage) Endowment, Educational annuity plan.

Suggested Readings:

1) An Introduction to Mathematics of finance by J.J.McCUTCHEON and W.F.SCOTT
2) Actuarial Mathematics by Bowers Gerber Hickman Jpmes Nesbitt

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.Sc Statistics/Semester-VI
(With Mathematics Combination)
OPTIMIZATION TECHNIQUES ((Cluster-1, Paper-1) Paper -VIII

Total no. of hrs per week: 03 **Total credits:03**

----------Unit-I

Operations Research: Introduction to O.R. Origin and development of OR, Nature and features of O.R, Meaning, Definition of O.R, Scope of O.R, Phases of O.R, Advantages and Disadvantages of O.R,Convex sets and their properties.

Unit-II

Linear Programming Problems :(LPP), Definitions of LPP, Components, basic assumptions, Formulation of LPP, Solutions of LPP by Graphical method, Some exceptional cases in graphical method, Alternative Optima, Unbounded solution and Infeasible solution

Unit-III

Linear programming problem-Simplex method:General LPP, Objective function, Constraints, Non-negative restrictions, Solutions of LPP, feasible solution and optimum solution, Canonical and Standard forms of LPP, Basic solution, Definition, degenerate solution, Basic feasible solution, Associated cost vector, Improved Basic feasible solution, Optimum basic feasible solution and Net evaluation, Fundamental theorem of LPP, the computational procedure of Simplex algorithm and problems.

Unit –IV

Linear Programming problem-Simplex method-II:
Artificial Variable Technique-The Big-M Method or Method of Penalties, Two Phase Simplex method, Concept of degeneracy and resolving it.

Unit- V

Duality in Linear Programming:Concept of duality, Formation of dual LPP, Primal and dual relationship, primal dual pair in matrix form. Statement of fundamental theorem of duality, Dual Simplex method and problems.

Text Books:

1) Operations Research by Kanthi Swaroop k.GUPTA AND ManMohan –Sultan Chand
2)Operation Research- S.D Sharma
3) Operation Research – Taha

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.Sc Statistics/Semester-VI
(With Mathematics Combination)
Actuarial statistics (Cluster-2, Paper-2) Paper –VIII

Total hrs per week: 03 **Total credits: 03**

Unit-I

Introductory to Statistics and Insurance Applications: Discrete, Continuous and mixed probability distributions. Insurance applications, sum of random variables. Utility theory: Utility functions, expected utility criterion, types of utility function, insurance nd utility theory.

Unit-II

Principles of Premium Calculations Properties of Premium principles, examples of premium principles. Individual risk models: models for individual claims, the sum of independent claims, approximations and their applications.

Unit-III

Survival Distribution and Life Tables: Uncertainity of age at death, Survival function, time-until-death for a person, curate future lifetime, force of mortality, life tables with examples, deterministic Survivorship group, life table characteristics, assumptions for fractional age, some analytical laws of mortality.

Unit-IV

Life Insurance: Models for insurance payable at the moment of death, insurance payable at the end of the year of death nd their relationsghips. Life annuities: Continuous life annuities, discrete life annuities, life annuities with periodic payments, Premiums: Continuous an discrete premiums.

Suggested Reading:

1. Dickson, C.M.D.(2005) : Insurance Risk And Ruin (International Series on Actuarial Science), Cambridge University Press.
2. Browers, N.L., Gerber, H.U. Hickman, J.C..,Jones, D.A. And Nesbitt, C.J.(1997): Actuarial Mathematics

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2017-18
III B.Sc Statistics/Semester-VI
(With Mathematics Combination)

DEMOGRAPHY & VITAL STATISTICS(OPTION -2)

Paper - VII

Total no. of hrs per week: 03 **Total credits:03**

----------Unit-I

Population Theories: Converge and Content errors in demographic data, use of balancing equations and Chandra Sekharan-Deming formula to check completeness of registration date. Introduction and Sources of collecting data on Vital Statistics, errors in Census and registration data.

Unit-II

Measurement of Mortality: Crude Death Rate (CDR), Specific death rate (SDR), Infant mortality, Rate(IMR) and Standardised death rates . Adjustment of age data, Use of Myer and UN indices, Population Composition, dependendancy ratio.

Unit-III

Stationary and Stable population, Central Mortality Rates and Force of Mortality, Life (Mortality) tables, Assumption, Description, Construction of life tables and use of life tables.

Unit –IV

Abridged life tables: Concept and construction of abridged life tables by Eeed-Merrell method, Gereville's method and King's method, Measurement of Fertility, Crude Birth Rate (CBR), General Fertility Rate (GFR), Specific Fertility Rate(SFR) and Total Fertility Rate(TFR).

Unit-V

Reproduction Rates: Measurement of population growth, crude rate of natural increase, Pearl's Vital index, Gross reproductive rate(GRR) and Net reproductive rate(NRR).

Text Books:

1. **Mukhopadhyaya. P (1999) Applied Statistics, Books and Allied(P) Ltd**
2. **Goon, A.M, Gupta M.K and Dasgupta, B.(2008) : Fundamentals of Statistics, Vol11, 9th edition, World Press.**
3. **Biswas. S(1998), Stochastic Process in Demography & Application, Wiley Eastern Ltd.**
4. **K.Srinivas Basic demographic techniques & application**
5. **R. Ramakumar, Technical demography**
6. **K.V.Pathal & F.Rama, Techniques of demographic agency**

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY
DEPARTMENT OF TELUGU

2014-15

Name of the Module : ప్రాచీన కవిత్వం
Nature of the Module : జనరల్
Nature of Learning : రెగ్యులర్
No. of hours per week : 4

TEL-114

సిలబస్

మాడ్యూల్ - I ప్రాచీనము

Unit - I ప్రాచీన పద్యభాగము

1. గంగా శంతనులకథ - నన్నయ
2. మూషిక మార్జాలవృత్తాంతము - తిక్కన
3. హనుమత్సందేశము - మొల్ల

Unit - II ప్రాచీన గద్యభాగము

"మిత్రలాభము" "చిన్నయ సూరి" " నీతి చంద్రిక నుండి"

(గంగాతీరమందు సకల సంపదలుగలిగి పాటలీపుత్రమను పట్టణము కలదు .... నుండి చివర వరకు గల మిత్ర లాభము పూర్తిగా)

Unit - III ఎ. సంధులు - బి. సమాసములు

ఎ. సంస్కృత సంధులు

1) సవర్ణదీర్ఘ సంధి, 2) గుణ సంధి, 3) యణాదేశ సంధి, 4) వృద్ధి సంధి

తెలుగు సంధులు 1) అత్వసంధి, 2) ఇత్వ సంధి, 3) ఉత్వ సంధి, 4) త్రిక సంధి, 5) గసడ దవాదేశ సంధి, 6) ద్రుత సంధి, 7) రుగాగమ సంధి, 8) టుగాగమ సంధి, 9) ఆమ్రేడిత సంధి, 10) ద్విరుక్తటకార సంధి

బి. సమాసములు :

1) తత్పురుష, 2) కర్మధారయ, 3) ద్వంద్వ, 4) ద్విగు, 5) బహువ్రీహి సమాసములు

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY

DEPARTMENT OF TELUGU 2014-15

SEMESTER - II

Name of the Module	:	[illegible]
Nature of the Module	:	[illegible]
Nature of Learning	:	[illegible]
No. of hours per week	:	4

TEL-115

సిలబస్

<u>మాడ్యూల్ - II</u> ఆధునికము

Unit - I ఆధునిక కవిత్వము

1. [illegible] - [illegible]
2. మహా ప్రస్థానము - శ్రీశ్రీ
3. [illegible] - [illegible]

Unit - II [illegible]

1. [illegible] - [illegible]
2. [illegible] - [illegible]
3. [illegible] - [illegible]

Unit - III నవల

[illegible] - [illegible]

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY
DEPARTMENT OF TELUGU

SEMESTER - I **2014-2015**

Name of the Module : ప్రాచీన కవులు - అలంకారాలు
Nature of the Module : జనరల్ ఎలక్టివ్
Nature of Learning : రెగ్యులర్
No. of hours per week : 3

TEL-116

మాడ్యూల్ - 1

పాఠ్యాంశాలు

1. శ్రీనాథుడు - కిరాతార్జునీయం - హర విలాసం - సప్తమాశ్వాసము గాండీవ ప్రవిముక్త - దొడ్డగెచంద్రార్ధమౌళి 68-91

2. పింగళి సూరన - నారదగాన మాత్సర్యం - కళాపూర్ణోదయం - రెండవ ఆశ్వాసం 68-101 పద్యముల వరకు

3. వేమన - వేమన పారిస్ ప్రతి నుండి 25 పద్యాలు ఎంపిక చేసినవి.

అలంకారములు : (చంద్రాలోకము నుండి)

1. ఉపమ, 2. ఉత్ప్రేక్ష, 3. రూపక, 4. అర్థాంతరన్యాస, 5. స్వభావోక్తి,
6. అతిశయోక్తి 7. దృష్టాంత 8. ఉల్లేఖ, 9. శ్లేష, 10. విరోధాభాస

GOVERNMENT COLLEGE (Autonomous) - **RAJAHMUNDRY**

DEPARTMENT OF TELUGU

SEMESTER - III

I BA

Name of the Module	:	ప్రాచీన కవిత్వం
Nature of the Module	:	జనరల్
Nature of Learning	:	థియరీ
No. of hours per week	:	4

TEL 1D

మాడ్యూల్ - III ప్రాచీన కవిత్వము, అలంకారాలు, ఛందస్సు

యూనిట్ - I
పోతన–వామనావతారం శ్రీమదాంధ్ర భాగవతము
అష్టమస్కంధము 585 నుండి 621 వరకు
[illegible] నుండి [illegible] వరకు

యూనిట్ - II
అనంతామాత్యుడు – సత్యాన్ని [illegible] భోజరాజీయం లోని [illegible] లోని
గోవ్యాఘ్ర సంవాదము 27 నుండి 74 పద్యం వరకు
"[illegible]" నుండి "ఆ గోవ్యాఘ్ర సంవాదము"

యూనిట్ - III
సుభాషితాలు : వేమన (5) సుమతి (5)
భాస్కరశతకం (3), సుభాషిత రత్నావళి (3)

వేమన
1. ఆత్మశుద్ధిలేని యాచారమదియేల
2. [illegible]
3. తల్లిదండ్రి మీద దయలేని పుత్రుండు
4. ఇనుము విరిగెనేని ఇనుమారు ముమ్మారు
5. చంపదగినయట్టి శత్రువు తనచేత

సుమతి
1. ఉపకారికి నుపకారము
2. పుత్రోత్సాహం తండ్రికి
3. వినదగు నెవ్వరు చెప్పిన
4. కులకాంతతోడ నెప్పుడు
5. బలవంతుడనాకేమని

భాస్కర
1. చదువది ఎంత కల్గిన
2. దక్షుడు లేని ఇంటికి
3. పండితులైన వారు దిగువం

సుభాషిత రత్నావళి
1. ఆరంభింపరు నీచ మానవులు
2. ఒక చోటేలను బవ్వళించు
3. మకరముఖాంతర స్థముగా

(4) విదురనీతి పద్యాలు - (4)

యూనిట్ - II
1) అలంకారాలు
అ) శబ్దాలంకారాలు
వృత్త్యానుప్రాస, ఛేకానుప్రాస, లాటాను ప్రాస, అంత్యానుప్రాస, ముక్తపదగ్రస్తం, యమకం

ఆ) అర్థాలంకారములు
ఉపమ, ఉత్ప్రేక్ష, రూపక, అర్థాంతరన్యాస, అతిశయోక్తి, శ్లేష

2) ఛందస్సు :
అ) వృత్తములు : ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, - మత్తకోకిల
ఆ) జాతులు : కందము, ద్విపద
ఇ) ఉపజాతులు : తేటగీతి, ఆటవెలది, సీసము, మంజరీద్విపద

అంత్యప్రాసను ఉపయోగించి చిన్న చిన్న కవితలు రాయడం అలవాటు [illegible]

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY

DEPARTMENT OF TELUGU

SEMESTER - IV

Name of the Module	:	ఆధునిక కవిత్వం
Nature of the Module	:	కోర్
Nature of Learning	:	రెగ్యులర్
No. of hours per week	:	04

TEL-119

మాడ్యూల్ - IV ఆధునిక కవిత్వం, నాటకం, గద్యం, వ్యాసం

యూనిట్ - I
1) బోయి భీమన్న - గుడిసెలు కాలిపోతున్నై (కవిత)
2) విశ్వనాథ సత్యనారాయణ - మాధవ వర్మ (ఆంధ్రప్రశస్తి నుండి 1-16)
"ఇతడు పల్లవరాజు" నుండి వటశివ సాయం సంధ్యా వరకు"
3) దేవరకొండ బాలగంగాధర తిలక్ - ఆర్తగీతం (అమృతం కురిసిన రాత్రి నుండి)

యూనిట్ - II
గద్యభాగం
1) పరవస్తు చిన్నయసూరి - మిత్రభేదం (నీతి చంద్రిక నుండి)
"యమునా తీరమందలి" నుండి లొట్టియను చంపి భక్షించెను" వరకు
2) పానుగంటి లక్ష్మీనరసింహారావు - "స్వభాష" (సాక్షి మూడవ సంపుటిలోనిది)
3) ఆర్.వి.ఎస్. సుందరం జానపద విజ్ఞానం - సామెతలు
(ఆంధ్రుల జానపద విజ్ఞానం అనే గ్రంథం నుండి)

యూనిట్ - III సాధారణ వ్యాసాలు, వ్యాస లక్షణం, (సమకాలీన సాంఘిక, శాస్త్రసాంకేతికాంశాలు)

యూనిట్ - IV
ఉపవాచకం
తిరుపతి వేంకటకవులు - పాండవోద్యోగం (నాటకం)

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY
DEPARTMENT OF TELUGU
SEMESTER - IV

Name of the Module	:	పత్రికారచన
Nature of the Module	:	జనరల్ ఎలక్టివ్
Nature of Learning	:	రెగ్యులర్
No. of hours per week	:	3

TEL-420

మాడ్యూల్ - I పత్రికారచన

యూనిట్-1	పత్రికారచన - పుట్టు పూర్వోత్తరాలు తెలుగు ముద్రణ - వికాసము - పత్రికలు ఈనాడు - ఆంధ్రజ్యోతి - సాక్షి - వార్త
యూనిట్-2	వార్త - నిర్వచనము - లక్షణములు వార్తా వనరులు - సేకరణ
యూనిట్-3	విలేఖరి - లక్షణాలు - విధులు - మెళకువలు - బీట్లు ఉపసంపాదకుడు - విధులు బాధ్యతలు
యూనిట్-4	వార్తాశీర్షికలు, వార్తా లీడ్లు - రకాలు వార్తారచన సూత్రాలు - నియమాలు
యూనిట్-5	ప్రకటనలు - నిర్వచనం - లక్షణాలు ఆవశ్యకత - విధులు ప్రకటనలు - రకములు - టి.వి. రేడియోలకు తయారు చేయడం.

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY
DEPARTMENT OF TELUGU

SEMESTER - I **2014-2015** I BA స్పెషల్ తెలుగు

Name of the Module	:	ప్రాచీన కవిత్వం, ఛందో అలంకారాలు
Nature of the Module	:	జనరల్ ఎలక్టివ్
Nature of Learning	:	రెగ్యులర్ TEL-121
No. of hours per week	:	6

మాడ్యూల్ - 1

పాఠ్యాంశాలు

1. శ్రీనాథుడు - కిరాతార్జునీయం - హర విలాసం - సప్తమాశ్వాసము గాండీవ ప్రవిముక్త - దొడగెచంద్రార్ధమౌళి (68 నుండి - 91వరకు)

2. పింగళి సూరన - నారదగాన మాత్సర్యం - కళాపూర్ణోదయం - రెండవ ఆశ్వాసం 68 నుండి 101 పద్యముల వరకు

3. వేమన - వేమన పారిస్ ప్రతి నుండి 25 పద్యాలు ఎంపిక చేసినవి.

4. అలంకారములు : (చంద్రాలోకము నుండి) 4×2 = 8

1. ఉపమ,	2. ఉత్ప్రేక్ష,	3. రూపక,	4. అర్థాంతరన్యాస,	5. స్వభావోక్తి,
6. అతిశయోక్తి	7. దృష్టాంత	8. ఉల్లేఖ,	9. శ్లేష,	10. విరోధాభాస

5. ఛందస్సు :- (యతి ప్రాసలు (కవిజనాశ్రయం నుండి) 4×2 = 8

అ. దశవిధయుతలు

1. స్వర,	2. వర్గ	3. అఖండ	4. ప్రాది	5. బిందు
6. ప్లుత	7. సంయుక్తాక్షర	8. ఎక్కటి	9. పోలిక	10. సరసయతి

ఆ. షడ్విధ ప్రాసలు

1. సుకర	2. దుష్కర	3. ద్విప్రాస	4. త్రిప్రాస
5. అనుప్రాస	6. అంత్యప్రాస		

GOVERNMENT COLLEGE (Autonomous) - RAJAHMUNDRY
DEPARTMENT OF TELUGU

స్పెషల్ తెలుగు

రెండవ సెమిస్టర్ 2014-2015 TEL-122

మాడ్యూల్ - II పద్యభాగం, గజల్, సాహిత్య చరిత్ర

పాఠ్యాంశాలు

1. ఏనుగు లక్ష్మణకవి - నీతి శతకం - 25 పద్యాలు ఎంపిక చేసినవి.
2. సి. నారాయణ రెడ్డి - గజల్స్
3. శివాజి పట్టాభిషేకము - గడియారం వేంకట శేషశాస్త్రి
4. ప్రాఙ్నన్నయ యుగం - భాషా సాహిత్య వికాసం, సాహిత్యం నిర్వచనం
   నన్నయ - తిక్కన - ఎర్రనల పరిచయం
   ఆంధ్రీకరణ విధానం.

GOVERNMENT COLLEGE (Autonomous) - RAJAMAHENDRAVARAM.
DEPARTMENT OF TELUGU

SEMESTER - I

TEL-123

I BA BCom BSc I Sem

Name of the Module	:	ప్రాచీన కవిత్వం
Nature of the Module	:	జనరల్
Nature of Learning	:	రెగ్యులర్
No. of hours per week	:	4

మాడ్యూల్ - 1 సిలబస్

ప్రాచీన పద్యభాగము - వ్యాకరణము

UNIT - I :

నన్నయ - "గురుదక్షిణ"

ఏకలవ్యుని ద్రోణుడు గురుదక్షిణ అడుగుట. ఆదిపర్వం - పంచమాశ్వాసము 231-247

మఱియు గధాకార్ముక -

కౌరవ పాండవులను ద్రోణుడు గురుదక్షిణ అడుగుట. ఆదిపర్వం - షష్ఠాశ్వాసం పద్యం 63-90

అంతప్రధాత - తృణాహతాశనంబు దీర్ఘమగునె.

UNIT - II :

తిక్కన

మూషిక మార్జాల వృత్తాంతం

ఆంధ్రమహాభారతం - శాంతిపర్వం - మూడవ ఆశ్వాసం (202-242)

అడవిలో నొక మట్టి నుండి సౌఖ్యమున్ బొందెన్ వరకు

UNIT - III :

సాయుజ్యము

శ్రీకాళహస్తి మహాత్మ్యము - ద్వితీయాశ్వాసం

(109వ పద్యం నుండి 139వ పద్యం వరకు)

UNIT - IV :

చేమకూర వేంకటకవి

సుభద్రా విలాసం 3వ ఆశ్వాసం (93-139)

తనయుని పెండ్లికేగవలె ధాత్రికి నుండి (తేరెక్కి దంపతులరుగ)

UNIT - V :

వ్యాకరణం

అ) సంధులు - సవర్ణ దీర్ఘ, గుణ, వృద్ధి, యణాదేశ, త్రిక, గసడద వాదేశ, రుగాగమ, టుగాగమ, ఆమ్రేడిత అత్వ ఇత్వ ఉత్వ సంధులు

ఆ) సమాసాలు :- తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగుబహువ్రీహి మొ॥నవి.

ఇ) తెలుగు సామెతలు - సమీక్ష

GOVERNMENT COLLEGE (Autonomous) - RAJAMAHENDRAVARAM.
DEPARTMENT OF TELUGU

SEMESTER - II I BA ... II Sem

Name of the Module	:	ఆధునికము
Nature of the Module	:	జనరల్
Nature of Learning	:	రెగ్యులర్
No. of hours per week	:	4

TEL-124

మాడ్యూల్ - II - సిలబస్
ఆధునిక సాహిత్యము

UNIT - I : అ) గరిమెళ్ళ సత్యనారాయణ - మాకొద్దీ తెల్లదొరతనము
ఆ) శ్రీశ్రీ - దేశ చరిత్రలు

UNIT - II : అ) జాషువా - శిశువు
ఆ) గెడ్డాపు సత్యం - చెట్టు ఖండిక 1 నుండి 25 పద్యాలు
(శ్రీనిధానం నుండి మహిమనీది పద్యం వరకు,
కవితా వైజయంతి పద్య సంకలనం నుండి)

UNIT - III : కథానికలు
అ) పాలగుమ్మి పద్మరాజు - గాలివాన
ఆ) కొలకలూరి ఇనాక్ - ఆకలి

UNIT - IV : కథానికలు
అ) కేతు విశ్వనాథ రెడ్డి - నమ్ముకున్న నేల
ఆ) ముప్పాళ్ళ రంగనాయకమ్మ - అమ్మకు ఆదివారం లేదా?

UNIT - V : డా॥ వి.ఆర్. రాసాని - బతుకాట

GOVERNMENT COLLEGE (A) - RAJAMAHENDRAVARAM
DEPARTMENT OF TELUGU

Name of the Module	-	వ్యాకరణం
Nature of the Module	-	కోర్
Nature of Learning	-	రెగ్యులర్
Number of Hours per Week	-	6

TEL-125

III BA PRT & HGT

Paper - III

Semester V - Module V - Syllabus

UNIT - I : సంజ్ఞ పరిచ్ఛేదం – బాలవ్యాకరణం

UNIT - II : సంధి పరిచ్ఛేదం – బాల వ్యాకరణం

UNIT - III : కారక పరిచ్ఛేదం – బాల వ్యాకరణం

UNIT - IV : సమాస పరిచ్ఛేదం – బాల వ్యాకరణం

UNIT - V : వాక్య పరిచ్ఛేదం – ప్రౌఢవ్యాకరణం

సంప్రదించవలసిన గ్రంథాలు :

1) బాలవ్యాకరణం
2) ప్రౌఢ వ్యాకరణం
3) బాలవ్యాకరణం గంటా పథ వ్యాఖ్యానం
4) ప్రౌఢ వ్యాకరణం – వారణాశి వేంకటేశ్వర్లు

GOVERNMENT COLLEGE (A) - RAJAMAHENDRAVARAM

DEPARTMENT OF TELUGU ABAEO SPL Telugu

Name of the Module	-	ఆంధ్రుల చరిత్ర - సంస్కృతి వివిధ మతాల ప్రభావం
Nature of the Module	-	**Core Advanced**
Nature of Learning	-	రెగ్యులర్
Number of Hours per Week	-	5

Paper - IV TEL-126

Module VI - Semester V

ELECTIVE - I ADVANCED

UNIT - I : చరిత్ర - సంస్కృతి - సంఘము - సంస్కృతి నాగరికత - లక్షణాలు
ఆంధ్రుల సంస్కృతి - ప్రత్యేకతలు - పండుగలు, కళలు, జాతరలు, తిరునాళ్ళు

UNIT - II : ఆంధ్ర సంస్కృతి - బౌద్ధం, ఆంధ్ర సంస్కృతి - జైనం

UNIT - III : ఆంధ్రసంస్కృతి - శైవమతం; ఆంధ్రసంస్కృతి - వైదిక మతం

UNIT - IV : ఆంధ్ర సంస్కృతి - ఆర్య సమాజం, బ్రహ్మ సమాజం

UNIT - V : ఆంధ్ర సంస్కృతి ఇస్లామ్, క్రైస్తవ ప్రభావం

సంప్రదించవలసిన గ్రంథాలు :

1) తెలుగు విజ్ఞాన సర్వస్వం - వాల్యూమ్ - తెలుగు విశ్వవిద్యాలయ ప్రచురణ
2) ఆంధ్రుల చరిత్ర సంస్కృతి - ఖండిపల్లి లక్ష్మీరంజనం ఖండవల్లి బాలేందుశేఖరం
3) ఆంధ్రుల చరిత్ర - సంస్కృతి - తెలుగు అకాడమి ప్రచురణ
4) ఆంధ్రుల సాంఘిక చరిత్ర - సురవరం ప్రతాపరెడ్డి

GOVERNMENT COLLEGE (A) - RAJAMAHENDRAVARAM

DEPARTMENT OF TELUGU

Name of the Module	-	**తెలుగు సాహిత్య విమర్శకులు**
Nature of the Module	-	**కోర్ Skill Based**
Nature of Learning	-	**రెగ్యులర్**
Number of Hours per Week	-	**5**

TEL-127

Module VII - Semester V

Time : 3 Hrs. **ELECTIVE SKILL BASED** **Max. Marks : 75 marks**

UNIT - I

I. ఆధునిక సాహిత్య విమర్శకులు

1) కందుకూరి 2) కట్టమంచి 3) కొమఱ్ఱాజు 4) రాళ్ళపల్లి

UNIT - II

1) వేటూరి 2) విశ్వనాథ 3) దువ్వూరి 4) పింగళి

UNIT - III

II. అత్యాధునిక సాహిత్య విమర్శకులు

1) గుంటూరి శేషేంద్ర శర్మ 2) రాచమల్లు రామచంద్రారెడ్డి 3) శ్రీశ్రీ 4) ఆర్.ఎస్. సుదర్శనం

UNIT - IV

1) జి.వి. సుబ్రహ్మణ్యం 2) కత్తిపద్మారావు 3) చేకూరి రామారావు 4) కొలకలూరి ఇనాక్

UNIT - V

III. స్త్రీ విమర్శకులు

1) కాత్యాయనీ విద్మహే 2) సి. ఆనందరామం

3) ముదిగంటి సుజాతారెడ్డి 3) నిడదవోలు మాలతి

GOVERNMENT COLLEGE (A) - RAJAMAHENDRAVARAM

DEPARTMENT OF TELUGU

III B.A. SPL తెలుగు

Name of the Module	-	తెలుగు సాహిత్య విమర్శ - సిద్ధాంతాలు సూత్రాలు
Nature of the Module	-	కోర్
Nature of Learning	-	రెగ్యులర్
Number of Hours per Week	-	**6**

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III BA PPT & HGT
Paper - IV

Module - VIII - Semester - VI

UNIT - I

విమర్శ :

స్వరూప స్వభావాలు - విమర్శ ప్రయోజనం ఉత్తమ విమర్శక లక్షణములు.

విమర్శభేదాలు - వివరణాత్మక విమర్శ - అభినందనాత్మక విమర్శ

తులనాత్మక విమర్శ - నిర్ణయాత్మక విమర్శ.

UNIT - II

ఆధునిక విమర్శ పద్ధతులు :

గ్రంథ పరిష్కార విమర్శ, 2) చారిత్రక విమర్శ, 3) సాంఘిక విమర్శ, 4) కవిజీవిత విమర్శ, 5) మనోవైజ్ఞానిక విమర్శ, 6) నైతిక విమర్శ, 7) మార్క్సిష్టు విమర్శ, 8) కళావిమర్శ.

ఆధునిక విమర్శ సూత్రం :

నిబద్ధత, నిమగ్నత, నిబిడిత, ఆధునిక విమర్శ పద్ధతులను, సూత్రాల్ని ఏదో ఒక నవలకు కథానికకు సమన్వయం చేయుట.

UNIT - III

కవి - కావ్యము - కావ్యనిర్వచనాలు ప్రాచ్యులు - పాశ్చాత్యులు, కావ్యహేతువులు - కావ్య హేతువుల్లో ఏది ఉత్తమం

UNIT - IV

నవరసములు - స్థాయీ భావములు - రసస్వరూపము

"శబ్దవృత్తులు - అభిద - లక్షణ - వ్యంజన" ధ్వని అంటే ఏమిటి? ఆనందవర్ధనుని ధ్వనిని గూర్చి సంక్షిప్తపరిచయం.

UNIT - V

నాయకులు - ధీరోదాత్తుడు - ధీరోద్ధతుడు - ధీరలలితుడు; నాయికలు - స్వీయ - అన్య - సామాన్య;

ముగ్ధమధ్య ప్రౌఢ; శయ్య - పాకములు - వృత్తులు - రీతులు.

ఆధార గ్రంథాలు :

1) సాహిత్య సోపానములు శ్రీ దివాకర్ల వేంకటావధాని

2) సాహిత్య శిల్ప సమీక్ష - శ్రీ పింగళిలక్ష్మీకాంతం గారు

3) తెలుగు సాహిత్య విమర్శ - సిద్ధాంతాలు సూత్రాలు - వి. సిమ్మన్న

4) నరసభూపాలీయము - రామరాజభూషణుడు

GOVERNMENT COLLEGE (A) :: RAJAMAHENDRAVARAM.

DEPARTMENT OF TELUGU

III B.A. SPL తెలుగు భాషా చరిత్ర

TEL-129

Name of the Module	-	తెలుగు భాషా చరిత్ర
Nature of the Module	-	Core Advanced
Nature of Learning	-	రెగ్యులర్
Number of Hours per Week	-	6

III BA. PART & HON

PAPER - III

Module - IX - Semester - VI

Elective Paper - Advanced - తెలుగు భాషా చరిత్ర

UNIT - I

1) భాషా కుటుంబం; భారతదేశంలోని భాషా కుటుంబాలు

2) ద్రావిడ భాషాకుటుంబం, వ్యవహర్తలు, వ్యవహార ప్రాంతాలు.

UNIT - II

1) ఆంధ్ర శబ్దం - యుత్పత్తి, చారిత్రక ఆధారాలు

2) తెలుగు-తెనుగు పదాల యుత్పత్తి, చారిత్రక ఆధారాలు

తెలుగు భాషకు పేర్లు

UNIT - III

1) తెలుగు భాష యుగ విభజన, 2) పాఁబ్బన్నయయుగ భాష

3) ప్రాఁబ్బన్నయ, కావ్య, ప్రబంధ, ఆధునిక యుగాల్లో తెలుగు భాషలో వర్ణ, లింగ, వచన, సంభ్యావాచక, సంధి నిర్మాణాల్లో మాత్రమే వచ్చిన మార్పులు.

UNIT - IV

1) అర్థ పరిణామం - నిర్వచనం - కారణాలు.

2) చారిత్రక అర్థ పరిణామంలోని బేధాలు

3) వర్ణనాత్మక అర్థపరిణామంలోని బేధాలు

UNIT - V

ధ్వని పరిణామం - కారణాలు, రకాలు

1) వర్ణ సమీకరణం, 2) వర్ణ విభేదనం, 3) వర్ణ వ్యత్యయం 4) తాలవ్యీకరణం, 5) లోపదీర్ఘత,

6) శ్వాసత - నాదత, 7) స్వరభక్తి, 8) అనుచిత విభాగం

GOVERNMENT COLLEGE (A) :: RAJAMAHENDRAVARAM.

DEPARTMENT OF TELUGU

III B.A. SPL తెలుగు భాషా శాస్త్ర పరిచయం

Name of the Module	-	తెలుగు భాషా శాస్త్ర పరిచయం
Nature of the Module	-	కోర్ – Skill Based
Nature of Learning	-	రెగ్యులర్
Number of Hours per Week	-	6

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Module - X - Semester - VI

Elective Paper - Skill Based - తెలుగు భాషా శాస్త్ర పరిచయం

UNIT - I

1) భాషా నిర్వచనం లక్షణాలు
2) భాషాశాస్త్ర విభాగాల పరిచయం, ధ్వని విజ్ఞానం, వర్ణ విజ్ఞానం, పదాంశ విజ్ఞానం, అర్థ విజ్ఞానం, వాక్య విజ్ఞానం

UNIT - II

భాషాశాస్త్ర శాఖలు

1) చారిత్రక భాషాశాస్త్రం
2) తులనాత్మక భాషాశాస్త్రం
3) వర్ణనాత్మక భాషా శాస్త్రం

UNIT - III

ప్రాచీన భారతీయుల భాషా శాస్త్ర కృషి
(వేదాంగాల నుండి – వాక్య పదీయం వరకు)

UNIT - IV

ధ్వని పరిణామం – కారణాలు, రకాలు

UNIT - V

అర్థపరిణామం – నిర్వచనం, కారణాలు,
వర్ణనాత్మక, చారిత్రక అర్థ పరిణామాలు

GOVERNMENT COLLEGE (Autonomous) - RAJAMAHENDRAVARAM.

DEPARTMENT OF TELUGU

II BA, B.Com., B.Sc.,

SEMESTER - IV

Name of the Module	:	లీడర్‌షిప్ క్వాలిటీస్
Nature of the Module	:	జనరల్
Nature of Learning	:	రెగ్యులర్
No. of hours per week	:	02

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మాడ్యూల్ - IV లీడర్‌షిప్ క్వాలిటీస్ పేపర్

యూనిట్ - I వ్యవస్థ - నిర్వహణ - నాయకత్వం - అర్థము మరియు ప్రాముఖ్యత, నాయకత్వ సిద్ధాంతాలు - 1) లక్షణాల సిద్ధాంతము, 2) పరిస్థితుల సిద్ధాంతము, 3) ప్రవర్తనా సిద్ధాంతము - బ్లేక్ మరియు మౌంటిన్ రూపొందించిన మేనేజీరియల్ గ్రిడ్ సిద్ధాంతము.

యూనిట్ - II ప్రవర్తనాభావాలు, వ్యక్తుల ప్రవర్తన, వ్యక్తి జ్ఞానం, నేర్చుకొనే తత్వం వైఖరులు, ప్రేరణ, ప్రేరణా సిద్ధాంతములు - మూర్తిమత్వం - అభివృద్ధి.

యూనిట్ - III పరస్పర సంబంధాల ప్రవర్తనావళి - సమాచారం నాయకత్వం - సంబంధాలను ప్రభావితం చేయడం - ప్రవర్తనల విశ్లేషణ.

యూనిట్ - IV సముదాయ చలనత్వం - పాత్ర - నీతి - సంఘర్షణ అంతర్గత సముదాయం - బాహ్యసముదాయం - సంఘర్షణ నిర్వహణ.

యూనిట్ - V బృంద (జట్టు) నిర్మాణం - నిర్వహణ, బృంద వనరుల అభివృద్ధి, బృందరూపకల్పన, పాల్గొనడం - పరిణామాలు - బృంద నిర్మాణ కార్యకలాపాలు.

1. Organisation - Management - Leadership - Meaning and Significance - Different theories - Trait Theory, Blake & Mountan Theory - Other functions of Management.
2. Behavioral Concepts - Individual Behaviour - Perception - Learning - Attitude Formation and Change - Motivation - Theories of Motivation - Personality Development.
3. Interpersonal Behaviour - Communication - Leadership - Influencing Relations - Transactional Analysis.
4. Group Dynamics - Roles - Morale - Conflict - Groups - Inter-Group Behaviour - Inter - Group Collaboration and Conflict Management.
5. Team Building and Management - Developing team resources - Designing team - Participation and Repercussion - Team building activities.

పరిశీలనా గ్రంథాలు :-

1. ఆర్గనైజేషనల్ బిహేవియర్ - ఫ్రెజ్ లూథాన్స్
2. ఆర్గనైజేషనల్ బిహేవియర్ - రాబిన్స్, స్టీఫెన్.పి.
3. ఎస్సెన్షియల్ ఆఫ్ మేనేజమెంట్ - కూంజ్ మరియు ఓ' డొన్నెల్.

GOVERNMENT COLLEGE (A) - RAJAMAHENDRAVARAM

III B.A. Spl. Telugu, VI Semester,

తెలుగు భాషా చరిత్ర [Elective-I]

Paper - VII

TEL-133

UNIT - I

Teaching + Curriculum

1) భాషా కుటుంబం; భారతదేశంలోని భాషా కుటుంబాలు 6+3

2) ద్రావిడ భాషాకుటుంబం, వ్యవహర్తలు, వ్యవహార ప్రాంతాలు.

UNIT - II

1) ఆంధ్ర శబ్దం - యుత్పత్తి, చారిత్రక ఆధారాలు

2) తెలుగు-తెనుగు పదాల యుత్పత్తి, చారిత్రక ఆధారాలు

తెలుగు భాషకు పేర్లు

UNIT - III

1) తెలుగు భాష యుగ విభజన, 2) ప్రాజ్ఞన్నయయుగ భాష

3) ప్రాజ్ఞన్నయ, కావ్య, ప్రబంధ, ఆధునిక యుగాల్లో తెలుగు భాషలో వర్ణ, లింగ, వచన, సంఖ్యావాచక, సంధి నిర్మాణాల్లో మాత్రమే వచ్చిన మార్పులు.

UNIT - IV

1) అర్థ పరిణామం - నిర్వచనం - కారణాలు. 4+2

2) చారిత్రక అర్థ పరిణామంలోని భేధాలు 4+2

3) వర్ణనాత్మక అర్థపరిణానుంలోని భేధాలు 4+2

UNIT - V

ధ్వని పరిణామం - కారణాలు, రకాలు

1) వర్ణ సమీకరణం, 2) వర్ణ విభేదనం, 3) వర్ణ వ్యత్యయం 4) తాలవ్యీకరణం, 5) లోపదీర్ఘత, 6) శ్వాసత - నాదత, 7) స్వరభక్తి, 8) అనుచిత విభాగం 12+6

GOVERNMENT COLLEGE (Autonomous) - RAJAMAHENDRAVARAM

DEPARTMENT OF TELUGU

III B.A. SPL. తెలుగు, VI Semester, [redacted] Paper -7 ELECTIVE-II

PAPER - [redacted] 7E2

TEL-134

అలంకార శాస్త్రం

ప్రాచీన కవితా నిర్మాణ పద్ధతులు

1. కావ్యము

కవి కావ్యము, నిర్వచనాలు: భారతీయ అలంకారికులు, తెలుగు అలంకారికులు. కావ్య ప్రయోజనం . కావ్య భేదాలు. కావ్య హేతువులు

2. రసము:

రస నిర్వచనం, (విభావ, అనుభావ, సాత్విక, సంచారి భావాలు), రసము - యన్నిష్పత్తము రసము- రసభేదాలు.

3. ధ్వని

ధ్వని నిర్వచనం, ధ్వని సిద్ధాంతం, అభిధ, లక్షణ, వ్యంజన, ధ్వని భేదాలు

4. కళలు - లలిత కళలు:

దృశ్య - శ్రవ్య కళలు, లలిత కళల్లో కవిత్వ స్థానం.

ఆధార గ్రంథాలు:

1. సాహిత్య శిల్ప సమీక్ష - పింగళి లక్ష్మీకాంతం
2. సాహిత్య సోపానాలు - దివాకర్ల వేంకటావధాని
3. కావ్యా లోకము - నండూరి రామకృష్ణమాచార్య
4. భారత ధ్వని దర్శనము - శలాక రఘునాథ శర్మ
5. రసోల్లాసము - ఆచార్య జి.వి. సుబ్రహ్మణ్యం.

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జానపద సాహిత్యం - కళలు

UNIT-I

జానపద విజ్ఞాన వర్గీకరణ - జానపద విజ్ఞానం వల్ల ప్రయోజనాలు. జానపద విజ్ఞాన అధ్యయనంపై ఇంతవరకు జరిగిన ప్రాచ్య పాశ్చాత్యుల కృషి, జానపద సాహిత్యానికి, శిష్టసాహిత్యానికుండే తారతమ్యాలు.

UNIT-II

జానపద గేయాలు, కథా గేయాలు - లక్షణాలు - వర్గీకరణ, పౌరాణిక కథా గేయాలు - అద్భుత రస కథా గేయాలు - కరుణ రస కథా గేయాలు. వీర గాథలు - స్వరూప స్వభావాలు - పల్నాటి వీర చరిత్ర, కాటమరాజు కథ, బొబ్బిలి యుద్ధం మొదలైనవి.

UNIT-III

జానపద రూపకాలు-బొమ్మలాటలు, వీధి నాటకాలు, యక్షగానాలు, గంగిరెద్దులు, పగటి వేషాలు, బుర్రకథలు, గారడి, ఉట్లు, వివిధ జానపద కళారూపాలు.

UNIT-IV

జానపద సంగీతకారులు - పిచ్చుకకుంట్లు, శారదకాండ్రు, బవనీలు, వీరముష్టివారు, బీరన్నలవారు, గొల్ల సుద్దులు, దాసరులు, జంగాలు మొ॥

ఆధార గ్రంథాలు:

బిరుదురాజు రామరాజు - తెలుగు జానపద గేయ సాహిత్యం

నేదునూరి గంగాధరం - జానపద వాఙ్మయ వ్యాసావళి

ఆర్వియస్ సుందరం - ఆంధ్రుల జనపద విజ్ఞానం

నాయని కృష్ణకుమారి - తెలుగు జానపద గేయగాథలు

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జానపద సాహిత్యం - కళలు

UNIT -I

జానపద విజ్ఞాన వర్గీకరణ - జానపద విజ్ఞానం వల్ల ప్రయోజనాలు. జానపద విజ్ఞాన అధ్యయనంపై ఇంతవరకు జరిగిన ప్రాచ్య పాశ్చాత్యుల కృషి, జానపద సాహిత్యానికి, శిష్టసాహిత్యానికుండే తారతమ్యాలు.

UNIT -II

జానపద గేయాలు, కథా గేయాలు - లక్షణాలు - వర్గీకరణ, పౌరాణిక కథా గేయాలు - అద్భుత రస కథా గేయాలు - కరుణ రస కథా గేయాలు. వీర గాథలు - స్వరూప స్వభావాలు - పల్నాటి వీర చరిత్ర, కాటమరాజు కథ, బొబ్బిలి యుద్ధం మొదలైనవి.

UNIT -III

జానపద రూపకాలు-బొమ్మలాటలు, వీధి నాటకాలు, యక్షగానాలు, గంగిరెద్దులు, పగటి వేషాలు, బుర్రకథలు, గారడి, ఉట్లు, వివిధ జానపద కళారూపాలు.

UNIT -IV

జానపద సంగీతకారులు - పిచ్చుకకుంట్లు, శారదకాండ్రు, బవనీలు, వీరముష్టివారు, బీరన్నలవారు, గొల్ల సుద్దులు, దాసరులు, జంగాలు మొ॥

ఆధార గ్రంథాలు:

బిరుదురాజు రామరాజు - తెలుగు జానపద గేయ సాహిత్యం

నేదునూరి గంగాధరం - జానపద వాఙ్మయ వ్యాసావళి

ఆర్వియస్ సుందరం - ఆంధ్రుల జనపద విజ్ఞానం

నాయని కృష్ణకుమారి - తెలుగు జానపద గేయగాథలు

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జర్నలిజం శాస్త్రము

1. **సమాచార వినిమయం (కమ్యూనికేషన్)**

కమ్యూనికేషన్ నిర్వచనం, రకాలు, డైరెక్ట్ కమ్యూనికేషన్, వెర్బల్ కమ్యూనికేషన్, నాన్ వెర్బల్ కమ్యూనికేషన్, ఇంటర్ పర్సనల్ కమ్యూనికేషన్, ఇంట్రా పర్సనల్ కమ్యూనికేషన్, ఇండోర్ కమ్యూనికేషన్, ఔట్‌డోర్ కమ్యూనికేషన్, మాస్ కమ్యూనికేషన్.

2. **జర్నలిజం:**

రిపోర్టింగ్, ఎడిటింగ్, నిర్వచనాలు, రకాలు, రిపోర్టర్ అర్హతలు, లక్షణాలు, విధులు, ఎథిక్స్ ఆఫ్ రిపోర్టింగ్, ఎడిటింగ్, సబ్ ఎడిటర్, అర్హతలు, లక్షణాలు, బరువు బాధ్యతలు.

3. **న్యూస్ ఫీచర్స్:**

ఫీచర్ న్యూస్, స్పాట్ న్యూస్, న్యూస్ ఈవెంట్స్, న్యూస్ హెడ్స్, న్యూస్ లీడ్స్, అన్ని రకాల న్యూస్‌లు, ఫీచర్ లక్షణాలు, రకాలు.

4. **తెలుగు పత్రికల చరిత్ర:**

తెలుగు పత్రికల ఆవిర్భావ వికాసాలు, తొలి దశ, మలిదశ, పరిణామ దశ, విస్తరణ దశ, వికాసదశ, తెలుగు పత్రికల వర్గీకరణ, రకాలు, తెలుగు పత్రికలు, పాత్రికేయులు.

ఆధార గ్రంథాలు:

1. జర్నలిజం పరిచయం – బూదరాజు రాధాకృష్ణ
2. తెలుగు జర్నలిజం – డా॥ వి. లక్ష్మణ రెడ్డి
3. తెలుగు జర్నలిజం – దుర్గం రవీందర్
4. తెలుగు జర్నలిజం చరిత్ర - వ్యవస్థ – రాపోలు ఆనంద భాస్కర్
5. సమాచారాల చేరవేత, పాత్రికేయత్వం – డా॥ యస్.జి.డి. చంద్రశేఖర్

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ఆధునిక తెలుగు భాషా నిర్మాణం శాస్త్రం

TEL-137

1. అధునిక తెలుగు భాష – సంధి, సమాస, లింగ, వచన, విభక్తి నిర్మాణం.
2. అధునిక తెలుగు భాష – క్రియ, ప్రాతిపదికల నిర్మాణం. అకర్మక, సకర్మక, ప్రేరణార్థక, సమూపక, అపమాపక క్రియలు.
3. తెలుగు వాక్య నిర్మాణం. వాక్య బేధాలు– సామస్య, సంశ్లిష్ట, సంయుక్త. క్రియా రహిత, క్రియాసహిత యత్తదర్థక వాక్యాలు కర్మణి, కర్తరి ప్రయోగాలు. ప్రత్యయాలు – పురుష బోధక, అర్థ బోధక, కాల బోధక ప్రత్యయాలు, నామ్నీకరణ.
4. తెలుగు బాషా ఆధునికీ కరణ ఆవశ్యకత, పద్ధతులు – సమస్యలు – తెలుగు భాష ప్రామాణీకరణ – ఆవశ్యకత, సమస్యలు

ఆధార గ్రంథాలు:

1. ఆధునిక ప్రామాణికాంధ్ర వ్యాకరణం – వర్ధుల వెంకటేశ్వర్లు.
2. ఈనాడు భాషాస్వరూపం – బూదరాజు రాధాకృష్ణ
3. తెలుగు భాషా తత్వం – కొమర్రాజు వేంకట లక్ష్మణరావు
4. తెలుగు భాషా చరిత్ర – (సం)భద్రిరాజు కృష్ణమూర్తి.
5. తెలుగులో వెలుగులు – చేకూరి రామారావు
6. తెలుగు వాక్యం – చేకూరి రామారావు
7. వాడుక భాషే రాస్తున్నామా? – ముప్పాళ్ళ రంగనాయకమ్మ

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తెలుగు అనువాదం

TEL-138

1. అనువాదం:

స్వరూప స్వభావాలు, అనువాద నిర్వచనం, అనువాద ప్రమాణాలు, మూలభాష, లక్ష్యభాష, పదం, పదబంధం, వాక్యం – ఉపవాక్యం, లేఖనం – ప్రతిలేఖనం, అనువాదం శాస్త్రమా, కళా?

2. అనువాదం – రకాలు:

వివిధ రకాల అనువాదాలు (మూల విధేయానువాదం, స్వేచ్ఛానువాదం, సుబీకారపు అనువాదం, యాంత్రిక అనువాదం), అనువాదకుడు – లక్షణాలు-రకాలు.

3. అనువాద సమస్యలు:

భౌగోళిక, భాషా, సాంస్కృతిక సమస్యలు, పరిష్కార మార్గాలు, అనువాద ప్రయోజనాలు.

4. అధికార భాషగా తెలుగు:

రాష్ట్ర పాలనా యంత్రాంగంలో జరిగిన, జరుగుతున్న కృషి, అధికార భాష అవశ్యకత, అధికార భాషా సంఘం విధులు, హక్కులు, బాధ్యతలు, తెలుగు సజీవ భాషకు దోహదాలు

ఆధార గ్రంథాలు.

1. అనువాద సమస్యలు – రాచమల్లు రామచంద్రా రెడ్డి
2. అనువాద సిద్ధాంతాలు – డా॥ ఎస్. అక్కిరెడ్డి
3. అధికార భాషగా తెలుగు – సి. ధర్మారావు
4. అనువాద పాఠాలు – బూదరాజు రాధాకృష్ణ
5. అనువదించడం ఎలా – గోవింద రాజు చక్రధర్

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తెలుగు సాహిత్య విమర్శ – సిద్ధాంతాలు సూత్రాలు TEL – 139

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UNIT - I

విమర్శ :

స్వరూప స్వభావాలు – విమర్శ ప్రయోజనం ఉత్తమ విమర్శక లక్షణములు.

విమర్శభేదాలు – వివరణాత్మక విమర్శ – అభినందనాత్మక విమర్శ

తులనాత్మక విమర్శ – నిర్ణయాత్మక విమర్శ.

UNIT - II

ఆధునిక విమర్శ పద్ధతులు :

గ్రంథ పరిష్కార విమర్శ, 2) చారిత్రక విమర్శ, 3) సాంఘిక విమర్శ, 4) కవిజీవిత విమర్శ, 5) మనోవైజ్ఞానిక విమర్శ,
6) నైతిక విమర్శ, 7) మార్క్సిష్టు విమర్శ, 8) కళావిమర్శ.

ఆధునిక విమర్శ సూత్రం :

నిబద్ధత, నిమగ్నత, నివిడిత, ఆధునిక విమర్శ పద్ధతులను, సూత్రాల్ని ఏదో ఒక నవలను కథానికకు సమన్వయం చేయుట.

UNIT - III

కవి – కావ్యము – కావ్యనిర్వచనాలు ప్రాచ్యులు – పాశ్చాత్యులు, కావ్యహేతువులు – కావ్య హేతువుల్లో ఏది ఉత్తమం

UNIT - IV

నవరసములు – స్థాయీ భావములు – రసస్వరూపము

"శబ్దవృత్తులు – అభిధ – లక్షణ – వ్యంజన" ధ్వని అంటే ఏమిటి? ఆనందవర్ధనుని ధ్వనిని గూర్చి సంక్షిప్తపరిచయం.

UNIT - V

నాయకులు – ధీరోదాత్తుడు – ధీరోద్ధతుడు – ధీరలలితుడు; నాయికలు – స్వీయ – అన్య – సామాన్య;
ముగ్ధమధ్య ప్రౌఢ; శయ్య – పాకములు – వృత్తులు – రీతులు.

ఆధార గ్రంథాలు :

1) సాహిత్య సోపానములు శ్రీ దివాకర్ల వేంకటావధాని
2) సాహిత్య శిల్ప సమీక్ష – శ్రీ పింగళిలక్ష్మీకాంతం గారు
3) తెలుగు సాహిత్య విమర్శ – సిద్ధాంతాలు సూత్రాలు – వి. సిమ్మన్న
4) నరసభూపాలీయము – రామరాజభూషణుడు

GOVERNMENT COLLEGE (A) :: RAJAMAHENDRAVARAM.

III B.A. Spl. Telugu, VI Semester, Cluster Paper - 2

తెలుగు సాహిత్య విమర్శకులు

Paper - 8B3 (8B2) TEL-[illegible] 140

UNIT - I

I. ఆధునిక సాహిత్య విమర్శకులు

1) కందుకూరి 2) కట్టమంచి 3) కొమర్రాజు 4) రాళ్ళపల్లి

UNIT - II

1) వేటూరి 2) విశ్వనాథ 3) దువ్వూరి 4) పింగళి

UNIT - III

II. అత్యాధునిక సాహిత్య విమర్శకులు

1) గుంటూరి శేషేంద్ర శర్మ 2) రాచమల్లు రామచంద్రారెడ్డి 3) శ్రీశ్రీ 4) ఆర్.ఎస్. సుదర్శనం

UNIT - IV

1) జి.వి. సుబ్రహ్మణ్యం 2) కత్తిపద్మారావు 3) చేకూరి రామారావు 4) కొలకలూరి ఇనాక్

UNIT - V

III. స్త్రీ విమర్శకులు

1) కాత్యాయనీ విద్మహే 2) సి. ఆనందరామం

3) ముదిగంటి సుజాతారెడ్డి 3) నిడదవోలు మాలతి

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc., ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL – BIOLOGY AND BIOMOLECULES OF THE CELL

Ist Semester: Theory Syllabus – 2011-2012

PART A - Biology of Invertebrates.-

Zoo101&Zoo101 (P)

1. **Phylum Protozoa**: General characters and out-line classification up-to classes.
   Type study: Paramecium.
   Additional input : Protozoan Parasites of Man (Diseases, Causative Parasites, Pathogenesis and their control treatment)
2. **Phylum Porifera**: General characters and outline classification up to classes
   Type study: Sycon,: canal system in Sponges.
3. **Phylum Cnidaria**: General characters and outline classification up to classes.
   Type study: Obelia, Polymorphism in Coelenterates; Corals and Coral reef formation.
4. **Phylum Platyhelminthes:** General Characters and outline classification up to classes.
   Type study: **Fasciola hepatica**.
5. **Phylum Nemathelminthes**: General characters and outline classification up to classes.
   Type study: **Ascaris lumbricoides**.
6. **Phylum Annelida**: General characters and outline classification up to classes
   Type study: Leech; Coelom and coelomoducts in annelids.

PART B - CELL BIOLOGY AND BIOMOLECULES OF THE CELL

7. Cell Theory.
8. Ultra structure of Animal cell.
9. Structure of **Plasma membrane**-Fluid-mosaic model. Transport functions of Plasma membrane-Passive transport, active transport (Antiport, symport and uniport) and bulk transport.
10. Structure and functions of Endoplasmic reticulum, Golgi body, Ribosomes and lysosomes.

Contd/….

11. **Carbohydrates.**

a). Classification of Carbohydrates.

b). Structure of Monosaccharide's (Glucose and Fructose).

c). Structure of Disaccharides (Lactose and Sucrose).

d). Structure of Polysaccharides (Starch, Glycogen and Chitin)

12. **Lipids.**

a). Classification and Structure of Fatty acids (Saturated and unsaturated)

b). Triacylglycerol's, Phospolipids (Lecithin and cephalin) and Steroids (Cholesterol).

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc. ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL BIOLOGY AND BIOMOLECULES OF THE CELL

IInd Semester: Theory Syllabus – 2011-2012

PART-A BIOLOGY OF INVERTEBRATES-

ZOO102&ZOO102(P)

1. **Phylum Arthropoda**: General characters and outline classification up-to classes
   Type study: Prawn: Crustacean larvae and Peripatus-Characters and Significance.

2. **Phylum Mollusca**: General characters and outline classification up-to classes.
   Type study: Pila and Pearl formation in Mollusca.

3. **Phylum Echinodermata**: General characters and out-line classification up-to classes.
   Type study: Star fish.
4. **Additional inputs**: Larval forms in Invertebrate phyla.

5. General characters of Hemichordata: Structure and affinities of Balanoglossus.

PART-B CELL-BIOLOGY AND BIOMOLECULES OF THE CELL

6 Structure and functions of Mitochondrion

7. **Chromosomes** – Nomenclature types and structure. Giant chromosomes – Polytene and Lampbrush chromosomes.

8. **Cell division** – Cell - cycle stages (G 1, S, G2 and M phases), Cell-cycle check points and regulation.
   MITOSIS; MEIOSIS – and their significance.

9**. Proteins**.

   a). Amino acids: General properties, nomenclature, classification and structure

   b). Classification of Proteins based on functions, chemical nature and nutrition, Peptide bond and its structure (Primary, secondary, tertiary and quaternary structures).

10. **Nucleic acids:**

   a). Structure of purines, pyrimidine's, ribose and deoxyribose sugars.

   b). Watson and Crick model of DNA – Nucleoside, Nucleotide, Chargaff's rule

   c). Structure of RNA, types of RNA – r RNA, tRNA and mRNA

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

II. B.Sc., : ZOOLOGY

PAPER:II - BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY

Zoo103&Zoo103(P)

III Semester : Theory Syllabus : 2011 - 2012

PART – A

BIOLOGY OF CHORDATES (PROTOCHORDATA TO AMPHIBIA)

1. Protochordates: Salient features of Urochordata and Cephalochordate. Structure and life-history of Herdmania, Significance of retrogressive Metamorphosis.
2. General Organization of Chordates
3. **Additional inputs:** Ancestry of Vertebrata (at least three important Theories)
4. General Character of Cyclostomes
5. General Characters of fishes, classification up to sub-class level with suitable examples.
6. Type study-Scoliodon: Morphology, Respiratory system, Circulatory system, Excretory system, Nervous system and Sense organs.
7. Migration in fishes and types of scales.
8. General Characters and classification of Amphibia up to order level.
9. Type study-Rana : Morphology, Respiratory system, Circulatory system and Reproductive system.
10. Parental care in Amphiba.

PART – B

EMBRYOLOGY

11. Spermatogenesis, Oogenesis and Fertilization.
12. Types of eggs
13. Types of cleavages
14. Development of frog up to gastrulation and formation of primary germ layers.
15. Foetal membranes and their significance.
16. Placenta : Types and functions
17. Regeneration with reference to Turbellarians and Lizards.

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GOVERNMENT COLLEGE (A), RAJAHMUNDRY

II B.Sc., - ZOOLOGY

PAPER II BIOLOGY OF CHORDATES,
ECOLOGY AND ZOOGEOGRAPHY
IV Semester: Theory Syllabus : 2011-2012

(Zoo104&Zoo104(P)

PART-A

BIOLOGY OF CHORDATES (REPTILIA TO MAMMALIA)

1. General characters and classification of Reptelia up to order level.
2. Type study – Calotes: Morphology, digestive system, respiratory system, circulatory system, urinogenital system and nervous system.
3. General characters and classification of Aves up to order level with examples.
4. Type study – Pigeon (Columba Livia) : Exoskeleton, Respiratory system, Circulatory system, and Excretory system.
5. Significance of migration in birds.
6. Flight adaptation in birds.
7. General characters and classification of Mammalia up to order level with examples.
8. Dentition in Mammalia.

PART-B

ECOLOGY AND ZOOGEOGRAPHY

9. Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus.

10. Definition of community – Habitat and ecological niche.
11. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism.

Contd/….

12. Ecological succession: Primary and secondary, seral stages, climax community with examples.
13. Population ecology: Density and dispersions of animal populations.
14. Growth curves and growth of animal populations – r-selected and k-selected species.
15. Population regulation mechanisms – both biotic and abiotic
16. Growth of human population and its control.
17. Future of human population.
18. Zoogeography (Addition).

Additional inputs: Divisions of Zoogeographical regions and their faunal elements basing on their phylogenetic relationships and environmental conditions in detail.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2011-2012

ANIMAL PHYSIOLOGY

(Zoo105& Zoo105 (P)

1. Physiology of digestion 7 Hrs.
   - 1.1. Definition of digestion and types of digestion, extra and intra cellular.
   - 1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.
   - 1.3. Absorption and assimilation of digested food materials.
   - 1.4. Gastrointestinal hormones – Control of digestion.

Additional Input :

Types of Nutrition. 2 Hrs.

2. Physiology of respiration: 8 Hrs.
   - 2.1. Types of respiration – External and internal respiration
   - 2.2. Structure of mammalian lungs and gaseous exchange.
   - 2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.
   - 2.4. Transport of CO_2 – Chloride shift, Bhor effect.
   - 2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation : 7 Hrs.
   - 3.1 Open and closed circulation
   - 3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.
   - 3.3. Regulation of heart rate – Tachycardia and Bradycardia.

4. Physiology of Excretion : 8 Hrs.

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

1.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis 3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs.

Additional Input :

ABO Blood groups 2 Hrs.

2.0. Organic Evolution :

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration 8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2011 - 2012

PAPER IV – APPLIED ZOOLOGY

Zoo 106&Zoo106 (P)

1.0. Fisheries and Aquaculture :

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs.

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs.

1.4. Site selection criteria 2 Hrs.

2.0. Clinical Science :

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

3.0. Animal Biotechnology :

3.1. Animal Biotechnology : Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs.

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2011 - 2012

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY
(Zoo105&Zoo105(P))

1. Physiology of muscle contraction 7 Hrs.

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction : Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs.

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and salutatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs.

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs.

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

1.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by Laci operon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

2.0. Organic Evolution

2.2. Speciation – Allopatric and Sympathy 2 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2011 - 2012

APPLIED ZOOLOGY

Zoo106&Zoo106(P)

1.0. Fisheries and Aquaculture :

1.5. Aquaculture systems - 3 Hrs.

1.6. Induced breeding - 2 Hrs.

1.7. Hatchery design and management - 2 Hrs.

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs.

1.9. Shrimp and prawn culture - 2 Hrs.

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs.

2.0. Clinical Science :

2.3 Important Human parasites - 10 Hrs.

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites : Structure and clinical significance of Entamoeba.

2.4. Addition :

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs.

2.4.2. Blood sugar levels and Diabetes - 3 Hrs.

3.0. Animal Biotechnology :

3.3. Transgenesis and production of transgenic animals (Fish and Goat) - 6 Hrs.

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs.

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GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc., ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL – BIOLOGY AND BIOMOLECULES OF THE CELL

Ist Semester: Theory Syllabus – 2012-2013

Zoo101&Zoo101(P)

PART A - Biology of Invertebrates.

1. **Phylum Protozoa**: General characters and out -line classification up-to classes.
   Type study: Paramecium.
   Additional input: Helminthes Parasites of Man (Diseases, Causative Parasites, Pathogenesis and their control treatment)
2. **Phylum Porifera**: General characters and outline classification up to classes
   Type study: Sycon,: canal system in Sponges.

3. **Phylum Cnidaria**: General characters and outline classification up to classes.
   Type study: Obelia, Polymorphism in Coelenterates; Corals and Coral reef formation.

4. **Phylum Platyhelminthes:** General Characters and outline classification up to classes.
   Type study: **Fasciola hepatica**.

5. **Phylum Nemathelminthes**: General characters and outline classification up to classes.
   Type study: **Ascaris lumbricoides**.

6. **Phylum Annelida**: General characters and outline classification up to classes
   Type study: Leech; Coelom and coelom ducts in annelids.

PART B - CELL BIOLOGY AND BIOMOLECULES OF THE CELL

7. Cell Theory.

8. Ultra structure of Animal cell.

9. Structure of **Plasma membrane**-Fluid-mosaic model. Transport functions of Plasma membrane-Passive transport, active transport (Antiport, symport and uniport) and bulk transport.

10. Structure and functions of Endoplasmic reticulum, Golgi body, Ribosomes and

lysosomes.

Contd/….

11. **Carbohydrates.**

a). Classification of Carbohydrates.

b). Structure of Monosaccharide's (Glucose and Fructose).

c). Structure of Disaccharides (Lactose and Sucrose).

d). Structure of Polysaccharides (Starch, Glycogen and Chitin)

12. **Lipids.**

a). Classification and Structure of Fatty acids (Saturated and unsaturated)

b). Triacylglycerol's, Phospolipids (Lecithin and cephalin) and Steroids (Cholesterol).

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc. ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL BIOLOGY AND BIOMOLECULES OF THE CELL

IInd Semester: Theory Syllabus – 2012-2013

Zoo102&Zoo102 (P)

PART-A BIOLOGY OF INVERTEBRATES

1. **Phylum Arthropoda**: General characters and outline classification up-to classes
   Type study: Prawn: Crustacean larvae and Peripatus-Characters and Significance.

2. **Phylum Mollusca**: General characters and outline classification up-to classes.
   Type study: Pila and Pearl formation in Mollusca.

3. **Phylum Echinodermata**: General characters and out-line classification up-to classes.
   Type study: Star fish.
4. **Additional inputs**: Larval forms in Arthropoda.

5. General characters of Hemichordata: Structure and affinities of Balanoglossus.

PART-B CELL-BIOLOGY AND BIOMOLECULES OF THE CELL

6 Structure and functions of Mitochondrion

7. **Chromosomes** – Nomenclature types and structure. Giant chromosomes – Polytene and Lampbrush chromosomes.

8. **Cell division** – Cell - cycle stages (G 1, S, G2 and M phases), Cell-cycle check points and regulation.
   MITOSIS: MEIOSIS – and their significance.

9**. Proteins**.

   a). Amino acids: General properties, nomenclature, classification and structure

   b). Classification of Proteins based on functions, chemical nature and nutrition, Peptide bond and its structure (Primary, secondary, tertiary and quaternary structures).

10. **Nucleic acids:**

   a). Structure of purines, pyrimidines, ribose and deoxyribose sugars.

   b). Watson and Crick model of DNA – Nucleoside, Nucleotide, Chargaff's rule

   c). Structure of RNA, types of RNA – r RNA, tRNA and mRNA.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

II. B.Sc., ZOOLOGY

PAPER:II - BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY

III Semester : Theory Syllabus : 2012 – 2013

Zoo103&103(P)

PART – A

BIOLOGY OF CHORDATES (PROTOCHORDATA TO AMPHIBIA)

1. Protochordates: Salient features of Urochordata and Cephalochordate. Structure and life-history of Herdmania, Significance of retrogressive Metamorphosis.
2. General Organization of Chordates
3. **Additional inputs :** Origin of Chordates(Garstrong Theory)
4. General Character of Cyclostomes
5. General Characters of fishes, classification up to sub-class level with suitable examples.
6. Type study-Scoliodon: Morphology, Respiratory system, Circulatory system, Excretory system, Nervous system and Sense organs.
7. Migration in fishes and types of scales.
8. General Characters and classification of Amphibia up to order level.
9. Type study-Rana : Morphology, Respiratory system, Circulatory system and Reproductive system.
10. Parental care in Amphiba.

PART – B

EMBRYOLOGY

11. Spermatogenesis, Oogenesis and Fertilization.
12. Types of eggs
13. Types of cleavages
14. Development of frog up to gastrulation and formation of primary germ layers.
15. Foetal membranes and their significance.
16. Placenta: Types and functions
17. Regeneration with reference to Turbellarians and Lizards.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

II B.Sc., - ZOOLOGY

PAPER II BIOLOGY OF CHORDATES,
ECOLOGY AND ZOOGEOGRAPHY
IV Semester: Theory Syllabus : 2012-2013

Zoo104& Zoo104(P)

PART-A

BIOLOGY OF CHORDATES (REPTILIA TO MAMMALIA)

19. General characters and classification of Reptelia up to order level.
20. Type study – Calotes: Morphology, digestive system, respiratory system, circulatory system, urinogenital system and nervous system.
21. General characters and classification of Aves up to order level with examples.
22. Type study – Pigeon (Columba Livia) : Exoskeleton, Respiratory system, Circulatory system, and Excretory system.
23. Significance of migration in birds.
24. Flight adaptation in birds.
25. General characters and classification of Mammalia up to order level with examples.
26. Dentition in Mammalia.

PART-B

ECOLOGY AND ZOOGEOGRAPHY

27. Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus.

28. Definition of community – Habitat and ecological niche.
29. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism.

Contd/….

30. Ecological succession: Primary and secondary, seral stages, climax community with examples.
31. Population ecology: Density and dispersions of animal populations.
32. Growth curves and growth of animal populations – r-selected and k-selected species.
33. Population regulation mechanisms – both biotic and abiotic
34. Growth of human population and its control.
35. Future of human population.
36. Zoogeography (Addition).

Additional inputs: Divisions of Zoogeographical regions and their faunal elements basing on their phylogenetic relationships and environmental conditions in detail.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2012-2013

ANIMAL PHYSIOLOGY
Zoo105&Zoo105(P)

1. Physiology of digestion 7 Hrs.
   - 1.1. Definition of digestion and types of digestion, extra and intra cellular.
   - 1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.
   - 1.3. Absorption and assimilation of digested food materials.
   - 1.4. Gastrointestinal hormones – Control of digestion.

Additional Input:

Vitamins and Minerals 2 Hrs.

2. Physiology of respiration: 8 Hrs.
   - 2.1. Types of respiration – External and internal respiration
   - 2.2. Structure of mammalian lungs and gaseous exchange.
   - 2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.
   - 2.4. Transport of CO_2 – Chloride shift, Bhor effect.
   - 2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs.
   - 3.1 Open and closed circulation
   - 3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.
   - 3.3. Regulation of heart rate – Tachycardia and Bradycardia.

4. Physiology of Excretion : 8 Hrs.

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

2.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis 3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs.

Additional Input :

ABO Blood groups 2 Hrs.

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2012 - 2013

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106 (P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs.

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs.

1.4. Site selection criteria 2 Hrs.

Additional Input: Conservation of Fisheries

2.0. Clinical Science:

2.1. Hematology 8 Hrs.

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs.

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2012 - 2013

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY
Zoo105&Zoo105 (P)

1. Physiology of muscle contraction 7 Hrs.

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs.

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and salutatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs.

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs.

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

2.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by Lacoperon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs.

Additional Input: Darwin's Theory

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2012 - 2013

APPLIED ZOOLOGY

Zoo106&Zoo106 (P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs.

1.6. Induced breeding - 2 Hrs.

1.7. Hatchery design and management - 2 Hrs.

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs.

1.9. Shrimp and prawn culture - 2 Hrs.

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs.

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs.

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba.

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs.

2.4.2. Blood sugar levels and Diabetes - 3 Hrs.

3.0. Animal Biotechnology:

3.3. Transgenesis and production of transgenic animals (Fish and Goat) - 6 Hrs.

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc., ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL – BIOLOGY AND BIOMOLECULES OF THE CELL

Ist Semester: Theory Syllabus – 2013-2014

Zoo109&Zoo109 (P)

PART A - Biology of Invertebrates.

1. **Phylum Protozoa**: General characters and out -line classification up-to classes.
   Type study: Paramecium.
   Additional input: Helminthes Parasites of Man (Diseases, Causative Parasites, Pathogenesis and their control treatment)
2. **Phylum Porifera**: General characters and outline classification up to classes
   Type study: Sycon,: canal system in Sponges.

3. **Phylum Cnidaria**: General characters and outline classification up to classes.
   Type study: Obelia, Polymorphism in Coelenterates; Corals and Coral reef formation.

4. **Phylum Platyhelminthes:** General Characters and outline classification up to classes.
   Type study: **Fasciola hepatica**.

5. **Phylum Nemathelminthes**: General characters and outline classification up to classes.
   Type study: **Ascaris lumbricoides**.

6. **Phylum Annelida**: General characters and outline classification up to classes
   Type study: Leech; Coelom and coelom ducts in annelids.

PART B - CELL BIOLOGY AND BIOMOLECULES OF THE CELL

7. Cell Theory.

8. Ultra structure of Animal cell.

9. Structure of **Plasma membrane**-Fluid-mosaic model. Transport functions of Plasma membrane-Passive transport, active transport (Antiport, symport and uniport) and bulk transport.

10. Structure and functions of Endoplasmic reticulum, Golgi body, Ribosomes and lysosomes.

Contd/….

11. **Carbohydrates.**

a). Classification of Carbohydrates.

b). Structure of Monosaccharide's (Glucose and Fructose).

c). Structure of Disaccharides (Lactose and Sucrose).

d). Structure of Polysaccharides (Starch, Glycogen and Chitin)

12. **Lipids.**

a). Classification and Structure of Fatty acids (Saturated and unsaturated)

b). Triacylglycerol's, Phospolipids (Lecithin and cephalin) and Steroids (Cholesterol).

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc. ZOOLOGY

PAPER-I: BIOLOGY OF INVERTEBRATES, CELL BIOLOGY AND BIOMOLECULES OF THE CELL

IInd Semester: Theory Syllabus – 2013-2014

Zoo110&Zoo110(P)

PART-A BIOLOGY OF INVERTEBRATES

1. **Phylum Arthropoda**: General characters and outline classification up-to classes
   Type study: Prawn: Crustacean larvae and Peripatus-Characters and Significance.

2. **Phylum Mollusca**: General characters and outline classification up-to classes.
   Type study: Pila and Pearl formation in Mollusca.

3. **Phylum Echinodermata**: General characters and out-line classification up-to classes.
   Type study: Star fish.
4. **Additional inputs**: Larval forms in Arthropoda.

5. General characters of Hemichordata: Structure and affinities of Balanoglossus.

PART-B CELL-BIOLOGY AND BIOMOLECULES OF THE CELL

6 Structure and functions of Mitochondrion

7. **Chromosomes** – Nomenclature types and structure. Giant chromosomes – Polytene and Lampbrush chromosomes.

8. **Cell division** – Cell - cycle stages (G 1, S, G2 and M phases), Cell-cycle check points and regulation.
   MITOSIS: MEIOSIS – and their significance.

9**. Proteins**.

a). Amino acids: General properties, nomenclature, classification and structure

b). Classification of Proteins based on functions, chemical nature and nutrition, Peptide bond and its structure (Primary, secondary, tertiary and quaternary structures).

10. **Nucleic acids:**

a). Structure of purines, pyrimidines, ribose and deoxyribose sugars.

b). Watson and Crick model of DNA – Nucleoside, Nucleotide, Chargaff's rule

c). Structure of RNA, types of RNA – r RNA, tRNA and mRNA

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

II. B.Sc., ZOOLOGY

PAPER:II - BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY

III Semester : Theory Syllabus : 2013 – 2014

Zoo103&Zoo103(P)

PART – A

BIOLOGY OF CHORDATES (PROTOCHORDATA TO AMPHIBIA)

1. Protochordates: Salient features of Urochordata and Cephalochordate. Structure and life-history of Herdmania, Significance of retrogressive Metamorphosis.
2. General Organization of Chordates
3. **Additional inputs :** Origin of Chordates(Garstrong Theory)
4. General Character of Cyclostomes
5. General Characters of fishes, classification up to sub-class level with suitable examples.
6. Type study-Scoliodon: Morphology, Respiratory system, Circulatory system, Excretory system, Nervous system and Sense organs.
7. Migration in fishes and types of scales.
8. General Characters and classification of Amphibia up to order level.
9. Type study-Rana : Morphology, Respiratory system, Circulatory system and Reproductive system.
10. Parental care in Amphiba.

PART – B

EMBRYOLOGY

11. Spermatogenesis, Oogenesis and Fertilization.
12. Types of eggs
13. Types of cleavages
14. Development of frog up to gastrulation and formation of primary germ layers.
15. Foetal membranes and their significance.
16. Placenta: Types and functions
17. Regeneration with reference to Turbellarians and Lizards.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

II B.Sc., - ZOOLOGY

PAPER II BIOLOGY OF CHORDATES,
ECOLOGY AND ZOOGEOGRAPHY

IV Semester: Theory Syllabus : 2013-2014

Zoo104&Zoo104(P)

PART-A

BIOLOGY OF CHORDATES (REPTILIA TO MAMMALIA)

37. General characters and classification of Reptelia up to order level.
38. Type study – Calotes: Morphology, digestive system, respiratory system, circulatory system, urinogenital system and nervous system.
39. General characters and classification of Aves up to order level with examples.
40. Type study – Pigeon (Columba Livia) : Exoskeleton, Respiratory system, Circulatory system, and Excretory system.
41. Significance of migration in birds.
42. Flight adaptation in birds.
43. General characters and classification of Mammalia up to order level with examples.
44. Dentition in Mammalia.

PART-B

ECOLOGY AND ZOOGEOGRAPHY

45. Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus.
46. Definition of community – Habitat and ecological niche.

47. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism.

Contd/….

48. Ecological succession: Primary and secondary, seral stages, climax community with examples.
49. Population ecology: Density and dispersions of animal populations.
50. Growth curves and growth of animal populations – r-selected and k-selected species.
51. Population regulation mechanisms – both biotic and abiotic
52. Growth of human population and its control.
53. Future of human population.
54. Zoogeography (Addition).

Additional inputs: Divisions of Zoogeographical regions and their faunal elements basing on their phylogenetic relationships and environmental conditions in detail.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2013-2014

ANIMAL PHYSIOLOGY
Zoo105&Zoo105(P)

1. Physiology of digestion 7 Hrs.

   1.1. Definition of digestion and types of digestion, extra and intra cellular.

   1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.

   1.3. Absorption and assimilation of digested food materials.

   1.4. Gastrointestinal hormones – Control of digestion.

2. Physiology of respiration: 8 Hrs.

   2.1. Types of respiration – External and internal respiration

   2.2. Structure of mammalian lungs and gaseous exchange.

   2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.

   2.4. Transport of CO_2 – Chloride shift, Bhor effect.

   2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs.

   3.1 Open and closed circulation

   3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.

   3.3. Regulation of heart rate – Tachycardia and Bradycardia.

   Additional Input:

   E.C.G Electro Cardio Gram

4. Physiology of Excretion : 8 Hrs.

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

3.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis 3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs.

Additional Input :

ABO Blood groups 2 Hrs.

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2013 - 2014

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106 (P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs.

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs.

1.4. Site selection criteria 2 Hrs.

2.0. Clinical Science:

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

Additional Input: Awareness on communicable diseases.

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs.

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2013 - 2014

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY
Zoo107&Zoo107(P)

1. Physiology of muscle contraction 7 Hrs.

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs.

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and salutatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs.

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs.

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

3.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by lac I operon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs.

Additional Input: Lamarckism theory

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2013 - 2014

APPLIED ZOOLOGY

Zoo108&Zoo108(P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs.

1.6. Induced breeding - 2 Hrs.

1.7. Hatchery design and management - 2 Hrs.

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs.

1.9. Shrimp and prawn culture - 2 Hrs.

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs.

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs.

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba.

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs.

2.4.2. Blood sugar levels and Diabetes - 3 Hrs.

3.0. Animal Biotechnology:

3.3. Transgenesis and production of transgenic animals (Fish and Goat) - 6 Hrs.

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc., ZOOLOGY

MODUL-I: BIOLOGY OF INVERTEBRATES,

Ist Semester: Theory Syllabus – 2014-2015

Zoo109&Zoo109(P)

UNIT-I

7. **Phylum Protozoa**: General characters and out -line classification up-to classes. Type study: Paramecium. 5 Hrs.

   Additional input: Malarial Parasite-disease-control. 2 Hrs.

8. **Phylum Porifera**: General characters and outline classification up to classes Type study: Sycon,: canal system in Sponges. 5 Hrs.

9. **Phylum Cnidaria**: General characters and outline classification up to classes. Type study: Obelia, Polymorphism in Coelenterates; Corals and Coral reef formation. 5 Hrs.

UNIT-II

10. **Phylum Platyhelminthes :** General Characters and outline classification up to classes.
    Type study : **Fasciola hepatica**. 4 Hrs.

11. **Phylum Nemathelminthes**: General characters and outline classification up to classes.
    Type study: **Ascaris lumbricoides**. 3 Hrs.

12. **Phylum Annelida**: General characters and outline classification up to classes Type study: Leech; Coelom and coelom ducts in annelids. 5 Hrs.

13. **Vermiculture**- Introduction,verminculture processing, Vermicomposting and Economic importance of vermicomposting. 3 Hrs.

UNIT-III

8. **Phylum Arthropoda**: General characters and outline classification up-to classes Type study: Prawn: Crustacean larvae and Peripatus-Characters and Significance. 10 Hrs.

9. **Phylum Mollusca**: General characters and outline classification up-to classes. Type study: Pila and Pearl formation in Mollusca. 8 Hrs.

UNIT-IV

10. **Phylum Echinodermata**: General characters and out-line classification up-to classes. Type study: Star fish. 7 Hrs.

11. **General characters of Hemichordata**: Structure and affinities of Balanoglossus.5 Hrs.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

I B.Sc. ZOOLOGY

MODUL-II: CELL BIOLOGY AND BIOMOLECULES OF THE CELL

IInd Semester: Theory Syllabus – 2014-2015

Zoo110&Zoo110(P)

CELL BIOLOGY

UNIT-I

1. Cell Theory 1 Hrs.

2. Ultra Structure of Animal Cell 4 Hrs.

3. Structure of Plasma Membrane – Fluid-mosaic model. Transport functions of Plasma Membrane- passive transport, active transport (Antiport, symport and uniport) and Bulk transport. 5 Hrs.

4. Structure and functions of Endoplasmic reticulum, Golgi body, Ribosomes, Lysosomes and Mitochondrion. 8 Hrs.

UNIT-II

5. **Chromosomes** – Nomenclature types and structure. Giant chromosomes – Polytene and Lampbrush chromosomes. 4 Hrs.

6. **Cell division** – Cell - cycle stages (G 1, S, G2 and M phases), Cell-cycle check points and regulation.
MITOSIS: MEIOSIS – and its significance. 8 Hrs.

BIOMOLECULES OF THE CELL

UNIT-III

7.Carbohydrates:

a. Classification of carbohydrates 3 Hrs.

b. Structure of Monosaccharide's (Glucose and Fructose) 4 Hrs.

c. Structure of Disaccharides (Lactose and Sucrose) 4 Hrs.

d. Structure of Polysaccharides (Starch, Glycogen and Chitin) 4 Hrs.

8**. Proteins**.

a. Amino acids: General properties, nomenclature, classification and structure 3 Hrs.

b. Classification of Proteins based on functions, chemical nature and nutrition, Peptide bond and its structure (Primary, secondary, tertiary and quaternary structures). 4 Hrs.

UNIT-IV

9. Lipids: 4 Hrs.

a.Classification, Structure of Fatty acids (Saturated and Unsaturated)

b.Triacylglycerols, Phospolipids (Lecithin and cephalin) and Steroids (cholesterol).

Contd/..

10. **Nucleic acids:** 4 Hrs.

a. Structure of purines, pyrimidines, and ribose and deoxyribose sugars.

b. Watson and Crick model of DNA – Nucleoside, Nucleotide, Chargaff's rule

c. Structure of RNA, types of RNA – r RNA, tRNA and mRNA.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.
II. B.Sc., ZOOLOGY
PAPER:II - BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY

III Semester : Theory Syllabus : 2014 – 2015

Zoo111&Zoo111(P)

PART – A

BIOLOGY OF CHORDATES (PROTOCHORDATA TO AMPHIBIA)

1. Protochordates: Salient features of Urochordata and Cephalochordate. Structure and life-history of Herdmania, Significance of retrogressive Metamorphosis.
2. General Organization of Chordates
3. **Additional inputs :** Origin of Chordates(Garstrong Theory)
4. General Character of Cyclostomes
5. General Characters of fishes, classification up to sub-class level with suitable examples.
6. Type study-Scoliodon: Morphology, Respiratory system, Circulatory system, Excretory system, Nervous system and Sense organs.
7. Migration in fishes and types of scales.
8. General Characters and classification of Amphibia up to order level.
9. Type study-Rana : Morphology, Respiratory system, Circulatory system and Reproductive system.
10. Parental care in Amphiba.

PART – B

EMBRYOLOGY

11. Spermatogenesis, Oogenesis and Fertilization.
12. Types of eggs
13. Types of cleavages
14. Development of frog up to gastrulation and formation of primary germ layers.
15. Foetal membranes and their significance.
16. Placenta: Types and functions
17. Regeneration with reference to Turbellarians and Lizards.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY
II B.Sc., - ZOOLOGY
PAPER II BIOLOGY OF CHORDATES,
ECOLOGY AND ZOOGEOGRAPHY
IV Semester: Theory Syllabus : 2014-2015
Zoo112&Zoo112(P)

PART-A

BIOLOGY OF CHORDATES (REPTILIA TO MAMMALIA)

55. General characters and classification of Reptelia up to order level.
56. Type study – Calotes: Morphology, digestive system, respiratory system, circulatory system, urinogenital system and nervous system.
57. General characters and classification of Aves up to order level with examples.
58. Type study – Pigeon (Columba Livia) : Exoskeleton, Respiratory system, Circulatory system, and Excretory system.
59. Significance of migration in birds.
60. Flight adaptation in birds.
61. General characters and classification of Mammalia up to order level with examples.
62. Dentition in Mammalia.

PART-B

ECOLOGY AND ZOOGEOGRAPHY

63. Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus.
64. Definition of community – Habitat and ecological niche.

65. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism.

Contd/….

66. Ecological succession: Primary and secondary, seral stages, climax community with examples.
67. Population ecology: Density and dispersions of animal populations.
68. Growth curves and growth of animal populations – r-selected and k-selected species.
69. Population regulation mechanisms – both biotic and abiotic
70. Growth of human population and its control.
71. Future of human population.
72. Zoogeography (Addition).

Additional inputs: Divisions of Zoogeographical regions and their faunal elements basing on their phylogenetic relationships and environmental conditions in detail.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2014-2015

Zoo105&Zoo105(P)

ANIMAL PHYSIOLOGY

1. Physiology of digestion 7 Hrs.
   - 1.1. Definition of digestion and types of digestion, extra and intra cellular.
   - 1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.
   - 1.3. Absorption and assimilation of digested food materials.
   - 1.4. Gastrointestinal hormones – Control of digestion.

2. Physiology of respiration: 8 Hrs.
   - 2.1. Types of respiration – External and internal respiration
   - 2.2. Structure of mammalian lungs and gaseous exchange.
   - 2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.
   - 2.4. Transport of CO_2 – Chloride shift, Bhor effect.
   - 2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs.
   - 3.1 Open and closed circulation
   - 3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.
   - 3.3. Regulation of heart rate – Tachycardia and Bradycardia.

   Additional Input:

   E.C.G Electro Cardio Gram

4. Physiology of Excretion : 8 Hrs.

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

4.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis

3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs.

Additional Input :

ABO Blood groups 2 Hrs.

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2014 - 2015

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106(P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs.

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs

1.4. Site selection criteria 2 Hrs

2.0. Clinical Science:

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

Additional Input: Awareness on communicable diseases.

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS),RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2014 - 2015

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY

Zoo107&Zoo107(P)

1. Physiology of muscle contraction 7 Hrs

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and salutatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

4.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by lac I operon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs.

Additional Input: Lamarckism theory

GOVERNMENTCOLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2014 - 2015

APPLIED ZOOLOGY

Zoo108&Zoo108(P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs

1.6. Induced breeding - 2 Hrs

1.7. Hatchery design and management - 2 Hrs

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs

1.9. Shrimp and prawn culture - 2 Hrs

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba.

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs

2.4.2. Blood sugar levels and Diabetes - 3 Hrs

3.0. Animal Biotechnology:

3.3. Transgenesis and production of Transgenic animals (Fish and Goat) - 6 Hrs

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

Core-1; I B.Sc., ZOOLOGY

MODUL-I: BIOLOGY OF INVERTEBRATES,

Ist Semester: Theory Syllabus – 2015-2016

Zoo113&Zoo113(P)

UNIT-I

14. Phylum Protozoa: General characters and out -line classification up-to classes. Type study: Paramoecium. 5 Hrs

Additional input: Malarial Parasite-disease-control. 2 Hrs

15. Phylum Porifera: General characters and outline classification up to classes Type study: Sycon,: canal system in Sponges. 5 Hrs

16. Phylum Cnidaria: General characters and outline classification up to classes. Type study: Obelia, Polymorphism in Coelenterates; Corals and Coral reef formation. 5 Hrs

UNIT-II

17. Phylum Platyhelminthes : General Characters and outline classification up to classes.
Type study : **Fasciola hepatica**. 4 Hrs

18. Phylum Nemathelminthes: General characters and outline classification up to classes.
Type study: **Ascaris lumbricoides**. 3 Hrs

19. Phylum Annelida: General characters and outline classification up to classes Type study: Leech; Coelom and coelom ducts in annelids. 5 Hrs

20. Vermiculture- Introduction,verminculture processing, Vermicomposting and Economic importance of vermicomposting. 3 Hrs

UNIT-III

8. **Phylum Arthropoda**: General characters and outline classification up-to classes
Type study: Prawn: Crustacean larvae and Peripatus-Characters and Significance. 10 Hrs

Addition: Larval forms of Arthropoda and their phylogenetic significance

9. **Phylum Mollusca**: General characters and outline classification up-to classes.
Type study: Pila and Pearl formation in Mollusca. 8 Hrs

UNIT-IV

10. **Phylum Echinodermata**: General characters and out-line classification up-to classes.
Type study: Star fish. 7 Hrs

11. **General characters of Hemichordata**: Structure and affinities of Balanoglossus.5 Hrs

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.

Core- 2; I B.Sc. ZOOLOGY

MODUL-II: CELL BIOLOGY AND BIOMOLECULES OF THE CELL

IInd Semester: Theory Syllabus – 2015-2016

Zoo114&Zoo114(P)

CELL BIOLOGY

UNIT-I

1.Cell Theory 1 Hrs

2.Ultra Structure of Animal Cell 4 Hrs

3. Structure of Plasma Membrane – Fluid-mosaic model. Transport functions of Plasma Membrane- passive transport, active transport (Antiport, symport and uniport) and Bulk transport. 5 Hrs

4. Structure and functions of Endoplasmic reticulum, Golgi body, Ribosomes, Lysosomes and Mitochondrion. 8 Hrs

UNIT-II

5. **Chromosomes** – Nomenclature types and structure. Giant chromosomes – Polytene and Lampbrush chromosomes. 4 Hrs

6. **Cell division** – Cell - cycle stages (G 1, S, G2 and M phases), Cell-cycle check points and regulation.
MITOSIS: MEIOSIS – and its significance. 8 Hrs

BIOMOLECULES OF THE CELL

UNIT-III

7.Carbohydrates:

a. Classification of carbohydrates 3 Hrs

b. Structure of Monosaccharide's (Glucose and Fructose) 4 Hrs

c. Structure of Disaccharides (Lactose and Sucrose) 4 Hrs

d. Structure of Polysaccharides (Starch, Glycogen and Chitin) 4 Hrs

8**. Proteins**.

a. Amino acids: General properties, nomenclature, classification and structure 3 Hrs

b. Classification of Proteins based on functions, chemical nature and nutrition, Peptide bond and its structure (Primary, secondary, tertiary and quaternary structures). 4 Hrs

UNIT-IV

9.Lipids: 4 Hrs

a.Classification, Structure of Fatty acids (Saturated and Unsaturated)

b.Triacylglycerols, Phospolipids (Lecithin and cephalin) and Steroids (cholesterol).

Contd/..

10. **Nucleic acids:** 4 Hrs

a. Structure of purines, pyrimidines, ribose and deoxyribose sugars.

b. Watson and Crick model of DNA – Nucleoside, Nucleotide, Chargaff's rule

c. Structure of RNA, types of RNA – r RNA, tRNA and mRNA.

Addition: Protein Synthesis

GOVERNMENT COLLEGE (A), RAJAHMUNDRY.
Core-3; II. B.Sc., ZOOLOGY
MODULE-III - BIOLOGY OF CHORDATES
III Semester : Theory Syllabus : 2015 – 2016
Zoo115&Zoo115(P)

UNIT-I

1. Protochordates: Salient features of Urochordata and Cephalochordate. Structure and life-history of Herdmania, Significance of retrogressive Metamorphosis. 6Hrs
2. General Organization of Chordates 1Hr
3. General Character of Cyclostomes 1Hr
4. General Characters of fishes, classification up to sub-class level with suitable examples. 2Hrs
5. Type study-Scoliodon: Morphology, Respiratory system, Circulatory system, Excretory system, Nervous system and Sense organs. 9Hrs
6. Migration in fishes and types of scales. 1Hr

   Addition: parental care in fishes

UNIT-II

7. General Characters and classification of Amphibia up to order level. 1Hr
8. Type study-Rana : Morphology, Respiratory system, Circulatory system and Reproductive system. 9Hrs
9. Parental care in Amphiba. 1Hr

UNIT-III

10. General characters and classification of Reptelia up to order level. 3Hrs
11. Type study – Calotes: Morphology, digestive system, respiratory system, circulatory system, urinogenital system and nervous system. 9Hrs

UNIT-IV

12. General characters and classification of Aves up to order level with examples.

3Hrs

13. Type study – Pigeon (Columba Livia) : Exoskeleton, Respiratory system, Circulatory system, and Excretory system.

6Hrs

14. Significance of migration in birds.

2Hrs

15. Flight adaptation in birds.

2Hrs

16. General characters and classification of Mammalia up to order level with examples.

3Hrs

17. Dentition in Mammalia.

2Hrs

GOVERNMENT COLLEGE (A), RAJAHMUNDRY
Core-4; II B.Sc., - ZOOLOGY
MODULE-IV EMBRYOLOGY ,
ECOLOGY AND ZOOGEOGRAPHY
IV Semester: Theory Syllabus : 2015-2016
Zoo118&Zoo118(P)

EMBRYOLOGY
UNIT-I

1. Spermatogenesis, Oogenesis and Fertilization.
   3Hrs
2. Types of eggs
   3Hrs
3. Types of cleavages
   4Hrs
4. Development of frog up to gastrulation and formation of primary germ layers.
   9Hrs

UNIT-II

5. Foetal membranes and their significance.
   3Hrs
6. Placenta: Types and functions
   4Hrs

   Addition: pregnancy and parturition
   1Hr
7. Regeneration with reference to Turbellarians and Lizards.
   4Hrs

ECOLOGY
UNIT-III

18. Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus.

    6Hrs

19. Definition of community – Habitat and ecological niche.

1Hr

20. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism.

7Hrs

21. Ecological succession: Primary and secondary, seral stages, climax community with examples.

4Hrs

ECOLOGY AND ZOOGEOGRAPHY
UNIT-IV

22. Population ecology: Density and dispersions of animal populations.

2Hrs

23. Growth curves and growth of animal populations – r-selected and k-selected species.

4Hrs

24. Population regulation mechanisms – both biotic and abiotic

3Hrs

Zoogeography-Fauna of Oriental Realm, Fauna of Australian Realm.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2015-2016

ANIMAL PHYSIOLOGY

Zoo105&Zoo105(P)

1. Physiology of digestion 7 Hrs

   1.1. Definition of digestion and types of digestion, extra and intra cellular.

   1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.

   1.3. Absorption and assimilation of digested food materials.

   1.4. Gastrointestinal hormones – Control of digestion.

2. Physiology of respiration: 8 Hrs

   2.1. Types of respiration – External and internal respiration

   2.2. Structure of mammalian lungs and gaseous exchange.

   2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.

   2.4. Transport of CO_2 – Chloride shift, Bhor effect.

   2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs

   3.1 Open and closed circulation

   3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.

   3.3. Regulation of heart rate – Tachycardia and Bradycardia.

   Additional Input:

   E.C.G Electro Cardio Gram

4. Physiology of Excretion : 8 Hrs

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

5.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis

3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2015 - 2016

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106(P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs

1.4. Site selection criteria 2 Hrs

2.0. Clinical Science:

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

Additional Input: Awareness on communicable diseases.

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS),

RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2015 - 2016

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY

Zoo107&Zoo107(P)

1. Physiology of muscle contraction 7 Hrs

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and salutatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

5.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by lac I operon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

Addition: Sex linked Inheritance – Hemophilia and Colorblindness

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2015 - 2016

APPLIED ZOOLOGY

Zoo108&Zoo108(P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs

1.6. Induced breeding - 2 Hrs

1.7. Hatchery design and management - 2 Hrs

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs

1.9. Shrimp and prawn culture - 2 Hrs

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs

Addition: Sustainable Aquaculture.

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba, Giardia, Taeniasolium, Ancylostoma and Enterobias Vermicular is

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs

2.4.2. Blood sugar levels and Diabetes - 3 Hrs

3.0. Animal Biotechnology:

3.3. Transgenesis and production of transgenic animals (Fish and Goat) - 6 Hrs

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

I B. Sc., ZOOLOGY : SEMESTER - I : 2016 - 2017 PAPER - I : ANIMAL DIVERSITY OF INVERTBRATES - I

THEORY SYLLABUS

Zoo113&Zoo113(P)

UNIT - I 1.0 Brief History, Significance of Diversity of Invertebrates. 1.1 Phylum Protozoa: General Characters and Outline Classification up to classes with examples Type Study: Elphidium. 1.2 Phylum Porifera: General Characters and Outline Classification up to Classes with examples: Type study: Sycon, Canal System in Sponges. - 10 Hrs.

UNIT - II 2.0 Phylum Coelenterate: General Characters and Outline Classification up to Classes with examples: Type Study: Aurelia polymorphism in Coelenterates: Corals and Coral Reef Formation. 2.1 Phylum Platy helminthes: General Characters and Outline Classification up to Classes with examples: Type Study: Fasciola Hepatica. 2.2 Phylum Nemanthelminthes: General Characters and Outline Classification up to Classes with examples. - 16 Hrs.

UNIT - III 3.0 Phylum Annelida: General Characters and Outline Classification up to Classes with Examples: Type Study: Leech, Mesmerism in Annelida. *Vermiculture: Scope, Significance of Vermiculture Earthworms Sps, Processing of Vermiculture, Vermicompost, Economic Importance of Vermicompost. - 10 Hrs.

UNIT - IV 4.0 Phylum Arthropod - General Characters and Outline Classification up to Classes with Examples: Type Study: Macro brachium rosenbergii (Scampi) * Peripatus - Structure, Affinities. 4.1 Phylum Mollusca: General Characters and Outline Classification up to Classes with Examples. * Pearl Formation in Pelecypoda. * Torsion in Gastropod - 15 Hrs.

UNIT - V 5.0 Phylum Echinodermata: General Characters and Outline Classification up to Classes with examples: Water Vascular System of Star Fish. 5.1 Invertebrates Larval Forms : Amphiblastula, Ephyra, Trochophora, Nauplius, Zoea, Mysis, Megalopa, Glochidium, Bipaneria. 5.2 Hemichordata: General Characters and Outline Classification up to Classes with Examples: Balanoglossus : Structure, Affinities & Tornaria Larvae. - 9 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

I B. Sc., ZOOLOGY:

SEMESTER - II : 2016 – 2017

PAPER - I : ANIMAL DIVERSITY - CHORDATES THEORY SYLLABUS

Zoo115&Zoo115(p)

UNIT - I 1.1 General Characteristics of Chordates. 1.2 Prochordata 1.2.1 Salient features of Cephalochordata 1.2.2 Structure of Branchiostama 1.2.3 Affinities of Cephalochordata 1.2.4 Salient features of Urochordata 1.2.5 Structure and life history of Herdmania 1.2.6 Significance of Retrogressive metamorphosis

UNIT - II

2.1 Cyclostomata 2.1.1 General Characteristics of Cyclostomata 2.1.2 Comparison of the Petromyzon and Myxine

2.2 Pisces 2.2.1 General Characteristics of Fishes 2.2.2 Classification of fishes up to sub-class level with examples. 2.2.3 Scoliodon - External features, Digestive system, Respiratory system, Heart, Brain. 2.2.4 Migration in fishes 2.2.5 Types of Scales 2.2.6 General Account of Dipnoi

UNIT - III

3.1 Amphibia 3.1.1 General characters of Amphibia 3.1.2 Classification of Amphibia up to orders with examples. 3.1.3 Rana hexadactyla - External features, Digestive system, Respiratory system, Heart, Brain 3.1.4 Parental care in amphibians

3.2 Reptilia 3.2.1 General characters of Reptilia 3.2.2 Classification of Reptilia up to orders with examples. 3.2.3 Calotes - External features, Digestive system, Respiratory system, Heart, brain 3.2.4 Skull in reptiles 3.2.5 Brief account of Archaeopteryx

UNIT - IV

4.1 Aves 4.1.1 General characters of Aves 4.1.2 Classification of Aves up to subclasses with examples. 4.1.3 Columba Livia - External features, Digestive system, Respiratory system, Heart, Brain. 4.1.4 Migration in Birds 4.1.5 Flight adaptation in birds. UNIT - V 5.1 Mammalia 5.1.1 General characters of Mammalia 5.1.2 Classification of Mammalia up to sub-classes with examples 5.2 Comparisons of Prototherians, Metatherians and Eutherians 5.3 Dentition in Mammals.

GOVERNMENT COLLEGE (A), RAJAHMUNDRY

Core-4; II B.Sc., - ZOOLOGY MODULE-IV

EMBRYOLOGY , ECOLOGY AND ZOOGEOGRAPHY

IV Semester:

Theory Syllabus: 2015-2016

EMBRYOLOGY

Zoo118&Zoo118(P)

UNIT-I

1. Spermatogenesis, Oogenesis and Fertilization. 3Hrs 2. Types of eggs 3Hrs 3. Types of cleavages 4Hrs 4. Development of frog up to gastulation and formation of primary germ layers. 9Hrs

UNIT-II

5. Foetal membranes and their significance. 3Hrs 6. Placenta: Types and functions 4Hrs Addition: pregnancy and parturition 1Hr 7. Regeneration with reference to Turbellarians and Lizards. 4Hrs

ECOLOGY UNIT-III

18.Biogeochemical cycles or nutrient cycles – Gaseous cycles of Nitrogen and carbon, sedimentary cycle – phosphorus. 6Hrs 19. Definition of community – Habitat and ecological niche. 1Hr 20. Community interactions: Brief account on Competition, Predation Mutualism, Commensalism and Parasitism. 7Hrs 21.Ecological succession: Primary and secondary, seral stages, climax community with examples. 4Hrs

ECOLOGY AND ZOOGEOGRAPHY

UNIT-IV

22.Population ecology: Density and dispersions of animal populations. 2Hrs 23.Growth curves and growth of animal populations – r-selected and k-selected species. 4Hrs 24.Population regulation mechanisms – both biotic and abiotic 3Hrs 25.Zoogeography-Fauna of Oriental Realm, Fauna of Australian Realm. 3Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS),

RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2015 - 2016

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY

Zoo107&Zoo107(P)

1. Physiology of muscle contraction 7 Hrs

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and saltatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

6.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by lacIoperon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

Addition: Sex linked Inheritance – Hemophilia and Colorblindness

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2015 - 2016

APPLIED ZOOLOGY

Zoo108&Zoo108(P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs

1.6. Induced breeding - 2 Hrs

1.7. Hatchery design and management - 2 Hrs

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs

1.9. Shrimp and prawn culture - 2 Hrs

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs

Addition: Sustainable Aquaculture.

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba, Giardia, Taeniasolium, Ancylostoma and Enterobias Vermicularis

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs

2.4.2. Blood sugar levels and Diabetes - 3 Hrs

3.0. Animal Biotechnology:

3.3. Transgenesis and production of Trangenic animals (Fish and Goat) - 6 Hrs

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDAVARAM
I B.Sc. ZOOLOGY : SEMESTER – I : 2016-17
PAPER – I : ANIMAL DIVERSITY OF INVERTBRATES - I
THEORY SYLLABUS
Zoo113&Zoo113(P)

UNIT-I

1.0 Breif History, Signification of Diversity of Invertebrates.

1.1 Phylum Protozoa: General characters and out -line classification up-to classes.
Type study: Paramecium.
Additional input: Malarial Parasite-disease-control.

1.2 Phylum Porifera: General characters and outline classification up to classes
Type study: Sycon,: canal system in Sponges. ***-10 Hrs***

★ Locomotory organs of Protozoans

UNIT-II

2.0 Phylum Coelenterata : General Characters and Outline Classification upto Classes with examples:
Type Study : Aurelia polymorphism in Coelenterates : Corals and Coral Reef Formation.

2.1 Phylum Platy helminthes : General Characters and outline classification up to classes.
Type study : Fasciola hepatica.

2.2 Phylum Nemathelminthes: General characters and outline classification up to classes.
Type study: Ascaris lumbricoides. ***-10 Hrs***

★ Parasitic Adaptations of Platy Helminthes

UNIT-III

3.0 Phylum Annelida: General characters and outline classification up to classes
Type study: Leech; Coelom and coelomoducts in annelids.

3.1 Vermiculture- Introduction,verminculture processing, Vermicompost and Economic importance of vermicompost. ***-10 Hrs***

UNIT-IV

4.0 Phylum Arthropoda: General characters and outline classification up to classes with Examples:

Type study: Macrobrachium rosenbergii(Scampi)

4.1 ★ Peripatus : Structure, Affinities.

4.2 Phylum Mollusca: General characters and outline classification up to classes with Examples.

- ★ Pearl Formation in Pelecypoda.
- ★ Torsion in Gastropoda
- ★ Harmful Insects of Arthopoda 8 Hrs

UNIT-V

5.0 Phylum Echinodermata: General characters and outline classification up to classes with

Examples : Water Vascular System of Star Fish.

Type study: Star fish. 7 Hrs

5.1 Invertebrates Larval Forms : Amphiblastula, Ephyra, Trochophora, Nauplius, Zoea, Mysis, Megalopa, Glochidium, Bipaneria.

5.2 Hemichordata : General Characters and Outline Classification up to Classes with Examples:

Balanoglossus : Structure, Affinities & Tornaria Larvae.

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
I B. Sc., ZOOLOGY : SEMESTER - II : 2016- 2017
PAPER - I : ANIMAL DIVERSITY - CHORDATES
THEORY SYLLABUS
Zoo114&Zoo114(P)

UNIT - I

1.1 General Characteristics of Chordates.

1.2 Prochordata

- 1.2.1 Sailent features of Cephalochordata
- 1.2.2 Structure of Branchiostama
- 1.2.3 Affinities of Cephalochordata
- 1.2.4 Sailent features of Urochordata
- 1.2.5 Structure and life history of Herdmania
- 1.2.6 Significance of Retrogressive metamorphosis

UNIT - II

2.1 Cyclostomata

- 2.1.1 General Characteristics of Cyclostomata
- 2.1.2 Comparison of the Petromyzon and Myxine

2.2 Pisces

- 2.2.1 General Characteristics of Fishes
- 2.2.2 Classification of fishes up to sub-class level with examples.
- 2.2.3 Scoliodon - External features, Digestive system, Respiratory system, Heart, Brain.
- 2.2.4 Migration in fishes
- 2.2.5 Types of Scales
- 2.2.6 General Account of Dipnoi

UNIT - III

3.1 Amphibia

- 3.1.1 General characters of Amphibia
- 3.1.2 Classification of Amphibia upto orders with examples.
- 3.1.3 Rana hexadactyla - External features, Digestive system, Respiratory system, Heart, Brain
- 3.1.4 Parental care in amphibians

3.2 Reptilia

- 3.2.1 General characters of Reptilia
- 3.2.2 Classification of Reptilia upto orders with examples.
- 3.2.3 Calotes - External features, Digestive system, Respiratory system, Heart, brain
- 3.2.4 Skull in reptiles
- 3.2.5 Brief account of Archaeopteryx

UNIT - IV

4.1 Aves

4.1.1 General characters of Aves
4.1.2 Classification of Aves upto subclasses with examples.
4.1.3 Columba livia - External features, Digestive system, Respiratory system, Heart, Brain.
4.1.4 Migration in Birds
4.1.5 Flight adaptation in birds.

UNIT - V

5.1 Mammalia

5.1.1 General characters of Mammalia
5.1.2 Classification of Mammalia upto sub-classes with examples

5.2 Comparision of Prototherians, Metatherians and Eutherians

5.3 Dentition in Mammals.

Additions :

1. Animal Sancturies in India.

Suggested Readings :

1. E.L. Jordan and P.S. Verma 'Chordate Zoology' - S. Chand Publications.
2. Mohan P. Arora. 'Chordata - I, Himalaya Publishing House Pvt. Ltd.
3. Marshal, Parker and Haswell 'Text Book of Vertebrates'. ELBS and Mc. Millan, England.
4. Alfred Sherwood Romer. Thoma S. Pearson 'The Vertebrate Body, Sixth edition, CBS College Publishing, Saunders College Publishing.
5. George C. Kent, Robert K. Carr. Comparitive Anatomy of the Vertebrates, 9th ed. Mc Graw Hill.
6. Kenneth Kardong Vertebrates : Comparitive Anatomy, Function and Evolution, 4th ed. 'Mc. Graw Hill.
7. J.W. Young, The Life of Vertebrates, 3rd Ed. Oxford University Press.
8. Harvey Pough F, Christine M. Janis, B. Heiser, Vetebrate Life, Pearson, 6th ed. Pearson Education Inc. 2002.

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Unit No.	Essay	Short Answer	Very Short Answer
Unit - I	Q.No. 1 (A or B)	1	1
Unit - II	Q.No. 2 (A or B)	2	1
Unit - III	Q.No. 3 (A or B)	2	1
Unit - IV	Q.No. 4 (A)	2	1
Unit - V	Q.No. 4 (B)	1	-

Members :

1.
2.
3. **Chairman**

GOVERNMENT COLLEGE (A) – RAJAMAHENDRAVARAM

DEPARTMENT OF ZOOLOGY

ZOOLOGY PAPER – 2 (CYTOLOGY, GENETICS & EVOLUTION)

SYLLABUS – 2016-17

Zoo115&Zoo115(P)

III – SEMESTER

Periods:60 Max. Marks:100

Unit - I

1. Cytology – I 10hrs

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma - 4 hrs.

1.2 Electron microscopic structure of eukaryotic cell. 2hrs

1.3 Plasma membrane –Different models of plasma membrane. 2hrs

1.4 Functions of plasma membrane - 2 hrs.

Unit – II

2. Cell organelles 10 hrs.

2.1 Structure and functions of Endoplasmic Reticulum

2.2 Structure and functions of Golgi apparatus

2.3 Structure and functions of Lysosomes

2.4 Structure and functions of Ribosomes

2.5 Structure and functions of Mitochondria

2.6 Nucleus

2.7. Chromatin - Structure and significance, Chromosomes - Structure, types, functions 3hrs

2.8.Nucleic acids-DNA,RNA 2hrs

Unit - III

3.1	Genetics - I	10 hrs.
3.1.1	Mendel's work on transmission on traits	- 4 hrs.
3.1.2	Principles of inheritance	
3.1.3	Incomplete dominance and codominance	3hrs
3.1.4	Lethal alleles, Epistasis, Pleiotropic	3hrs
3.1.5	Genetic code	

Unit - IV

4.1	Genetics - II	- 10 hrs.
4.1.1	Sex determination	4hrs
4.1.2	Sex linked inheritance	4 hrs.
4.1.3	Linkage and crossing over	- 2 hrs.
4.1.4	Extra chromosomal inheritance	3hrs
4.1.5	Human karyotyping	3hrs
4.1.6	Chromosomal disorders	

Unit - V

5.1	Evolution	10 hrs.
5.1.1	Origin of life	- 2 hrs.
5.1.2	Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.	3hrs
5.1.3	Variations, isolating mechanisms, natural selection	- 3 hrs.
5.1.4	Types of natural selection (directional, stabilizing, disruptive)	- 2 hrs.
5.1.5	Artificial selection and forces of evolution	- 3 hrs.
5.1.6	Speciation (Allopatric and Sympatric)	- 2 hrs.
5.1.7	Macro evolutionary principles (Example: Darwin's finches)	

GOVERNMENT COLLEGE (A) – RAJAMAHENDRAVARAM

DEPARTMENT OF ZOOLOGY
PAPER – II
(EMBRYOLOGY, PHYSIOLOGY, ECOLOGY AND ZOOGEOGRAPHY)
IV SEMESTER – 2016-17

Zoo118&Zoo118(P)

UNIT – I

DEVELOPMENTAL BIOLOGY AND EMBRYOLOGY - **12 hrs.**

I. → Gametogenesis
→ Fertilization
→ Types of Eggs
→ Types of cleavages - 4 hrs.

II. → Development of frog up to formation of primary germ layers.
→ Formation and functions of Foetal membranes in chick embryo.
→ Development, types and functions of placenta in mammals. - 6 hrs.
★ Regeneration - 2hrs

UNIT – II

PHYSIOLOGY - I **12 hrs.**

1. Digestion :
→ Elementary study of process of digestion
→ Absorption of digested food

2. Respiration :
→ Pulmonary Ventilation, transport of gases

3. Circulation :
→ Structure and functions of Heart, Cardiac Cycle. - 5 hrs.

4. Excretion :
→ Structure of Nephron, Urine formation,
Counter current mechanism. - 3 hrs.
★ Hormonal control on digestion - 4 hrs.

UNIT – III

PHYSIOLOGY - III **12 hrs.**

5. ★ Nerve impulse, transmission

→ Resting membrane potential, origin and
Propagation of action potential along
Myelinated and non-myelinated nerve cell - 4 hrs.

6. Muscle Contraction

→ Ultra structure and functions of muscle fiber,
Molecular and chemical basis of muscle contraction - 4 hrs.

7. Endocrine glands

→ Pituitary gland, thyroid gland, parathyroid,
Adrenal and pancreas.

8. Hormonal Control of reproduction in mammal - 4 hrs.

★ Structure and types of Nerve cell

UNIT – IV

→ Meaning and Scope of Ecology - 12 hrs.

→ Important abiotic factors – Temperature, Light,
Water, oxygen and Carbon dioxide.

→ Nutrient cycle – Nitrogen, carbon and phosphorus cycles – 3 hrs.

→ Component of Ecosystem – Food chain, Food web, Energy flow in an Ecosystem

★ Biotic factors. - 6 hrs.

UNIT – V

Ecology - II **12 hrs.**

→ Habitat and Ecological Niche

→ Community interactions – Mutualism, Commensalism parasitism,
Competition and predation - 3hrs

→ Ecological Succession

→ Population Studies - 3 hrs

Zoogeography

→ Oriental realm,

→ Australian realm

→ Ethiopian realm - 3 hrs

★ Wild life conservation - 3 hrs

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2016-2017

ANIMAL PHYSIOLOGY

Zoo105&Zoo105(P)

1. Physiology of digestion 7 Hrs

   1.1. Definition of digestion and types of digestion, extra and intra cellular.

   1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.

   1.3. Absorption and assimilation of digested food materials.

   1.4. Gastrointestinal hormones – Control of digestion.

2. Physiology of respiration: 8 Hrs

   2.1. Types of respiration – External and internal respiration

   2.2. Structure of mammalian lungs and gaseous exchange.

   2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.

   2.4. Transport of CO_2 – Chloride shift, Bhor effect.

   2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs

   3.1 Open and closed circulation

   3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.

   3.3. Regulation of heart rate – Tachycardia and Bradycardia.

   Additional Input:

   E.C.G Electro Cardio Gram

4. Physiology of Excretion : 8 Hrs

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

6.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis

3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2016 - 2017

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106(P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs

1.4. Site selection criteria 2 Hrs

2.0. Clinical Science:

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

Additional Input: Awareness on communicable diseases.

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS),

RAJAHMUNDRY

III B.Sc. - ZOOLOGY

PAPER – III, VI SEMESTER SYLLABUS: 2016 - 2017

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

ANIMAL PHYSIOLOGY

Zoo107&Zoo107(P)

1. Physiology of muscle contraction 7 Hrs

   1.1. General structure and types of muscles.

   1.2. Ultra - structure of skeletal muscle.

   1.3. Sliding filament mechanism of muscle contraction.

   1.4. Chemical changes during muscle contraction: Role of calcium, ATP utilization and its replacement.

2. Physiology of nerve impulse: 8 Hrs

   2.1. Structure of nerve cell

   2.2. Nature of nerve impulse – resting potential and action potential. Properties of nerve impulse threshold value, refractory period, all or none response.

   2.3. Conduction of nerve impulse along an axon local circuit theory and saltatory conduction theory.

   2.4. Structure of synapse, mechanism of synaptic transmission – electrical and chemical transmissions.

3. Physiology of Endocrine system 8 Hrs

   3.1 Relationship between hypothalamus and pituitary gland.

   3.2. Hormones of hypothalamus.

   3.3. Hormones of Adenohypophysis and Neurohypophysis.

   3.4. Hormones of pineal gland, thyroid gland, parathyroid gland, thymus, adrenal and pancreas.

   3.5. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in human beings.

4. Physiology of Homeostasis 7 Hrs

4.1. Concept of Homeostasis and its basic working mechanism.

4.2. Mechanism of Homeostasis – giving three illustrations viz. Hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals and temperature regulation in man.

7.0. Genetics

1.3 Central dogma of molecular biology – Brief account of DNA replication (semi-conservative method), Replication fork (Continuous and discontinuous synthesis), Transcription – Brief account of initiation, elongation and termination in Eukaryotes; Translation, Genetic code, gene regulation as exemplified by lacIoperon.

8 Hrs.

1.2 Human karyotyping bar bodies and Lyon hypothesis and Amniocentesis Chromosomal disorders, Autosomal and sex chromosomes 5 Hrs.

Addition: Sex linked Inheritance – Hemophilia and Colorblindness

2.0. Organic Evolution

2.2. Speciation – Allopatric and sympatric 2 Hrs

GOVERNMENTCOLLEGE(AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY

PAPER – IV, VI SEMESTER- 2016 - 2017

APPLIED ZOOLOGY

Zoo108&Zoo108(P)

1.0. Fisheries and Aquaculture:

1.5. Aquaculture systems - 3 Hrs

1.6. Induced breeding - 2 Hrs

1.7. Hatchery design and management - 2 Hrs

1.8. Larval rearing – nursery ponds, rearing and grow out ponds - 2 Hrs

1.9. Shrimp and prawn culture - 2 Hrs

1.10. Preservation and processing – Freezing, solar drying, canning, salting, smoking - 2 Hrs

Addition: Sustainable Aquaculture.

2.0. Clinical Science:

2.3 Important Human parasites - 10 Hrs

2.3.1. Blood parasites: Structure and clinical significance of Plasmodium

2.3.2. Intestinal Parasites: Structure and clinical significance of Entamoeba, Giardia, Taeniasolium, Ancylostoma and Enterobias Vermicularis

2.4. Addition:

2.4.1. Cholesterol and its significance in cardiovascular problems. - 3 Hrs

2.4.2. Blood sugar levels and Diabetes - 3 Hrs

3.0. Animal Biotechnology:

3.3. Transgenesis and production of Trangenic animals (Fish and Goat) - 6 Hrs

3.4. Application of Stem Cell technology in cell based therapy (Diabetes and Parkinson's diseases) - 6 Hrs

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDAVARAM
I B.Sc. ZOOLOGY : SEMESTER – I : 2017-18
PAPER – I : ANIMAL DIVERSITY OF INVERTBRATES - I
THEORY SYLLABUS
Zoo113&Zoo113(P)

UNIT-I

6.0 Breif History, Signification of Diversity of Invertebrates.

1.1 Phylum Protozoa: General characters and out -line classification up-to classes.
Type study: Paramecium.
Additional input: Malarial Parasite-disease-control.

1.3 Phylum Porifera: General characters and outline classification up to classes
Type study: Sycon,: canal system in Sponges. ***-10 Hrs***

★ Locomotory organs of Protozoans

UNIT-II

7.0 Phylum Coelenterata : General Characters and Outline Classification up to Classes with examples:
Type Study : Aurelia polymorphism in Coelenterates : Corals and Coral Reef Formation.

2.1 Phylum Platy helminthes : General Characters and outline classification up to classes.
Type study : Fasciola hepatica.

2.2 Phylum Nemathelminthes: General characters and outline classification up to classes.
Type study: Ascaris lumbricoides. ***-10 Hrs***

★ Parasitic Adaptations of Platy Helminthes

UNIT-III

8.0 Phylum Annelida: General characters and outline classification up to classes
Type study: Leech; Coelom and coelomoducts in annelids.

3.1 Vermiculture- Introduction,verminculture processing, Vermicompost and Economic importance of vermicompost. ***-10 Hrs***

UNIT-IV

9.0 Phylum Arthropoda: General characters and outline classification upto classes with Examples:

Type study: Macrobrachium rosenbergii(Scampi)

4.1 ★ Peripatus : Structure, Affinities.

4.2 Phylum Mollusca: General characters and outline classification up to classes with Examples.

- ★ Pearl Formation in Pelecypoda.
- ★ Torsion in Gastropoda
- ★ Harmful Insects of Arthopoda 8 Hrs

UNIT-V

10.0 Phylum Echinodermata: General characters and outline classification up to classes with

Examples : Water Vascular System of Star Fish.

Type study: Star fish. 7 Hrs

5.1 Invertebrates Larval Forms : Amphiblastula, Ephyra, Trochophora, Nauplius, Zoea, Mysis, Megalopa, Glochidium, Bipaneria.

5.2 Hemichordata : General Characters and Outline Classification upto Classes with Examples:

Balanoglossus : Structure, Affinities & Tornaria Larvae.

GOVERNMENT COLLEGE (AUTONOMOUS)
RAJAMAHENDRAVARAM
I B. Sc., ZOOLOGY : SEMESTER - II : 2017- 2018
PAPER - I : ANIMAL DIVERSITY - CHORDATES
THEORY SYLLABUS
Zoo114&Zoo114(P)

UNIT - I

1.1 General Characteristics of Chordates.

1.2 Prochordata

- 1.2.1 Sailent features of Cephalochordata
- 1.2.2 Structure of Branchiostama
- 1.2.3 Affinities of Cephalochordata
- 1.2.4 Sailent features of Urochordata
- 1.2.5 Structure and life history of Herdmania
- 1.2.6 Significance of Retrogressive metamorphosis

UNIT - II

2.1 Cyclostomata

- 2.1.1 General Characteristics of Cyclostomata
- 2.1.2 Comparison of the Petromyzon and Myxine

2.2 Pisces

- 2.2.1 General Characteristics of Fishes
- 2.2.2 Classification of fishes up to sub-class level with examples.
- 2.2.3 Scoliodon - External features, Digestive system, Respiratory system, Heart, Brain.
- 2.2.4 Migration in fishes
- 2.2.5 Types of Scales
- 2.2.6 General Account of Dipnoi

UNIT - III

3.1 Amphibia

- 3.1.1 General characters of Amphibia
- 3.1.2 Classification of Amphibia upto orders with examples.
- 3.1.3 Rana hexadactyla - External features, Digestive system, Respiratory system, Heart, Brain
- 3.1.4 Parental care in amphibians

3.2 Reptilia

- 3.2.1 General characters of Reptilia
- 3.2.2 Classification of Reptilia upto orders with examples.
- 3.2.3 Calotes - External features, Digestive system, Respiratory system, Heart, brain
- 3.2.4 Skull in reptiles
- 3.2.5 Brief account of Archaeopteryx

UNIT - IV

4.1 Aves

4.1.1 General characters of Aves
4.1.2 Classification of Aves upto subclasses with examples.
4.1.3 Columba livia - External features, Digestive system, Respiratory system, Heart, Brain.
4.1.4 Migration in Birds
4.1.5 Flight adaptation in birds.

UNIT - V

5.1 Mammalia

5.1.1 General characters of Mammalia
5.1.2 Classification of Mammalia upto sub-classes with examples

5.2 Comparision of Prototherians, Metatherians and Eutherians

5.3 Dentition in Mammals.

Additions :

1. Animal Sancturies in India.

Suggested Readings :

1. E.L. Jordan and P.S. Verma 'Chordate Zoology' - S. Chand Publications.
2. Mohan P. Arora. 'Chordata - I, Himalaya Publishing House Pvt. Ltd.
3. Marshal, Parker and Haswell 'Text Book of Vertebrates'. ELBS and Mc. Millan, England.
4. Alfred Sherwood Romer. Thoma S. Pearson 'The Vertebrate Body, Sixth edition, CBS College Publishing, Saunders College Publishing.
5. George C. Kent, Robert K. Carr. Comparitive Anatomy of the Vertebrates, 9th ed. Mc Graw Hill.
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8. Harvey Pough F, Christine M. Janis, B. Heiser, Vetebrate Life, Pearson, 6th ed. Pearson Education Inc. 2002.

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Unit No.	Essay	Short Answer	Very Short Answer
Unit - I	Q.No. 1 (A or B)	1	1
Unit - II	Q.No. 2 (A or B)	2	1
Unit - III	Q.No. 3 (A or B)	2	1
Unit - IV	Q.No. 4 (A)	2	1
Unit - V	Q.No. 4 (B)	1	-

Members :

1.
2.
3. **Chairman**

GOVERNMENT COLLEGE (A) – RAJAMAHENDRAVARAM

DEPARTMENT OF ZOOLOGY

ZOOLOGY PAPER – 2 (CYTOLOGY, GENETICS & EVOLUTION)

SYLLABUS – 2017-18

Zoo115&Zoo115(P)

III – SEMESTER

Periods:60 Max. Marks:100

Unit - I

1. Cytology – I 10hrs

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma - 4 hrs.

1.2 Electron microscopic structure of eukaryotic cell. 2hrs

1.3 Plasma membrane –Different models of plasma membrane. 2hrs

1.4 Functions of plasma membrane - 2 hrs.

Unit – II

2. Cell organelles 10 hrs.

2.1 Structure and functions of Endoplasmic Reticulum

2.2 Structure and functions of Golgi apparatus

2.3 Structure and functions of Lysosomes

2.4 Structure and functions of Ribosomes

2.5 Structure and functions of Mitochondria

2.6 Nucleus

2.7. Chromatin - Structure and significance, Chromosomes - Structure, types, functions 3hrs

2.8.Nucleic acids-DNA,RNA 2hrs

Unit - III

3.1	Genetics - I	10 hrs.
3.1.1	Mendel's work on transmission on traits	- 4 hrs.
3.1.2	Principles of inheritance	
3.1.3	Incomplete dominance and codominance	3hrs
3.1.4	Lethal alleles, Epistasis, Pleiotropic	3hrs
3.1.5	Genetic code	

Unit - IV

4.1	Genetics - II	- 10 hrs.
4.1.1	Sex determination	4hrs
4.1.2	Sex linked inheritance	hrs.
4.1.3	Linkage and crossing over	- 2 hrs.
4.1.4	Extra chromosomal inheritance	3hrs
4.1.5	Human karyotyping	3hrs
4.1.6	Chromosomal disorders	

Unit - V

5.1	Evolution	10 hrs.
5.1.1	Origin of life	- 2 hrs.
5.1.2	Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.	3hrs
5.1.3	Variations, isolating mechanisms, natural selection	- 3 hrs.
5.1.4	Types of natural selection (directional, stabilizing, disruptive)	- 2 hrs.
5.1.5	Artificial selection and forces of evolution	- 3 hrs.
5.1.6	Speciation (Allopatric and Sympatric)	- 2 hrs.
5.1.7	Macro evolutionary principles (Example: Darwin's finches)	

GOVERNMENT COLLEGE (A) – RAJAMAHENDRAVARAM

DEPARTMENT OF ZOOLOGY
PAPER – II
(EMBRYOLOGY, PHYSIOLOGY, ECOLOGY AND ZOOGEOGRAPHY)
IV SEMESTER – 2017-18

Zoo118&Zoo118(P)

UNIT – I

DEVELOPMENTAL BIOLOGY AND EMBRYOLOGY - **12 hrs**

III. → Gametogenesis
→ Fertilization
→ Types of Eggs
→ Types of cleavages - 4 hrs

IV. → Development of frog up to formation of primary germ layers.
→ Formation and functions of Foetal membranes in chick embryo.
→ Development, types and functions of placenta in mammals. - 6 hrs
★ Regeneration - 2hrs

UNIT – II

PHYSIOLOGY - I **12 hrs**

9. Digestion :
→ Elementary study of process of digestion
→ Absorption of digested food

10. Respiration :
→ Pulmonary Ventilation, transport of gases

11. Circulation :
→ Structure and functions of Heart, Cardiac Cycle. - 5 hrs

12. Excretion :
→ Structure of Nephron, Urine formation,
Counter current mechanism. - 3 hrs
★ Hormonal control on digestion - 4 hrs

UNIT – III

PHYSIOLOGY - III **12 hrs**

13. ★ Nerve impulse, transmission

→ Resting membrane potential, origin and Propagation of action potential along Myelinated and non-myelinated nerve cell - 4 hrs.

14. Muscle Contraction

→ Ultra structure and functions of muscle fiber, molecular and chemical basis of muscle contraction - 4 hrs

15. Endocrine glands

→ Pituitary gland, thyroid gland, parathyroid, Adrenal and pancreas.

16. Hormonal Control of reproduction in mammal - 4 hrs

★ Structure and types of Nerve cell

UNIT – IV

→ Meaning and Scope of Ecology - 12 hrs

→ Important abiotic factors – Temperature, Light, Water, oxygen and Carbon dioxide.

→ Nutrient cycle – Nitrogen, carbon and phosphorus cycles – 3 hrs

→ Component of Ecosystem – Food chain, Food web, Energy flow in an Ecosystem

★ Biotic factors. - 6 hrs

UNIT – V

Ecology - II **12 hrs**

→ Habitat and Ecological Niche

→ Community interactions – Mutualism, Commensalism parasitism, Competition and predation - 3hrs

→ Ecological Succession

→ Population Studies - 3 hrs

Zoogeography

→ Oriental realm,

→ Australian realm

→ Ethiopian realm - 3 hrs

★ Wild life conservation - 3 hrs

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

III B.Sc. ZOOLOGY - PAPER – III,

ANIMAL PHYSIOLOGY, GENETICS & EVOLUTION

V SEMESTER THEORY SYLLABUS – 2017-2018

ANIMAL PHYSIOLOGY

Zoo105&Zoo105(P)

1. Physiology of digestion 7 Hrs

   1.1. Definition of digestion and types of digestion, extra and intra cellular.

   1.2. Digestion of carbohydrates, Proteins, Lipids and Cellulose digestion.

   1.3. Absorption and assimilation of digested food materials.

   1.4. Gastrointestinal hormones – Control of digestion.

2. Physiology of respiration: 8 Hrs

   2.1. Types of respiration – External and internal respiration

   2.2. Structure of mammalian lungs and gaseous exchange.

   2.3. Transport of oxygen – formation of oxyhaemoglobin and affinity of hemoglobin for oxygen, Oxygen dissociation curves.

   2.4. Transport of CO_2 – Chloride shift, Bhor effect.

   2.5. Cellular respiration – Main steps of glycolysis, Krebs cycle, electron transport, oxidative phosphorylation and ATP production (Chemosmotic theory)

3. Physiology of Circulation: 7 Hrs

   3.1 Open and closed circulation

   3.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle. Myogenic and neurogenic hearts.

   3.3. Regulation of heart rate – Tachycardia and Bradycardia.

   Additional Input:

   E.C.G Electro Cardio Gram

4. Physiology of Excretion : 8 Hrs

4.1. Definition of excretion

4.2. Forms of nitrogenous waste materials and their formation, classification of animals on the basis of excretory products.

4.3. Gross organization of mammalian excretory system and structure of kidney

4.4. Structure and function of Nephron – Counter current mechanism.

7.0 Genetics :

1.1 Mendel's Laws – Law of segregation and independent assortment, Genetic interactions – incomplete dominance, co-dominance and epistasis

3 Hrs.

1.2 Identification of DNA as the genetic material Griffith's experiment and Hershey – Chase experiment. 4 Hrs

2.0. Organic Evolution:

2.1. Genetic basis of evolution. Gene pool and gene frequencies, Hardy – Weinberg's law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation and Migration

8 Hrs.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
III B.Sc. ZOOLOGY

THEORY SYLLABUS - V SEMESTER 2017 - 2018

PAPER IV – APPLIED ZOOLOGY

Zoo106&Zoo106(P)

1.0. Fisheries and Aquaculture:

1.1. Capture fisheries – Introduction - 1 Hrs.

1.2 Types of Fisheries, Fishery resources from Fresh water, brackish water and Marine habitats 2 Hrs

1.3. Fresh water, Brackish - water and Mari culture 5 Hrs

1.4. Site selection criteria 2 Hrs

2.0. Clinical Science:

2.1. Hematology 8 Hrs

2.1.1 Blood composition and functions

2.1.2 Blood groups and transfusion problems

2.1.3 Blood diseases – Anemia, Leukemia, Leukocytosis, and Leucopenia

2.1.4 Biopsy and autopsy – clinical importance

2.2. Immunology

2.2.1 Types of Immunity – Innate and acquired

2.2.2. Antigens – Haptens and epitopes and their properties.

2.2.3. Structure and biological properties of human immunoglobulin G (I G)

2.2.4. Hypersensitivity – immediate and delayed

Additional Input: Awareness on communicable diseases.

3.0. Animal Biotechnology:

3.1. Animal Biotechnology: Scope of Biotechnology, Cloning vectors – Characteristics of vectors, plasmids 8 Hrs

3.2. Gene cloning – Enzymatic cleavage of DNA, Restriction enzymes (Endonucleases) and Ligation. 10 Hrs

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY:

VI SEMESTER: 2017 - 2018 ELECTIVE –

VII (B) CELLULAR METABOLISM AND MOLECULAR BIOLOGY

THEORY SYLLABUS

Zoo118&Zoo118(P)

Unit - I

Biomolecules : 1.1 Carbohydrates - Classification of Carbohydrates, Structure of Glucose. 1.2 Proteins - Classification of Proteins, General Properties of Amino Acids. 1.3 Lipids - Classification of Lipids. 1.4 Nucleic Acids - DNA - Structure and function RNA - Structure, Types & functions.

Unit - II

Enzymes and Cellular Metabolism 2.1 Introduction to biocatalysts, Enzymes and their classification 2.2 Glycogen Metabolism - Review of Electron Transport Chain

Unit - III

Cellular Metabolism and Cell Physiology 3.1 Lipid Metabolism - Biosynthesis and β- oxidation of plamatic acid. 3.2 Protein Metabolism - Transamination, Deamination 3.3 Transport functions of plasma membrane Active transport Passive transport

Unit - IV

Gene Expression 4.1 Gene expression in Prokaryotes (lacoperon) 4.2 Gene expression in Eukaryotes 4.3 Transcription and Translation.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY :

2017 - 2018 ELECTIVE PAPER : VII (A) *

IMMUNOLOGY

Zoo124&Zoo124(P)

Unit - I

1.1 Overview of Immune System : 1.1.1 Introduction to basic concepts in Immunology 1.1.2 Innate and adaptive immunity 1.2 Cells and Organs of Immune System : 1.2.1 Cells of Immune system 1.2.2 Organs of Immune system

1.2 **Unit - II** 2.1 Antigens : 2.1.1 Basic properties of antigens 2.1.2 B and T cell epitopes, haptens and adjuvants 2.1.3 Factors influence immunogenicity

1.3 **Unit - III** 3.1 Antibodies : 3.1.1 Structure of antibody 3.1.2 Classes and functions of antibodies 3.1.3 Monoclonal antibodies

1.4 **Unit - IV** 4.1 Working of Immune system: 4.1.1 Structure and functions of major histocompatibility complexes. 4.1.2 Exogenes and Endogens pathways of antigen presentation and processing. 4.1.3 Basic properties and functions of cytokines.

1.5 **Unit - V** 5.1 Immune system in health and disease : 5.1.1 Classification and brief description of various types of hyper sensitivities. 5.1.2 Introduction to concepts of autoimmunity and immuno deficiency. 5.2 Vaccines : 5.2.1 General Introduction to vaccines. 5.2.2 Type of vaccines.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY

SYLLABUS FOR VIII SEMESTER

CLUSTER ELECTIVE PAPER : VIII (B-1) PRINCIPLES OF AQUACULTURE

Zoo119&Zoo119(P)

UNIT - I

1.1 Introduction / Basics of Aquaculture : 1.1.1 Definition, significance and history of aquaculture. 1.1.2 Present status of aquaculture - Global and national scenario. 1.1.3 Major cultivable species for aquaculture, freshwater, brackish water and marine. 1.1.4 Criteria for the selection of species for culture.

UNIT - II

2.1 Types of Aquaculture : 2.1.1 Fresh water, brackish water, marine. 2.1.2 Concept of monoculture, polyculture, composite culture, monosex culture and integrated fish farming.

2.2 Culture Systems : 2.2.1 Pond, raceways, cages, pens, rafts and water recirculating aquaculture systems.

2.3 Culture Practices : 2.3.1 Traditional extensive, modified extensive, semi intensive and intensive cultures of fish and shrimp.

UNIT – III

3.1 Design and construction of aqua farms: 3.1.1 Criteria for the selection of site for fresh water and brackish water pond farms. 3.1.2 Design and construction of fish and shrimp farms.

3.2 Seed resources : 3.2.1 Natural seed resources and Procurement of seed for stocking : Carp and shrimp culture.

3.3 Nutrition and feeds : 3.3.1 Nutritional requirements of a cultivable fish and shell fish. 3.3.2 Natural food and Artificial feeds and their importance in fish and shrimp culture.

UNIT - IV

4.1 Management of carp culture ponds : 4.1.1 Culture of Indian major carps : Pre-stocking management - Dewatering, drying, Ploughing/ desilting : Predators, weeds and algal blooms and their control, Liming and fertilization ; Stocking management - Stocking density and stocking ; Post - stocking management - Feeding, Water Quality, growth and health care : and Harvesting of ponds. 4.2 Culture of giant freshwater prawn: 4.2.1 macro brachium rosenbergii

UNIT - V

5.1 Culture of Shrimp : 5.1.1 Penaeus monodon or Litopenaeus vannamei 5.2 Culture of pearl Oysters : 5.3 Culture of Seaweeds : 5.3.1 Species cultured, culture techniques, important by-products, prospects. 5.4 Culture of ornamental fishes : 5.4.1 Setting up and maintenance of aquarium and breeding.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY SYLLABUS

FOR VIII SEMESTER CLUSTER ELECTIVE PAPER : VIII (B-2)

AQUACULTURE MANAGEMENT

Zoo120&Zoo120(P)

UNIT - I

1.1 Breeding and Hatchery Management : 1.1.1 Bundh breeding and induced breeding of carp by hypophysation and use of synthetic hormones. 1.1.2 Types of fish hatcheries, hatchery management of Indian major carps. 1.1.3 Breeding and hatchery management of Penaeus Monodon, Litopenaeus Vannamei, Breeding and hatchery management of giant fresh water prawn.

UNIT - II

2.1 Water Quality Management : 2.1.1 Water Quality and soil characteristics suitable for fish and shrimp culture. 2.1.2 Identification of oxygen depletion problems and control mechanisms in culture ponds. 2.1.3 Limiting materials, organic manures and inorganic fertilizers commonly used and their implications in fish ponds.

UNIT - III

3.1 Feed Management :

3.1.1 Food and their role in shrimp larval nutrition. 3.1.2 Supplementary feeds: Principle foods in artificial diets: Types of feeds: feeds, additives and preservatives, role of probiotics. 3.1.3 Feed formulation and manufacturing feed storage 3.1.4 Feeding strategies : Feeding devices, feeding schedules and ration size.

UNIT - IV

4.1 Disease Management : 4.1.1 Principles of disease diagnosis and health management. 4.1.2 Specific and non-specific defence systems in fish: fish immunization and vaccination. 4.1.3 Etiology, symptoms, prophylaxis and therapy of common fish disease in fish pond. 4.1.4 Etiology, symptoms, prophylaxis and therapy of common shrimp diseases in shrimp ponds.

UNIT - V

5.1 Economics and Marketing : 5.1.1 Principles of Aquaculture Economics - Capital costs, variable costs, cost-benefits analysis. 5.1.2 Fisheries Extension : Fisheries training and education in India ; Role of extension in community development. 5.1.3 Fish Genetics: Glycogenesis, androgenises, polyploidy, transgenic fish, and cryopreservation of gametes, production of monosex and sterile fishes and their significance in Aquaculture.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY SYLLABUS FOR VIII SEMESTER

CLUSTER ELECTIVE PAPER : VIII (B-3) POST HARVEST TECHNOLOGY

Zoo121&Zoo121(P)

UNIT - I

1.1 Handling and Principles of fish preservation : 1.1.1 Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor mortis and spoilage), spoilage in marine fish and freshwater fish. 1.1.2 Principles of preservation - Cleaning, lowering of temperature, rising of temperature, denudation, use of salt, use of fish preservatives.

UNIT - II

2.1 Methods of fish preservation : 2.1.1 Traditional methods - Sun drying, salt curing, pickling and smoking. 2.1.2 Advanced methods - Chilling or icing, refrigerated sea water, freezing, canning, irradiation and Accelerated Freeze Drying (AFD)

UNIT – III

3.1 Processing and preservation of fish and fish by products : 3.1.1 Fish products : Fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, pet food from trash fin, fish manure. 3.1.2 Fish by-products : Fish glue, ising glass, chitosan, pearl essence, shark fins fish, leather and fish maws. 3.1.3 Seaweed products: Preparation of agar, align and carrageen.

UNIT - IV

4.1 Sanitation and Quality Control : 4.1.1 Sanitation in processing plants - environmental hygiene and personal hygiene in processing plants. 4.1.2 Quality control of fish and fishery products - Pre-processing control, control during processing and control after processing.

UNIT - V

5.1 Quality Assurance, Management and Certification : 5.1.1 Seafood quality assurance and systems : Good Manufacturing Practices (GMPs), Good Laboratory Practices (GLPs) : Standard Operating Procedures (SOPs) ; Concept of Hazard Analysis Critical Control Points (HACCP) in seafood safety. 5.1.2 National and International Standards - ISO 9000 - 2000 series of Quality Assurance System,

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

B.Sc. Zoology Syllabus for I Semester2018-2019

ZOOLOGY - PAPER - I ANIMAL DIVERSITY - NONCHORDATES

Zoo125&zoo125(p)

UNIT - I 1.1 Brief History, Significance of Diversity of Nonchordates

1.2 Protozoa : 1.2.1 General Characters 1.2.2 Classification of Protozoa up to classes with examples 1.2.3 Elphidium (type study)

1.3 Porifera : 1.3.1 General Characters 1.3.2 Classification of Porifera up to classes with examples 1.3.3 Sycon - External Characters, Types of Cells 1.3.4 Skeleton in Sponges 1.3.5 Canal system in sponges

UNIT - II

2.1 Coelenterata : 2.1.1 General Characters 2.1.2 Classification of Coelenterata up to classes with examples 2.1.3 Obelia - External Characters, Structure of Polyp and Medusa 2.1.4 Polymorphism in coelenterates 2.1.5 Corals and coral reefs

2.2 Platyhelminthes: 2.2.1 General Characters 2.2.2 Classification of Platyhelminthes up to classes with examples 2.2.3 Fasciola hepatica - External Characters, Reproductive System, Life History and Pathogenicity.

UNIT - III

3.1 Nemathelminthes : 3.1.1 General Characters 3.1.2 Classification of Nemathelminthes up to classes with examples

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM B.Sc. Zoology Syllabus for I Semester ZOOLOGY - PAPER - I ANIMAL DIVERSITY - NONCHORDATES Periods : 60 Max. Marks : 100

3.2 Annelida : 3.2.1 General Characters 3.2.2 Classification of Annelida up to classes with examples 3.2.3 Hirudinaria granulosa - External Characters, Digestive System, Excretory System and Reproductive System 3.2.4 Vermiculture - Scope, significance, earthworm species, processing, vermicompost, economic importance of vermicompost

UNIT - IV

4.1 Arthropoda : 4.1.1 General Characters 4.1.2 Classification of Arthropoda up to classes with examples 4.1.3 Prawn - External characters, Appendages, Respiratory system and Circulatory system. 4.1.4 Peripatus - Structure and affinities

4.2 Mollusca : 4.2.1 General Characters 4.2.2 Classification of Mollusca up to classes with examples 4.2.3 Pearl formation in Pelecypodas 4.2.4 Torsion in gastropods

UNIT - V

5.1 Echinodermata : 5.1.1 General Characters 5.1.2 Classification of Echinodermata up to classes with examples 5.1.3 Water vascular system in star fish

5.2 Hemichordatas : 5.2.1 General Characters 5.2.2 Classification of Hemichordata up to classes with examples 5.2.3 Balanoglossus - Structure and affinities

5.3 Non-chordata larval forms : 5.3.1 Amphiblastula 5.3.2 Ephyra 5.3.3 Trochophore 5.3.4 Nauplius 5.3.5 Glochidium 5.3.6 Bipinnaria 5.3.7 Tornaria

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

B.Sc. Zoology Syllabus for II Semester ZOOLOGY –

PAPER - II ANIMAL DIVERSITY – CHORDATES

Zoo115&zoo115(P)

UNIT - I

1.1 General characters of Chordata

1.2 Prochordata : 1.2.1 Salient features of Cephalochordata 1.2.2 Structure of Branchiostoma 1.2.3 Affinities of Cephalochordata 1.2.4 Salient features of Urochordata 1.2.5 Structure and life history of Herdmania 1.2.6 Significance of Retrogressive metamorphosis

UNIT - II

2.1 Cyclostomata : 2.1.1 General Characters of Cyclostomata 2.1.2 Comparison of the Petromyzon and Myxine

2.2 Pisces : 2.2.1 General Characters of Fishes 2.2.2 Classification of fishes up to sub-class level with examples 2.2.3 Scoliodon - External features, Digestive system, Respiratory system, Heart. 2.2.4 Migration in Fishes 2.2.5 Types of Scales 2.2.6 Dipnoi * Scoliodon - Brain

UNIT - III

3.1 Amphibia: 3.1.1 General Characters of Amphibian 3.1.2 Classification of Amphibia up to orders with examples 3.1.3 Rana hexadactyla - External features, Digestive system, Respiratory system, Heart. * Rana : Brain

3.2 Reptilia : 3.2.1 General Characters of Reptilia 3.2.2 Classification of Reptilia up to orders with examples 3.2.3 Calotes - External features, Digestive system, Respiratory system, Heart 3.2.4 Identification of Poisonous snakes * Calotes - Brain

UNIT - IV

4.1 Aves : 4.1.1 General Characters of Aves 4.1.2 Classification of Aves up to subclasses with examples 4.1.3 Columba Livia - External features, Respiratory system, Heart 4.1.4 Migration in Birds 4.1.5 Flight adaptation in birds. * Brain of Pigeon

UNIT - V

5.1 Mammalia: 5.1.1 General Characters of Mammalia 5.1.2 Classification of Mammalia up to sub-classes with examples.

5.2 Comparison of Prototherians, Metatherians and Eutherians :

5.3 Dentition in mammals :

* Additional Inputs.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

B.Sc. Zoology Syllabus for III Semester

ZOOLOGY - PAPER - III CYTOLOGY, GENETICS AND EVOLUTION

Zoo117&Zoo117(P)

UNIT - I

1.Cytology - I 1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma. 1.2 Electron microscopic structure eukaryotic cell. 1.3 Plasma membrane - Different models of plasma membrane

UNIT - II

2. Cell organelles : 2.1 Structure and functions of Endoplasmic Reticulum 2.2 Structure and functions of Golgi apparatus 2.3 Structure and functions of Lysosomes 2.4 Structure and functions of Ribosomes 2.5 Structure and functions of Mitochondria 2.6 Nucleus

UNIT - III

3. Genetics - I : 3.1 Mendel's work on transmission on traits 3.2 Principles of inheritance 3.3 Incomplete dominance and codominance

UNIT - IV

4. Genetics - II : 4.1. Sex determination 4.2 Sex linked inheritance 4.3 Linkage and crossing over 4.4 Extra chromosomal inheritance

UNIT - V

5. Evolution : 5.1. Origin of life 5.2 Lamarckism, Darwinism, Neo - Darwinism, Hardy - Weinberg Equilibrium 5.3 Variations, isolating mechanisms, natural selection 5.4 Types of natural selection (directional, stabilizing, disruptive) 5.5 Artificial selection and forces of evolution 5.6 Speciation (Allopatric and Sympatric) 5.7 Macro evolutionary principles (Example : Darwin's finches)

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

B.Sc. Zoology Syllabus for IV Semester

ZOOLOGY - PAPER - IV EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY

Zoo112&Zoo112(P)

UNIT - I 1.1 Developmental Biology and Embryology 1.1.1 Gametogenesis 1.1.2 Fertilization 1.1.3 Types of eggs 1.1.4 Types of cleavages

1.2 Development of Frog up to formation of primary germ layers.

1.3 Formation and functions of Foetal membrane in chick embryo.

UNIT - II

2.1 Physiology - I: 2.1.1 Elementary study of process of digestion 2.1.2 Absorption of digested food 2.1.3 Respiration - Pulmonary ventilation, transport of oxygen and carbon dioxide 2.1.4 Circulation - Structure and functioning of heart, cardiac cycle 2.1.5 Excretion - Structure of nephron, urine formation, counter current mechanism

UNIT - III

3.1 Physiology - II : 3.1.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers. 3.1.2 Muscle contraction - Ultra structure of muscle fibre, molecular and chemical basis of muscle contraction.

UNIT - IV

4.1 Ecology - I: 4.1.1 Meaning and scope of ecology 4.1.2 Important abiotic factors of ecosystem - Temperature, light, water, oxygen and Carbon dioxide. 4.1.3 Nutrient cycles - Nitrogen, carbon and phosphorous 4.1.4 Components of Ecosystem (Example : lake), food chains and food web, energy flow in ecosystem.

UNIT - V

5.1 Ecology - II : 5.1.1 Habitat and ecological niche 5.1.2 Community interactions - Mutualism, commensalism, parasitism, competition, predation 5.1.3 Ecological succession

5.2 Zoogeography : 5.2.1 Zoogeographical regions 5.2.2 Study of physical and faunal peculiarities of oriental, Australian and Ethiopian regions

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

B.Sc. Zoology Syllabus for V Semester

ZOOLOGY - PAPER - V ANIMAL BIOTECHNOLOGY

Zoo122&Zoo122(P)

UNIT - I

1.1 Introduction 1.1.1 Concept of Biotechnology and Scope of Biotechnology 1.1.2 Biotechnology in India

1.2 Molecular techniques in gene manipulation - I 1.2.1 Cloning vectors - Plasmids, Cosmids, Phagemids, Lambda bacteriophage, M13, BAC, YAC, MAC and expression vectors (characteristics). 1.2.2 Restriction enzymes - Nomenclature, Study of type II

UNIT - II 2.1 Molecular techniques in gene manipulation - II 2.1.1 Construction of genomic and cDNA libraries 2.1.2 Southern and Western blotting 2.1.3 Polymerase chain reaction 2.1.4 DNA finger printing and DNA micro array

UNIT - III

3.1 Genetically modified organisms 3.1.1 Production of cloned and transgenic animals. 3.1.2 Application of transgenic animals - Production of pharmaceuticals, production of donor organs etc.

UNIT - IV 4.1 Culture techniques and applications 4.1.1 Animal cell culture 4.1.2 Culture media 4.1.3 Primary culture 4.1.4 Cell lines and cloning

UNIT - V 5.1 Recombinant DNA technology and applications 5.1.1 Recombinant DNA in medicines 5.1.2 Recombinant insulin and human growth hormone 5.1.3 Gene therapy 5.1.4 Stem cells and their use in Medicine

Additional Inputs : 1. Transformation techniques - Calcium chloride method and electroporation 2. DNA sequencing - Sanger method

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAMAHENDRAVARAM

III B.Sc. ZOOLOGY SYLLABUS

FOR V SEMESTER 2018 – 2019

ZOOLOGY - PAPER - VI ANIMAL HUSBANDRY

Zoo123&Zoo123(P)

UNIT - I - 10 Hours General Introduction to poultry farming, Principles of poultry housing, poultry houses, Systems of poultry farming. Management of Chicks, growers and layers. Management of Broilers.

UNIT - II - 10 Hours Poultry feed management - Principles of feeding. Nutrient requirements for different stages of layers and broilers. Methods of feeling. Poultry diseases - Viral, bacterial, fungal and parasitic (two each) ; symptoms, control and management.

UNIT - III - 10 Hours Selection, care and handling of hatching eggs. Egg testing. Methods of hatching. Brooding and rearing. Sexing of chicks.

UNIT - IV - 20 Hours Breeds of Dairy Cattle and Buffaloes - Definition of breed ; Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds. Systems of inbreeding and cross breeding. Housing of dairy animals - Selection of site for dairy farm ; systems of housing loose, housing system. Conventional dairy barn. Cleaning and sanitation of dairy farm. Weaning of calf. Castration and dehorning.

UNIT - V - 10 Hours Care and management of dairy animals - Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.

Additional Inputs : * Deworming and vaccination programme. Records to be maintained in a dairy farm.

Government College:: Rajahmundry

B.Sc I year – Electronics

Paper-I Circuit Analysis and Electronic Devices

Semester – 1 (w.e.f. 2011 – 2012)

Unit I (30 hrs)

I . AC Fundamentals: The Sine Wave – Average and RMS values – The J operator – polar and rectangular forms of complex numbers – phasor diagram –complex independence and admittance.

II. Passive networks: Concept of voltage and current sources – KVL and KCL – Applications to simple circuits (AC and DC) consisting of resistors and sources (one or two) – Node voltage analysis and method of mesh currents.

III. Network theorems (AC and DC): Superposition theorems – Thevenin's theorem – Norton's theorem – Maximum power transfer theorem - Reciprocity theorem – Milliman's theorem – Applications to simple networks.

Unit – II (30 hrs)

IV. RC and RL circuits: Tansient response of RL and RC circuits with step input time constants – Frequency response of RC and RL circuits – Types of filters – Low pass filter – high pass filter – frequency response – passive differentiating and integrating circuits.

V. Resonance: Series resonance and parallel resonance RLC circuits – Resonant frequency – Q factor - Bandwidth selectivity.

Reference Books:

1. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)
2. Network lines and fields – Ryder Prentice Hall of India (PHI)
3. Circuit analysis – P.Gnanasivam – Pearson Education.
4. Circuits and Networks – A.Sudhakar & Shyammohan S. Pillai – TMH.
5. Network Theory – Smarajit Ghosh – PHI.
6. Electronic Devices and Circuits – Millman and Halkias – TMH
7. Electronic Devices and Circuits – Allen Mottershead – PHI
8. Principles of Electronics - V.K.Mehtaand Rohit Mehta - S.Chand & Co
9. Electronic devices and circuit theory - R.L.Boylestad and L.Nashelsky – Pearson Education.
10. Pulse digital switching wavwforms - Millman & Taub – TMH
11. Applied Electronics – R.S.Sedha - S Chand & Co
12. A first course in Electronics - AA Khan & KK Day - PHI
13. Principles of Electronic circuits – Stanely G. Burns and Paul R. Bond – Galgotia
14. Electronic principles and applications - A.B.Bhattacharya - New Central Book Agency Pvt.,

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : I

PAPER : I

TITLE OF THE PAPER : PASSIVE COMPONENTS AND CIRCUIT ANALYSIS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Units and definitions 2. Alternating Current and Voltage 3. Resistors 4. Inductors 5. Capacitors 6. Simple circuits 7. Kirchoff's Voltage and Current laws 8. Network Theorems (for both A.C. and D.C)	9. Three phase circuits. Phase sequence – Star and delta connection. Relation between line , phase voltages and current in balanced systems. Analysis of balanced and unbalanced three phase circuits. Star and Delta transformations.

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Government College(A):: Rajahmundry

B.Sc I year – Electronics

Paper-I Circuit Analysis and Electronic Devices

PRACTICALS PAPER – I (90 Hours – 30 Sessions)

Circuit Analysis and Electronic devices Lab

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LR circuits – Frequency response (Low pass and High pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – Frequency response – Determination of f_o, Q and bandwidth.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I characteristics – Determination of Zener breakdown voltage.
10. Voltage regulator using Zener diode.
11. BJT input and output characteristics (CE configuration) and determination of h-parameters.
12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 12 experiments.

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Government College:: Rajahmundry

B.Sc I year – Electronics

2204

Paper-I Circuit Analysis and Electronic Devices

Semester – II (w.e.f. 2011 – 2012)

Unit III (30 hrs)

I . PN Junction: Depletion region – Junction capacitance – Diode equation (no derivation) – Effect of temparature on reverse saturation current – construction, working V-I characteristics and simple applications of

1) Junction diode 2) Zener diode 3) Tunnel diode 4) Varactor diode.

II Bipolar Junction Transistor (BJT): PNP and NPN transistors- current components in BJT – BJT static characteristics (input and output) – Early effect – CB, CC, CE configurations (cutoff, active and saturation regions) CE configuration as two port network – h –parameters – equivalent circuit – experimental arrangement to study input and output characteristics of BJT in CE configuration. Determination of h-parameters from the characteristics – Biasing and load line analysis – Fixed bias and self-bias arrangement.

Unit IV (30 hrs)

III. Field Effect Transistor (FET): Construction and working of JFET and MOSFET – Output and transfer characteristics – Experimental arrangement for studying the characteristics and to determine FET parameters- Applications of FET as voltage variable resistor and MOSFET as a switch – Advantages of FET over transistor.

IV. Uni Junction Transistor (UJT) : Structure and working of UJT – Characteristics – Application of UJT as a relaxation oscillator.

V. Silicon Controlled Rectifier (SCR): Structure and working of SCR. Two-transistor representation – Characteristics of SCR – Experimental setup to study the SCR characteristics – Application of SCR for power control.

VI. Photo Electric Devices: Structure and operation of LDR – Photo voltaic cell – Photo diode – Phototransistor and LED.

(**Note:** Solving related problems in all units)

Reference Books:

15. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)
16. Network lines and fields – Ryder Prentice Hall of India (PHI)
17. Circuit analysis – P.Gnanasivam – Pearson Education.
18. Circuits and Networks – A.Sudhakar & Shyammohan S. Pillai – TMH.
19. Network Theory – Smarajit Ghosh – PHI.
20. Electronic Devices and Circuits – Millman and Halkias – TMH
21. Electronic Devices and Circuits – Allen Mottershead – PHI
22. Principles of Electronics - V.K.Mehtaand Rohit Mehta - S.Chand & Co

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23. Electronic devices and circuit theory - R.L.Boylestad and L.Nashelsky – Pearson Education.
24. Pulse digital switching wavwforms - Millman & Taub – TMH
25. Applied Electronics – R.S.Sedha - S Chand & Co
26. A first course in Electronics - AA Khan & KK Day - PHI
27. Principles of Electronic circuits – Stanely G. Burns and Paul R. Bond – Galgotia
28. Electronic principles and applications - A.B.Bhattacharya - New Central Book Agency Pvt.,

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : II

PAPER : I

TITLE OF THE PAPER : CIRCUIT ANALYSIS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. AC Fundamentals 2. LR & CR Circuits 3. Resonance 4. Network Theorms 5. Semiconductor devices	Methods of Network Synthesis.

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Government College(A):: Rajahmundry

B.Sc I year – Electronics

Paper-I Circuit Analysis and Electronic Devices

PRACTICALS PAPER – I (90 Hours – 30 Sessions)

Circuit Analysis and Electronic devices Lab

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LR circuits – Frequency response (Low pass and High pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – Frequency response – Determination of f_o, Q and bandwidth.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I characteristics – Determination of Zener breakdown voltage.
10. Voltage regulator using Zener diode.
11. BJT input and output characteristics (CE configuration) and determination of h-parameters.
12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 12 experiments.

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Government College(A):: Rajahmundry

B.Sc II Year- Electronics SEMESTER III admitted batch 2011-12

3204

PAPER–II Analog Circuits and Communications

UNIT- I

Power Supplies: Rectifiers– Halfwave, fullwave and bridge rectifiers- Efficiency- Ripple factor- Regulation – Harmonic components in rectified output

UNIT-II

Types of filters- Choke input (inductor) filter- Shunt capacitor filter- L section and π section filters – Block diagram of regulated power supply - Series and shunt regulated power supplies – Three terminal regulators (78XX and 79XX) – Principle and working of switch mode power supply (SMPS).

UNIT-III

Amplifiers- classification of amplifiers-RC Coupled Amplifier: Analysis and frequency response of single stage RC coupled CE amplifier. Positive and negative feedback- Effect of feedback on gain, band width, noise, input and output impedances-Emitter follower and Darlington pair (simple treatment without derivation)

UNIT-IV

Operational Amplifiers: Differential amplifier-double ended input and single ended output-Block diagram of Op-Amp- Ideal characteristics of Op-Amp- Op-Amp parameters- Input resistance- Output resistance- Common mode rejection ratio (CMMR)- Slew rate- Offset voltages – Input bias current-

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
2. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
3. Applied Electronics- R.S.Sedha- S Chand &Co
4. Basic electronics- Gupta Kumar Sharam
5. Analog Electronics- L.K. Maheswari and M.M.S. Anand- PHI
6. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
7. Unified Electronics Vol I,II,III & IV

Op. amps & Linear Integrated Circuits
— S.V. Subrahmanyam

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : III

PAPER : II

TITLE OF THE PAPER : Analog circuits and communication

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Power supplies 2. Rectifiers-filters 3. Amplifier-RC coupled amplifier 4. Fundamentals on op-amp	1. DC/AC load line analysis 2. Different types of fabrication to from p-n junction i. Crown junction ii. Alloy junction iii. Diffusion junction iv. Epitaxial junction v. Point contact junction Derivation of depletion layer width and barrier potential Derivation of diode equation

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

B.Sc II Year - Electronics

PRACTICALS PAPER-II (90 Hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Any 8 experiments

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4204

Government College:: Rajahmundry
B.Sc II year – Electronics
Paper-II Analog circuits and communication
Semester – IV (w.e.f. 2011 – 2012)

UNIT-I

Basic Op-Amp circuits- Inverting Op-Amp- Virtual ground- Non-inverting Op-Amp- Frequency response of Op-Amp. Interpretation of Op-Amp data sheets.

UNIT-II

Applications of Op-Amps: Summing amplifier- subtractor- Voltage follower- Integrator- Differentiator - Comparator- Logarithmic amplifier- Sine wave [Wein Bridge] and square wave [Astable] generators- Triangular wave generator- Monostable multivibrator- Solving simple second order differential equation. Basic Op-Amp series regulator and shunt regulator.

UNIT-III

Communications: Need for modulation-Types of modulation- Amplitude, Frequency and Phase modulation.
Amplitude modulation-side bands- modulation index- square law diode modulator- Demodulation- diode detector.
Frequency modulation working of simple frequency modulator- Ratio detection of FM waves- Advantages of frequency modulation.
AM and FM radio receivers [block diagram approach].

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- K. Lalkishore - Pearson Education
2. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
3. Electronic Communication Systems - George Kennedy & Bernard Davis - TMH.
4. Electronic Communication -D. Roddy & J. Coolen- PHI
5. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
6. Microelectronics- J. Millman and A. Grabel - TMH
7. Principles of Electronic Communication Systems –Louis E. Frenzel -TMH

Op.amps & Linear ICs

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : IV

PAPER : II

TITLE OF THE PAPER : Analog circuits and communication

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Basic op amp circuits	Application of op amp
Oscillators	Concept,essential of oscillators,phase shift oscillator,Hartely-colpites oscillator and crystal oscillater
Amplitude FM modulation	Pulse digital modulation Quantization pulse code modulation delta modulation adaptive modulation comparision-Optical fibre communication-the general system advantages-Ray theory transimission

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

B.Sc II Year - Electronics

PRACTICALS PAPER-II (90 hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Any 8 experiments

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S207

Government College:: Rajahmundry

B.Sc III Year - Electronics

Semester – V (w.e.f. 2011 – 2012)

PAPER – III Digital Electronics and Microprocessor 8085

UNIT-I

Introduction to number systems, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables – Positive and negative logic – Logic families and their characteristics – RTL, DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions– Karnaugh Maps – Sum of products (SOP) and Product of sums (POS).

UNIT-II

Combinational and Sequential circuits: Multiplexer and De-Multiplexer – Decoder, Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) - Semiconductor memories – Organization and working- Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams.

Reference Books:

1. Digital Principles and Applications- Malvino & Leach- TMH
2. Digital Fundamentals – F.Loyd & Jain- Pearson Education
3. Modern Digital Electronics- R.P Jain-TMH
4. Fundamentals of Digital Circuits- Anand Kumar- PHI
5. Digital Systems – Rajkamal- Pearson Education
6. Digital Electronic Principles and Integrated Circuits- Maini- Willey India
7. Digital Electronics- Gothman-
8. Digital Electronics –J.W. Bignel & Robert Donova- Thomson Publishers (Indian 5th Ed)

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PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

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Government College:: Rajahmundry

5208

B.Sc III Year - Electronics

Semester – V (w.e.f. 2011 – 2012)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

Unit– I (22 Hours)

The 8051 Microcontroller

Introduction to microcontrollers and embedded systems: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer.

Unit–II (23 Hours)

Addressing modes, instruction set and assembly language programming of 8051

Addressing modes and accessing memory using various addressing modes. Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage. Time Delay Generation and Calculation; Timer/Counter Programming.

Programming examples: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers, Accessing a specified port terminal and generating a rectangular waveform.

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal - Wheeler Pub.

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : **III B.Sc.**
SEMESTER : **V**
PAPER : **IV**
TITLE OF THE PAPER : **EMBEDDED SYSTEM AND APPLICATIONS**

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
The 8051 Microcontroller ***Introduction to microcontrollers and embedded systems***: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer. **Addressing modes, instruction set and assembly language programming of 8051** Addressing modes and accessing memory using various addressing modes. Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage. Time Delay Generation and Calculation; Timer/Counter Programming. **Programming examples**: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers, Accessing a specified port terminal and generating a rectangular waveform.	Using keil software write program for all arthametic programmes

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

Government College:: Rajahmundry

6207

B.Sc III Year - Electronics

Semester – VI (w.e.f. 2011 – 2012)

PAPER – III Digital Electronics and Microprocessor 8085

UNIT-III

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description. Timing diagrams- Instruction cycle, machine cycle, fetch and execute cycles.

Instruction set of 8085: instruction and data formats- classification of instructions – addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT-IV

Interfacing peripherals and applications: Programmable peripheral interface (8255) - D/A and A/D converters and their interfacing to the Microprocessor. Stepper motor control- seven segment LED.

Reference Books:

1. Microprocessor Architecture and Programming – Ramesh S. Goanker- Penram
2. Introduction to Microprocessor – Aditya. P. Mathur- TMH
3. Microprocessors and Microcontrollers Hardware and Interfacing- Mathivannan- PHI
4. Fundamentals of Microprocessors and Microcontrollers – B. Ram-Dhanpat Rai & Sons.
5. Advanced Microprocessor and Peripherals, Architecture, Programming and Interface- A.K.Ray and K.N. Bhurchandi- TMH
6. Microprocessor Lab Premier- K.A. Krishna Murthy

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B.Sc III Year - Electronics

PAPER – III Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

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B.Sc III Year - Electronics

Semester – VI syllabus (w.e.f. 2011 – 2012)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS 6208

Unit – I

Interfacing of peripherals to Microcontroller

8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols

Unit – II

Applications of Embedded Systems

Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors, Interfacing a keyboard and generation different types of waveforms.
Interfacing stepper motor , interfacing a DAC to the 8051

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
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5. Design with Microcontrollers By - J B Peatman- TMH.
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7. The concepts & features of Microcontrollers by Rajkamal - Wheeler Pub.

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc.

SEMESTER : VI

PAPER : IV

TITLE OF THE PAPER : EMBEDDED SYSTEMS AND APPLICATIONS

UNIVERSITYSYLLABUS	Excess Input
Interfacing of peripherals to Microcontroller 8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols **Applications of Embedded Systems** Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors, Interfacing a keyboard and generation different types of waveforms. Interfacing stepper motor , interfacing a DAC to the 8051	Using keil software write program To write interfacing programmes.

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
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14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
(Re-Accredited by NAAC with grade "A")
DEPARTMENT OF ELECTRONICS

B.Sc I year – Electronics

MODULE-I: Circuit Analysis

Semester – I (w.e.f. 2014-15)

- Nature of the Module : Core ; Nature of learning : Regular
- No.of hours/week : 04 ; Credits : 03; Total hours : 60.

No	Month and Week	No. of hours	Topic	Curricular activity	Co-curricular activity	Remarks
1.	June 2014 III	04	**Chapter I: R,L and C Passive circuits** • Construction, types and applications of Resistors • Construction, types and applications of Capacitors			
2.	June 2014 IV	04	• Construction, types and applications of Inductors • Energy sources • Energy stored in Capacitor and Inductor	Assignment	Group Discussion	
3.	July 2014 I	04	• Series and Parallel connections involving R,L and C **Chapter II: Concept of voltage and current sources** • Kirchoff's Voltage law (KVL) • Voltage division	Seminar	Project work on KVL and KCL	

4.	July 2014 II	04	• Kirchoff's Current Law (KCL) • Current division • Application of KVL and KCL to simple circuits with resistors and sources	Assignment	Field trip to APSEB sub station	
5.	July 2014 III	04	**Chapter II: Concept of voltage and current sources** contd…. • Node voltage analysis and method of mesh currents **Chapter III:A.C fundamentals** • The sine wave • Average value of A.C	Seminar	---	
6.	July 2014 IV	04	**Chapter III: A.C fundamentals contd** …. • R.M.S value of A.C • The J operator • Polar and rectangular forms of complex numbers	------		
7.	August 2014 I	04	**Chapter III: A.C fundamentals contd** …. • Phasor diagram • Complex impedance • Complex admittance	Assignment	Guest Lecture	
8.	August2014 II	04	**Chapter IV: Network Theorems** • Superposition theorem Solving related problems		Quiz	
9.	August 2014 III	04	**Chapter IV: Network Theorems contd…** • Norton's theorem • Thevenin's theorem • Millman's theorem Solving related problems	Student seminar		
10.	August 2014 IV	04	• Maximum Power transfer theorem Solving related problems • Reciprocity theorem	Assignment	Group Discussion	

11.	September 2014 I	04	**Chapter V: Resonance:** • Series resonance of R,L and C circuits • Bandwidth of RLC • Q-factor, it' effect on bandwidth		Project work	
12.	September 2014 II	04	**Chapter V: Resonance contd ….** • Parallel resonance of R,L and C circuits • Resonant frequency of Tank circuit	Seminar		
13.	September 2014 III	04	• Q-factor of parallel resonance & it' effect on bandwidth • Selectivity • Filters: High & low pass • Frequency response • Passive differentiating & Integrating circuits		Quiz	
14.	September 2014 IV	04	**Chapter VI:Coupled Circuits:** Mutual Inductance Coefficient of coupling	Assignment		
15.	October 2014 I	04	Ideal transformer Tuned circuits	Seminar	Group Discussion	

Reference Books:

1. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)
2. Network lines and fields – Ryder Prentice Hall of India (PHI)
3. Circuit analysis – P.Gnanasivam – Pearson Education.
4. Circuits and Networks – A.Sudhakar & Shyammohan S. Pillai – TMH.
5. Network Theory – Smarajit Ghosh – PHI.
6. Principles of Electronics - V.K.Mehtaand Rohit Mehta - S.Chand & Co
7. Pulse digital switching wavwforms - Millman & Taub – TMH
8. Applied Electronics – R.S.Sedha - S Chand & Co
9. A first course in Electronics - AA Khan & KK Day - PHI
10. Principles of Electronic circuits – Stanely G. Burns and Paul R. Bond – Galgotia
11. Electronic principles and applications - A.B.Bhattacharya - New Central Book Agency Pvt.,

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
(Re-Accredited by NAAC with grade "A")
DEPARTMENT OF ELECTRONICS

B.Sc I year – Electronics
PRACTICAL-I

MODULE-I[P]: CIRCUIT ANALYSIS & ELECTRONIC DEVICES

Semester – II (w.e.f. 2014-15)

Circuit Analysis and Electronic devices & Circuits Laboratory

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LR circuits – Frequency response (Low pass and High pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – Frequency response – Determination of f_o, Q and bandwidth.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I characteristics – Determination of Zener breakdown voltage.
10. V oltage regulator using Zener diode.
11. BJT input and output characteristics (CE configuration) and determination of h-parameters.
12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 12 experiments.

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
(Re-Accredited by NAAC with grade "A")
DEPARTMENT OF ELECTRONICS

B.Sc I year – Electronics

MODULE-II: ELECTRONIC DEVICES & CIRCUITS

Semester – II (w.e.f. 2014-15)

- Nature of the Module : Core ; Nature of learning : Regular
- No.of hours/week : 04 ; Credits : 03; Total hours : 60

S.No	Month and Week	No. of hours	Topic	Curricular activity	Co-curricular activity	Remarks
1.	November 2014 III	04	**Chapter VI: PN junction diode** Design and working Depletion region			
2.	November 2014 IV	04	Junction capacitance Diode equation Effect of temperature on reverse saturation current	Assignment	Group Discussion	
3.	December 2014 I	04	Voltage – Ampere characteristics of PN junction & Applications of Junction diode	Seminar	Project work on Solar Cells and LDRs	
4.	December II	04	Connecting PN junction diode in the circuit- Forward and reverse biasing.	Assignment	Field trip to BSNL network station	
5.	December III	04	Zener diodes, design, characteristics Applications		---	

				Seminar		
6.	December IV	04	Application of Diode capacitance in Varactor Diodes Tunnel diode -(basic principle only - importance of negative resistance) and simple applications.	------		
7.	January 2015 I	04	**Chapter VII: Bipolar Junction Transistor** PNP & NPN transistors Design	Assignment	Guest Lecture	
8.	January 2015 II	04	, Current components in BJT Static characteristics of BJT		Quiz	
9.	January 2015 III	04	CB & CE & CC configurations (cut off, active & saturation regions), Early effect Experimental arrangement to study i/p & o/p characteristics in CE configuration Hybrid (h)-parameters h-parameter equivalent circuit .	Student seminar		
10.	January 2015 IV	04	Determination of h parameters from the characteristic graphs Transistor: Biasing and load line analysis - Fixed bias and self bias arrangements.	Assignment	Group Discussion	
11.	February 2015 I	04	**Chapter 8: FET** Structure and working of JFET Output and Transfer characteristics. Experimental arrangement for studying the characteristics and to determine FET parameters. Advantages of FET over transistor.		Project work	

12.	February 2015 II	04	Applications of FET as voltage variable resistor and MOSFET as a switch MOSFET- Characteristics. **UniJunctionTransistor (UJT):** Construction and working Characteristics	Seminar		
13.	February 2015 III	04	Applications of UJT as relaxation oscillator **Chapter II: Photo Electronic Devices:** Structure, Operation and applications of LDR, Photo voltaic cell, photodiode		Quiz	
14.	February 2015 IV	04	Structure, Operation and applications of Solar Cell Structure, Operation and applications of LED Structure, Operation and applications of LCD	Assignment		
15.	March 2015 I	04	Structure and working of SCR. Two-transistor representation – Characteristics of SCR – Experimental setup to study the SCR characteristics – Application of SCR for power control	Seminar	Group Discussion	

Reference Books:

1. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)
2. Electronic Devices and Circuits – Millman and Halkias – TMH
3. Electronic Devices and Circuits – Allen Mottershead – PHI
4. Principles of Electronics - V.K. Mehta and Rohit Mehta - S.Chand & Co
5. Electronic devices and circuit theory - R.L.Boylestad and L.Nashelsky – Pearson Education.
6. Pulse digital switching waveforms - Millman & Taub – TMH
7. Applied Electronics – R.S. Sedha - S Chand & Co
8. A first course in Electronics - A.A Khan & KK Day - PHI
9. Principles of Electronic circuits – Stanly G. Burns and Paul R. Bond – Galgotia

10. Electronic principles and applications - A.B. Bhattacharya - New Central Book Agency Pvt.,

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
(Re-Accredited by NAAC with grade "A")
DEPARTMENT OF ELECTRONICS

B.Sc I year – Electronics
PRACTICAL-I

MODULE-I[P]: CIRCUIT ANALYSIS & ELECTRONIC DEVICES

Semester – II (w.e.f. 2014-15)

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12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 12 experiments.

Government College (A):: Rajahmundry

B.Sc II Year- Electronics

SEMESTER III

(w.e.f 2011-12 admitted batch)

PAPER–II: Analog Circuits and Communications

UNIT- I

Power Supplies: Rectifiers– Half wave, full wave and bridge rectifiers- Efficiency- Ripple factor- Regulation – Harmonic components in rectified output

UNIT-II

Types of filters- Choke input (inductor) filter- Shunt capacitor filter- L section and Π section filters – Block diagram of regulated power supply - Series and shunt regulated power supplies – Three terminal regulators (78XX and 79XX) – Principle and working of switch mode power supply (SMPS).

UNIT-III

Amplifiers- classification of amplifiers-RC Coupled Amplifier: Analysis and frequency response of single stage RC coupled CE amplifier. Positive and negative feedback- Effect of feedback on gain, band width, noise, input and output impedances-Emitter follower and Darlington pair (simple treatment without derivation)

UNIT-IV

Operational Amplifiers: Differential amplifier-double ended input and single ended output- Block diagram of Op-Amp- Ideal characteristics of Op-Amp- Op-Amp parameters- Input resistance- Output resistance- Common mode rejection ratio (CMMR) - Slew rate- Offset voltages – Input bias current-

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
2. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
3. Applied Electronics- R.S. Sedha- S Chand &Co
4. Basic electronics- Gupta Kumar Sharma
5. Analog Electronics- L.K. Maheswari and M.M.S. Anand- PHI
6. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
7. Unified Electronics Vol I,II,III & IV

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY

B.Sc II Year - Electronics

PRACTICAL PAPER-II (90 hours - 30 Sessions**)**

Paper-II: Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Any 10 experiments are to be performed by the student.

Government College:: Rajahmundry

B.Sc II year – Electronics

Paper-II: Analog circuits and communication

Semester – IV (w.e.f. 2011 – 2012)

UNIT-I

Basic Op-Amp circuits- Inverting Op-Amp- Virtual ground- Non-inverting Op-Amp- Frequency response of Op-Amp. Interpretation of Op-Amp data sheets.

UNIT-II

Applications of Op-Amps: Summing amplifier- subtractor- Voltage follower- Integrator-Differentiator - Comparator- Logarithmic amplifier- Sine wave [Wein Bridge] and square wave [Astable] generators- Triangular wave generator- Monostable multivibrator- Solving simple second order differential equation. Basic Op-Amp series regulator and shunt regulator.

UNIT-III

Communications: Need for modulation-Types of modulation- Amplitude, Frequency and Phase modulation.

Amplitude modulation-side bands- modulation index- square law diode modulator- Demodulation- diode detector.

Frequency modulation working of simple frequency modulator- Ratio detection of FM waves- Advantages of frequency modulation.

AM and FM radio receivers [block diagram approach].

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- K. Lalkishore - Pearson Education
2. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
3. Electronic Communication Systems - George Kennedy & Bernard Davis - TMH.
4. Electronic Communication -D. Roddy & J. Coolen- PHI
5. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
6. Microelectronics- J. Millman and A. Grabel - TMH
7. Principles of Electronic Communication Systems –Louis E. Frenzel -TMH

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY

B.Sc II Year - Electronics

PRACTICAL PAPER-II (90 hours - 30 Sessions**)**

Paper-II: Analog Circuits and Communications Lab

1. D.C Power supply
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11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Any 10 experiments are to be performed by the student.

Government College:: Rajahmundry

B.Sc III Year - Electronics

Semester – V (w.e.f. 2011 – 2012)

PAPER – III: Digital Electronics and Microprocessor 8085

UNIT-I

Introduction to number systems, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables – Positive and negative logic – Logic families and their characteristics – RTL, DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra -De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions–Algebraic method- Karnaugh Map method – Sum of products (SOP) and Product of sums (POS).

UNIT-II

Combinational and Sequential circuits: Comparators - Multiplexer and De-Multiplexer – Encoder- Decoder, seven segment LED- Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) – Registers – Shift Registers – SIPO, SISO, PISO and PIPO registers- Application of registers- Semiconductor memories – Organization and working- Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams – Application of counters: Digital clock.

Reference Books:

1. Digital Principles and Applications- Malvino & Leach- TMH
2. Digital Fundamentals – F. Loyd & Jain- Pearson Education
3. Modern Digital Electronics- R.P Jain-TMH
4. Fundamentals of Digital Circuits- Anand Kumar- PHI
5. Digital Systems – Rajkamal- Pearson Education
6. Digital Electronic Principles and Integrated Circuits- Maini- Willey India
7. Digital Electronics- Gothman-
8. Digital Electronics –J.W. Bignel & Robert Donova- Thomson Publishers (Indian 5th Ed)

Government College:: Rajahmundry

B.Sc III Year - Electronics

PAPER – III: Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

Government College:: Rajahmundry

B.Sc III Year - Electronics

Semester – V (w.e.f. 2011 – 2012)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

Unit– I (22 Hours)

The 8051 Microcontroller

Introduction to microcontrollers and embedded systems: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer.

Unit–II (23 Hours)

Addressing modes, instruction set and assembly language programming of 8051

Addressing modes and accessing memory using various addressing modes. Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage. Time Delay Generation and Calculation; Timer/Counter Programming.

Programming examples: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers, Accessing a specified port terminal and generating a rectangular waveform.

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995

Reference books contd ……

4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal – Wheeler Pub.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

Government College:: Rajahmundry

B.Sc III Year - Electronics

Semester – VI (w.e.f. 2011 – 2012)

PAPER – III Digital Electronics and Microprocessor 8085

UNIT-III

Introduction to Microcomputer and Microprocessor:
Intel 8085 Microprocessor – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description. Timing diagrams- Instruction cycle, machine cycle, fetch and execute cycles.

Instruction set of 8085:
instruction and data formats- classification of instructions –addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT-IV

Interfacing peripherals and applications:
Programmable peripheral interface (8255) - D/A and A/D converters: Successive Approximation A/D converter- Binary weighted D/A converter- R/2R ladder D/A converter – interfacing of A/D and D/A converters to the Microprocessor. Stepper motor control.

Reference Books:

1. Microprocessor Architecture and Programming – Ramesh S. Goanker- Penram
2. Introduction to Microprocessor – Aditya. P. Mathur- TMH
3. Microprocessors and Microcontrollers Hardware and Interfacing- Mathivannan- PHI
4. Fundamentals of Microprocessors and Microcontrollers – B. Ram-Dhanpat Rai & Sons.
5. Advanced Microprocessor and Peripherals, Architecture, Programming and Interface- A.K.Ray and K.N. Bhurchandi- TMH
6. Microprocessor Lab Premier- K.A. Krishna Murthy

Government College:: Rajahmundry

B.Sc III Year - Electronics

PAPER – III: Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
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14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

Government College:: Rajahmundry

B.Sc III Year - Electronics

Semester – VI syllabus (w.e.f. 2011 – 2012)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

Unit – I

Interfacing of peripherals to Microcontroller

8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols

Unit – II

Applications of Embedded Systems

Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors, Interfacing a keyboard and generation different types of waveforms. Interfacing stepper motor , interfacing a DAC to the 8051

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko-TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

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9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
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15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE [A]:: RAJAHMUNDRY
DEPT.OF ELECTRONICS
GENERAL ELECTIVE PAPER for
II B.Sc COURSE (w.e.f 2015-16)

MOBILE PHONE REPAIRING & MAINTENANCE TECHNOLOGY

Objective of the Course :

This course has been designed to provide an introduction to Mobile maintenance. The student will be able to troubleshoot problems of Mobile equipments.

At the end of the course the students will be having knowledge of:-

- Working of Mobile Sets
- Components used in Mobile Sets
- H/W & S/W Troubleshooting of Mobile
- Maintenance of Mobile sets

Outline Of the Course

S.No	TOPIC	HOURS	
		THEORY	PRACTICAL /TUTORIAL
1	Types of Mobile Handsets	06	06
2	Working Principle	06	06
3	Components used in Mobile handsets such as SIM Card, Battery, Memory etc	06	06
4	Tools and equipments use for Repairing and maintenance of Mobile Handsets	06	06

5	Software applications for troubleshooting of Mobile sets	06	06
6	Troubleshooting techniques regarding display, transmission, reception, volume control, charger, Battery etc	10	10
	TOTAL	40	40

Sub topics:

- Introduction of Basic Electronics.
- Mobile Components Identification & knowledge.
- Mobile Phone components working.
- Uses of Multimeter.
- Mobile Components Testing & Checking.
- Practical Testing of Components by Multimeter.

(BASIC MOBILE PHONE TECHNOLOGY & CODING)

- Introduction of Mobile Phone Technology.
- Type of Mobile Phone Technology.
- Working principal of Mobile Phone.
- Feature of Mobile Phone.(Bluetooth ,G.P.R.S., Infrared etc.)
- Removing Software Problem by Codes.
- Unlocking codes for G.S.M.Mobile.
- Unlocking codes for C.D.M.A. Mobile.
- Multimedia Set formatting Codes(For virus removing problems).
- Chinese Mobile Phone Codes.

CHIP LEVEL PRACTICAL TRAINING (100%)

- Proper use of Micro Iron ,SMD Rework Machine,Hpt Airgun,Etc.
- Soldering & Desoldering Practice.
- Chip Component Removing & Replacing.
- Jumper Practice.(Antina Switch Jumper,Track Breakage
- Jumper,Display Cont.Jumper etc.)
- Driver IC Jumper Practice. (SIM IC Jumper,Keypad I.C.Jumper,Display I.C.Jumper etc.)
- B.G.A. I.C Removing Practice.
- B.G.A. I.C Reballing Practice.

- B.G.A. I.C Replacing Practice.
- Driver I.C. Changing practice
- Display Changing Practice (Patta Displays)
- Ribben & Patta changing Practice .
- P.F.O. Changing.
- Pasted B.G.A.IC Removing Practice.
- Jack Changing Practice (Sim Jack,Charging Jack,Hand free Jack,Battery Connector).
- Bluetooth Module Changing Practice.
- Flap & Sliding Phone assembling Practice.

TRACING (FAULT FIND OUT)

- Mobile Phone Physically Testing.
- Fault Find Out in Mobile Phone.
- Track Reading in circuit Diagram Books.
- Track Checking on Mobile Board (Practically checking by multimeter).
- Track Checking with the components.
- Cool testing Of Mobile Phone.
- Hot testing in Mobile Phone.
- Track Checking comparision by other phone.

SOFTWARE TRAINING MODULE

- Basic Computer Knowledge.
- U.f.s Repairing Box Training.
- Micro Box Training (For Latest Multimedia Sets)

- Infinity Box Training (for Motorola ,L.G.,Chinese & 150 Other Phones)
- S.E.Tool Box Training.(For Sony Ericsson Sets)
- Universal Box Training (Spl.for I.M.E.I Repairing)
- Spider Box Training (For Chinese Phones)
- Ve-pro Box Training (For Chinese Phones)
- Application Software Training (Ring Tones, Games, Wall Papers, & Other
- Software :-Like Smart Movie Converter, I-phone Video Converters, I-phone Unlocking,I-pod Loading)

Government College (A):: Rajahmundry
DEPARTMENT OF ELECTRONICS
B.Sc I year – Electronics
Module - II Circuit Analysis and Electronic Devices
Semester – II (w.e.f. 2015 – 2016)
(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

Unit III (30 hrs)

I . PN Junction: Depletion region – Junction capacitance – Diode equation (no derivation) – Effect of temperature on reverse saturation current – construction, working V-I characteristics and simple applications of

1) Junction diode 2) Zener diode 3) Tunnel diode 4) Varactor diode.

II Bipolar Junction Transistor (BJT): PNP and NPN transistors- current components in BJT – BJT static characteristics (input and output) – Early effect – CB, CC, CE configurations (cutoff, active and saturation regions) CE configuration as two port network – h –parameters – equivalent circuit – experimental arrangement to study input and output characteristics of BJT in CE configuration. Determination of h-parameters from the characteristics – Biasing and load line analysis – Fixed bias and self-bias arrangement.

Unit IV (30 hrs)

III. Field Effect Transistor (FET): Construction and working of JFET and MOSFET – Output and transfer characteristics – Experimental arrangement for studying the characteristics and to determine FET parameters- Applications of FET as voltage variable resistor and MOSFET as a switch – Advantages of FET over transistor.

IV. Uni Junction Transistor (UJT) : Structure and working of UJT – Characteristics – Application of UJT as a relaxation oscillator.

V.Silicon Controlled Rectifier (SCR): Structure and working of SCR. Two-transistor representation – Characteristics of SCR – Experimental setup to study the SCR characteristics – Application of SCR for power control.

VI. Photo Electric Devices: Structure and operation of LDR – Photo voltaic cell – Photo diode – Phototransistor , LED and LCD.

(**Note:** Solving related problems in all units)

Reference Books:

1. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)

2. Network lines and fields – Ryder Prentice Hall of India (PHI)
3. Circuit analysis – P.Gnanasivam – Pearson Education.
4. Circuits and Networks – A Sudhakar & Shyammohan S. Pillai – TMH.
5. Network Theory – Smarajit Ghosh – PHI.
6. Electronic Devices and Circuits – Millman and Halkias – TMH
7. Electronic Devices and Circuits – Allen Mottershead – PHI
8. Principles of Electronics - V.K.Mehtaand Rohit Mehta - S.Chand & Co
9. Electronic devices and circuit theory - R.L.Boylestad and L.Nashelsky – Pearson Education.
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11. Applied Electronics – R.S.Sedha - S Chand & Co
12. A first course in Electronics - AA Khan & KK Day - PHI
13. Principles of Electronic circuits – Stanely G. Burns and Paul R. Bond – Galgotia
14. Electronic principles and applications - A.B.Bhattacharya - New Central Book Agency Pvt.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : II

MODULE : II

TITLE OF THE PAPER : CIRCUIT ANALYSIS & ELECTRONIC DEVICES

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. AC Fundamentals 2. LR & CR Circuits 3. Resonance 4. Network Theorms 5. Semiconductor devices	Methods of Network Synthesis.

Government College(A):: Rajahmundry

B.Sc I year – Electronics

Paper-I Circuit Analysis and Electronic Devices

PRACTICALMODULE – I (PAPER I)(90 Hours – 30 Sessions)

Circuit Analysis and Electronic devices Lab

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LR circuits – Frequency response (Low pass and High pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – Frequency response – Determination of f_o, Q and bandwidth.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I characteristics – Determination of Zener breakdown voltage.
10. Voltage regulator using Zener diode.
11. BJT input and output characteristics (CE configuration) and determination of h-parameters.
12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 10 experiments.

Government College (A):: Rajahmundry
DEPARTMENT OF ELECTRONICS
II B.Sc - Electronics
SEMESTER III admitted batch 2015-16

Module – III:: Analog Circuits and Communications

(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

UNIT- I
Power Supplies: Rectifiers– Halfwave, fullwave and bridge rectifiers- Efficiency- Ripple factor- Regulation – Harmonic components in rectified output

UNIT-II
Types of filters- Choke input (inductor) filter- Shunt capacitor filter- L section and □ section filters – Block diagram of regulated power supply - Series and shunt regulated power supplies – Three terminal regulators (78XX and 79XX) – Principle and working of switch mode power supply (SMPS).

UNIT-III
Amplifiers- classification of amplifiers-RC Coupled Amplifier: Analysis and frequency response of single stage RC coupled CE amplifier – Advantages, disadvantages and applications. Positive and negative feedback- Effect of feedback on gain, band width, noise, input and output impedances-Emitter follower and Darlington pair (simple treatment without derivation)

UNIT-IV
Operational Amplifiers: Differential amplifier-double ended input and single ended output- Block diagram of Op-Amp- Ideal characteristics of Op-Amp- Op-Amp parameters- Input resistance- Output resistance- Common mode rejection ratio (CMMR)- Slew rate- Offset voltages – Input bias current- Basic Op-Amp circuits- Inverting Op-Amp- Virtual ground- Non-inverting Op-Amp- Frequency response of Op-Amp.

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
2. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
3. Applied Electronics- R.S.Sedha- S Chand &Co
4. Basic electronics- Gupta Kumar Sharam
5. Analog Electronics- L.K. Maheswari and M.M.S. Anand- PHI
6. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
7. Unified Electronics Vol I,II,III & IV

8. Operational amplifiers and linear integrated circuits – S.V.Subrahmanyam and Y.N.Murty

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : III

PAPER : II (Module – III)

TITLE OF THE PAPER : Analog circuits and communication

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Power supplies 2. Rectifiers-filters 3. Amplifier-RC coupled amplifier 4. Fundamentals on op-amp	1. DC/AC load line analysis 2. Different types of fabrication to from p-n junction i. Crown junction ii. Alloy junction iii. Diffusion junction iv. Epitaxial junction v. Point contact junction Derivation of depletion layer width and barrier potential Derivation of diode equation

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

B.Sc II Year – Electronics
PRACTICAL MODULE- II

LIST OF PRACTICALS for PAPER-II (90 hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Student has to perform any 10 experiments.

Government College:: Rajahmundry
DEPARTMENT OF ELECTRONICS
B.Sc III Year - Electronics
Semester – VI (w.e.f. 2015 – 2016)

PAPER – III Digital Electronics and Microprocessor 8085

(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

UNIT-III

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description. Timing diagrams- Instruction cycle, machine cycle, fetch and execute cycles. Stack and subroutines.

Instruction set of 8085: instruction and data formats- classification of instructions – addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT-IV

Interfacing peripherals and applications: Architecture of 8251 (USART). Programmable peripheral interface (8255) - D/A and A/D converters and their interfacing to the Microprocessor. Stepper motor control- seven segment LED.

Reference Books:

1. Microprocessor Architecture and Programming – Ramesh S. Goanker- Penram
2. Introduction to Microprocessor – Aditya. P. Mathur- TMH
3. Microprocessors and Microcontrollers Hardware and Interfacing- Mathivannan- PHI
4. Fundamentals of Microprocessors and Microcontrollers – B. Ram-Dhanpat Rai & Sons.
5. Advanced Microprocessor and Peripherals, Architecture, Programming and Interface- A.K.Ray and K.N. Bhurchandi- TMH
6. Microprocessor Lab Premier- K.A. Krishna Murthy

Government College:: Rajahmundry

B.Sc III Year - Electronics

PAPER – III Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III

Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

Government College:: Rajahmundry
DEPARTMENT OF ELECTRONICS
B.Sc III Year - Electronics
Semester – VI syllabus (w.e.f. 2015 - 2016)
PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

Unit – I

Interfacing of peripherals to Microcontroller

8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols

Unit – II

Applications of Embedded Systems

Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors.
Interfacing stepper motor , interfacing a DAC to the 8051
Detailed hardware and Architecture of embedded system, embedded system tools
Introduction to 8086pu – Architecture – Pin diagram – Addressing modes.

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal - Wheeler Pubishers.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc.

SEMESTER : VI

PAPER : IV

TITLE OF THE PAPER : EMBEDDED SYSTEMS AND APPLICATIONS

UNIVERSITYSYLLABUS	Excess Input
Interfacing of peripherals to Microcontroller 8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols **Applications of Embedded Systems** Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors, Interfacing a keyboard and generation different types of waveforms. Interfacing stepper motor , interfacing a DAC to the 8051	Using keil software write program To write interfacing programmes.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Electronics
I B.Sc syllabus:: MODULE-I
[Circuit Analysis and Electronic Devices]
SEMESTER-I

(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

UNIT-I

(30 hrs)

I . AC Fundamentals: The Sine Wave – Average and RMS values – The J operator – polar and rectangular forms of complex numbers – phasor diagram –complex independence and admittance.

II. Passive networks: Concept of voltage and current sources – KVL and KCL – Applications to simple circuits (AC and DC) consisting of resistors and sources (one or two) – Node voltage analysis and method of mesh currents.

III. Network theorems (AC and DC): Superposition theorems – Thevenin's theorem – Norton's theorem – Maximum power transfer theorem - Reciprocity theorem – Milliman's theorem – Applications to simple networks.

Unit – II (30 hrs)

IV. RC and RL circuits: Transient response of RL and RC circuits with step input time constants – Frequency response of RC and RL circuits – Types of filters – Low pass filter – high pass filter – frequency response – passive differentiating and integrating circuits.

V. Resonance: Series resonance and parallel resonance RLC circuits – Resonant frequency – Q factor - Bandwidth selectivity.

VI. **Electric instrumentations:**
Construction, types and applications of R, L, and C.- Construction (Block diagram approach), working and applications of CRO, Electronic sensors, electric motors (basics only).

Reference Books:

1. Grob's basic Electronics – Mitchel E. Schulth 10th Edn. Tata McGraw Hill (TMH)
2. Network lines and fields – Ryder Prentice Hall of India (PHI)

3. Circuit analysis – P.Gnanasivam – Pearson Education.
4. Circuits and Networks – A.Sudhakar & Shyammohan S. Pillai – TMH.
5. Network Theory – Smarajit Ghosh – PHI.
6. Electronic Devices and Circuits – Millman and Halkias – TMH
7. Electronic Devices and Circuits – Allen Mottershead – PHI
8. Principles of Electronics - V.K.Mehtaand Rohit Mehta - S.Chand & Co
9. Electronic devices and circuit theory - R.L.Boylestad and L.Nashelsky – Pearson Education.
10. Electronics devices and circuits – P.John paul – New age international Publishers.
11. Applied Electronics – R.S.Sedha - S Chand & Co
12. A first course in Electronics - AA Khan & KK Day - PHI
13. Principles of Electronic circuits – Stanely G. Burns and Paul R. Bond – Galgotia
14. Electronic principles and applications - A.B.Bhattacharya - New Central Book Agency Pvt.,

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : I

PAPER : I

TITLE OF THE PAPER : PASSIVE COMPONENTS AND CIRCUIT ANALYSIS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Units and definitions 2. Alternating Current and Voltage 3. Resistors 4. Inductors 5. Capacitors 6. Simple circuits 7. Kirchoff"s Voltage and Current laws 8. Network Theorems (for both A.C. and D.C)	9.Three phase circuits. Phase sequence – Star and delta connection. Relation between line , phase voltages and current in balanced systems. Analysis of balanced and unbalanced three phase circuits. Star and Delta transformations.

Government College(A):: Rajahmundry
B.Sc I year – Electronics
Paper-I Circuit Analysis and Electronic Devices
PRACTICALMODULE – I (PAPER I)(90 Hours – 30 Sessions)

Circuit Analysis and Electronic devices Lab

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LR circuits – Frequency response (Low pass and High pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – Frequency response – Determination of f_o, Q and bandwidth.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I characteristics – Determination of Zener breakdown voltage.
10. Voltage regulator using Zener diode.
11. BJT input and output characteristics (CE configuration) and determination of h-parameters.
12. FET – Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR – characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 10 experiments.

Government College:: Rajahmundry
DEPARTMENT OF ELECTRONICS
B.Sc II year – Electronics
Module –IV:: Analog circuits and communication
Semester – IV (w.e.f. 2015 – 2016)
(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

UNIT-I

Applications of Op-Amps: Summing amplifier- subtractor- Voltage follower- Integrator-Differentiator - Comparator- Logarithmic amplifier- Sine wave [Wein Bridge] and square wave [Astable] generators- Triangular wave generator- Monostable multivibrator- Solving simple second order differential equation.

UNIT - II
Basic Op-Amp series regulator and shunt regulator. Ramp generator – Timer IC 555 and its applications to astable and monostable multivibrators

UNIT-III
Communications: Need for modulation-Types of modulation- Amplitude, Frequency and Phase modulation.
Amplitude modulation-side bands- modulation index- square law diode modulator- Demodulation- diode detector.
Frequency modulation working of simple frequency modulator- Ratio detection of FM waves- Advantages of frequency modulation.
AM and FM radio receivers [block diagram approach].
Mobile communication – Basics of GSM.

UNIT – IV
Satellite communication: introduction to satellite communication – types of orbits – orbital perturbation – co-ordinates, launch and launch vehicles – launching geostationary satellite - applications

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- K. Lalkishore - Pearson Education
2. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
3. Electronic Communication Systems - George Kennedy & Bernard Davis - TMH.
4. Electronic Communication -D. Roddy & J. Coolen- PHI
5. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)

6. Microelectronics- J. Millman and A. Grabel - TMH
7. Principles of Electronic Communication Systems –Louis E. Frenzel –TMH
8. Satellite communications – pratt
9. Operational amplifiers and linear integrated circuits – D. Mahesh kumar

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : IV

PAPER : II **(Module –IV)**

TITLE OF THE PAPER : Analog circuits and communication (Module IV)

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Basic op amp circuits	Application of op amp
Oscillators	Concept,essential of oscillators,Phase shift oscillator,Hartely-colpites oscillator and crystal oscillator
Amplitude FM modulation	Pulse digital modulation Quantization pulse code modulation delta modulation adaptive modulation comparision-Optical fibre communication-the general system advantages-Ray theory transimission

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

B.Sc II Year – Electronics
PRACTICAL MODULE- II

LIST OF PRACTICALS for PAPER-II (90 hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Student has to perform any 10 experiments.

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Government College (A) :: Rajahmundry.
DEPARTMENT OF ELECTRONICS
III B.Sc - Electronics
Semester – V (w.e.f. 2015 – 2016)

PAPER – III Digital Electronics and Microprocessor 8085
(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

UNIT-I

Introduction to number systems - Binary, hexadecimal – conversion from binary to decimal and vice-versa, binary to hexadecimal and vice-versa, decimal to hexadecimal and vice versa, addition of binary numbers, Subtraction using 2's complement, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables – Positive and negative logic – Logic families and their characteristics – RTL, DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions– Karnaugh Maps – Sum of products (SOP) and Product of sums (POS).

UNIT-II

Combinational and Sequential circuits: Multiplexer and De-Multiplexer – Encoder - Decoder, Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) - Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams. Registers – Shift registers - 4bit serial in serial out, serial in Parallel out, parallel in serial out, parallel in parallel out, applications. Successive approximation D/A converter. Digital ramp A/D converter.

Reference Books:

1. Digital Principles and Applications- Malvino & Leach- TMH
2. Digital Fundamentals – F.Loyd & Jain- Pearson Education
3. Modern Digital Electronics- R.P Jain-TMH
4. Fundamentals of Digital Circuits- Anand Kumar- PHI
5. Digital Systems – Rajkamal- Pearson Education
6. Digital Electronic Principles and Integrated Circuits- Maini- Willey India
7. Digital Electronics- Gothman-
8. Digital Electronics –J.W. Bignel & Robert Donova- Thomson Publishers (Indian 5th Ed)

Government College:: Rajahmundry

B.Sc III Year - Electronics

PAPER – III Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III

Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

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GOVERNMENT COLLEGE [A]:: RAJAHMUNDRY

III B.Sc- Electronics

DEPARTMENT OF ELECTRONICS

Semester – V (w.e.f. 2015 – 2016)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

(As Approved in the BOS meeting held on 20 March 2015 for 2015-16)

Unit– I (22 Hours)

The 8051 Microcontroller

Introduction to microcontrollers and embedded systems: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer.

Unit–II (23 Hours)

Addressing modes, instruction set and assembly language programming of 8051

Addressing modes and accessing memory using various addressing modes.

Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage.

Time Delay Generation and Calculation; Timer/Counter Programming.

Programming examples: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers,

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal – Wheeler Pub.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc.
SEMESTER : V
PAPER : IV
TITLE OF THE PAPER : EMBEDDED SYSTEM AND APPLICATIONS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
The 8051 Microcontroller: ***Introduction to microcontrollers and embedded systems***: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer. **Addressing modes, instruction set and assembly language programming of 8051** Addressing modes and accessing memory using various addressing modes. Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage. Time Delay Generation and Calculation; Timer/Counter Programming. **Programming examples**: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers, Accessing a specified port terminal and generating a rectangular waveform.	Using keil software write program for all arthametic programmes

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
(Affiliated to Adikavi Nannaya University, Rajamahendravaram)
CBCS Pattern w.e.f. 2016-17 Admitted Batch
ELECTRONICS - SEMESTER-1 (SYLLABUS)

Paper- I: BASIC CIRCUIT THEORY

UNIT I

A.C CIRCUIT FUNDAMENTALS

The sinusoidal voltage and current-Average and R.M.S values- phasor representation- j operator, polar and rectangular forms of complex numbers, A.C applied to RC and RL circuits –phasor diagrams-concept of impedance, numerical problems. ***AC through pure R, L and C with vector diagrams.***

UNIT II

PASSIVE NETWORKS

Concept of ideal as well as practical voltage and current sources, Kirchhoff's current law – Kirchhoff's voltage law - Method of solving circuits by Kirchhoff's laws – Loop analysis – Nodal analysis – numerical problems. ***Determinant method and Wheatstone's Bridge***

UNIT III

NETWORK THEOREMS

Maximum power transfer theorem -Super position theorem – Thevenin's theorem – Norton's theorem – Thevenising a circuit–Thevenin Norton conversion - problem solving applications for all the theorems.

UNIT IV

RC and RL CIRCUITS

Transient response of RL and RC circuits, Time constants, Frequency response of RC and RL circuits, their action as low pass and high pass filters, numerical problems. ***Transient and frequency response of LC circuit, passive differentiating and passive integrating circuits.***

UNIT V

RESONANCE IN ELECTRIC CIRCUITS

Resonance in series and parallel R- L- C circuits, Resonant frequency, Q-factor, bandwidth, selectivity. Comparision of series and parallel resonance, numerical problems. ***Feedback concept, Oscillators, tank circuit and types of oscillators.*** (No need to deriv'e frez. of oscillation

Note: ***Topics in bold and italics are added***

TEXT BOOKS:

1. Electric circuits by David A.Bell 7THedition Oxford higher education
2. Robert L Boylestad, —Introductory circuit analysis, Universal Bookstall Fifth edition, 2003
3. Circuit analysis byP.Gnanasivam-Pearson education
4. Networks, lines&fields by Ryder-PHI
5. Circuits and Networks-A.Sudhakar and Shyam mohan-TMH

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : I

PAPER : II **(Module – I)**

TITLE OF THE PAPER : BASIC CIRCUIT THEORY

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. A.C CIRCUIT FUNDAMENTALS 2. PASSIVE NETWORKS 3. RC and RL CIRCUITS 4. RESONANCE IN ELECTRIC CIRCUITS	*1. AC through pure R, L and C with vector diagrams.* *2. Determinant method and Wheatstone's Bridge.* *3. Transient and frequency response of LC circuit, passive differentiating and passive integrating circuits.* *4. Feedback concept, Oscillators, tank circuit and types of oscillators.*

ELECTRONICS LAB –II –SEMESTER-2
(ELECTRONIC DEVICES&CIRCUITS LAB)
Work load: 30 hrs per semester 2 hrs/week

(Any Six Experiments should be done)

1. V-I Characteristics of Junction Diode.
2. V-I Characteristics of Zener Diode.
3. Regulated Power Supply using Zener Diode.
4. IC Regulated Power Supply (78XX)
5. BJT input and output Characteristics (CE Configuration) and determination of h-parameters.
6. Characteristics of UJT and determination of its parameters.
7. Characteristics of JFET and determination of its parameters.
8. LDR characteristics
9. Characteristics of L and π section filters using full wave rectifier.

LAB MANUALS

1. Zbar, Malvino and Miller, Basic Electronics, A Text Lab Manual, Tata McGraw Hill.
2. Sugaraj Samuel R., Horsley Solomon, B.E.S. Practicals.

The valuation of marks for the practical shall be as follows:

Experiment	**75 marks**
(i) Circuit diagram with details	13 m
(ii) Formulas with units	05 m
(iii) Tables with parameters and units	07 m
(iv) Observations and performance	15 m
(v) Calculations, Graph and Result	15 m
(vi) Viva Voce	10 m
(vii) Record	10 m

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
(Affiliated to Adikavi Nannaya University, Rajamahendravaram)
CBCS Pattern w.e.f. 2016-17 Admitted Batch
ELECTRONICS - SEMESTER-2 (SYLLABUS)

PAPER II - ELECTRONIC DEVICES & CIRCUITS

UNIT- I JUNCTION DIODES: (12 hrs)

Basic principles of Semiconductor materials – classification – energy bands in solids – P and N type semiconductor materials – energy band diagrams. PN junction diode - P-N junction theory-depletion region, barrier potential, working in forward & reverse bias condition, Junction capacitance, Diode current equation (no derivation), Effect of temperature on reverse saturation current, V-I Characteristics, Zener and Avalanche Break down, Zener diode – Construction, Working and V-I characteristics, Voltage regulator using Zener diode - Tunnel diode and varactor Diode - Working & Applications.

UNIT- II BIPOLAR JUNCTION TRANSISTORS (BJT): (18 hrs)

PNP and NPN transistors, current components in BJT, BJT static characteristics (Input and Output), Early effect, CB, CE,CC Configurations (Cut-off, Active and saturation regions), h-parameters, h-parameter equivalent circuit, CE configuration as two port network, The CE amplifier analysis and parameters. Thermal runaway, concept of stability and Stability factor – factors affecting stability. Biasing and Load line analysis – fixed bias and voltage divider bias arrangements, Transistor as a switch.

UNIT - III FIELD EFFECT TRANSISTOR & UJT: (12 hrs)

FET - Construction - Working – Drain &Transfer characteristics -Parameters of FET – FET as an amplifier. MOSFET- Enhancement MOSFET –Depletion MOSFET – Construction & Working and drain characteristics- Comparison of FET & BJT. UJT Construction-working, V-I Characteristics, Applications. ***Small signal FET models.***

UNIT – IV PHOTO ELECTRIC DEVICES: (6 hrs)

Structure and operation, characteristics and applications of LDR, Photo Voltaic cell, Photo diode. LED and LCD. Silicon controlled rectifier (SCR) – construction, working and V- I characteristics, CRO – construction, working and applications.

UNIT - V POWER SUPPLIES: (12 hrs)

Rectifiers - Half wave, full wave and bridge rectifiers - Efficiency - Ripple factor – Regulation. Types of filters- Shunt capacitor, L-Section and π section filters and their working (no derivations) -Three terminal fixed voltage I.C regulators (78XX and 79XX) - Principle and working of switch mode power supplies (SMPS).

TEXTBOOKS:

1. Electronic Devices and Circuits David A.Bell, Fifth edition. Oxford university press
2. A.P Malvino, "Principles of Electronics", TMH, 7th edition
3. T.F. Bogart, Beasley, "Electronic Devices and circuits", Pearson Education, 6th Edition
4. N.N. Bhargava, D.C Kulshreshta, and S.C Gupta,"Basic Electronics and Linear Circuits" TMH
5. T.L.Floyd, "Electronic Devices and circuits", PHI, fifth edition
6. V.K. Metha, "Principle of Electronics", S CHAND Co. New edition
7. Godse A.P., Bakshi U.A (1st edition), Electronics Devices, Technical Publications rune.

REFERENCE BOOKS:

I. Sedha R.S., A TextBook of Applied Electronics, S. Chand & Company Ltd.
2. Jacob Millman and Christos C. Halkias (2008) Integrated Electronics, Tara Mcgraw-Hill
3. Robert L. Boylestad, Louis Nashelsky (10th edition). Electron
4. Devices and Circuit Theory, Dorling Kindersley (India Pvt. Ltd.)
5. Unified Electronics (Circuit analysis and electronic devices) by Agarwal-Arora.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : I B.Sc

SEMESTER : II

PAPER : II **(Module – II)**

TITLE OF THE PAPER : ELECTRONIC DEVICES & CIRCUITS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. JUNCTION DIODES *2.* FIELD EFFECT TRANSISTOR & UJT	*1.* ***Basic principles of Semiconductor materials – classification – energy bands in solids – P and N type semiconductor materials – energy band diagrams.*** 2. ***Small signal FET models.***

ELECTRONICS LAB –II –SEMESTER-2
(ELECTRONIC DEVICES&CIRCUITS LAB)
Work load: 30 hrs per semester 2 hrs/week

(Any Six Experiments should be done)

1. V-I Characteristics of Junction Diode.
2. V-I Characteristics of Zener Diode.
3. Regulated Power Supply using Zener Diode.
4. IC Regulated Power Supply (78XX)
5. BJT input and output Characteristics (CE Configuration) and determination of h-parameters.
6. Characteristics of UJT and determination of its parameters.
7. Characteristics of JFET and determination of its parameters.
8. LDR characteristics
9. Characteristics of L and π section filters using full wave rectifier.

LAB MANUALS

1. Zbar, Malvino and Miller, Basic Electronics, A Text Lab Manual, Tata McGraw Hill.
2. Sugaraj Samuel R., Horsley Solomon, B.E.S. Practicals.

The valuation of marks for the practical shall be as follows:

Experiment	**75 marks**
(i) Circuit diagram with details	13 m
(ii) Formulas with units	05 m
(iii) Tables with parameters and units	07 m
(iv) Observations and performance	15 m
(v) Calculations, Graph and Result	15 m
(vi) Viva Voce	10 m
(vii) Record	10 m

Government College (A): Rajamahendravaram
DEPARTMENT OF ELECTRONICS
II B.Sc - Electronics
SEMESTER III admitted batch 2016-2017
Module – III: Analog Circuits and Communications

(As Approved in the BOS meeting held on 26 MARCH 2015 for 2016-2017)

UNIT- I

Power Supplies: Rectifiers– Half wave, full wave and bridge rectifiers- Efficiency- Ripple factor- Regulation – Harmonic components in rectified output

UNIT-II

Types of filters- Choke input (inductor) filter- Shunt capacitor filter- L section and □ section filters – Block diagram of regulated power supply - Series and shunt regulated power supplies – Three terminal regulators (78XX and 79XX) – Principle and working of switch mode power supply (SMPS).

UNIT-III

Amplifiers- classification of amplifiers-RC Coupled Amplifier: Analysis and frequency response of single stage RC coupled CE amplifier – Advantages, disadvantages and applications. Positive and negative feedback- Effect of feedback on gain, band width, noise, input and output impedances-Emitter follower and Darlington pair (simple treatment without derivation). ***Types of feedback amplifiers - Voltage-series, Current series, Current shunt, Voltage shunt***

UNIT-IV

Operational Amplifiers: Differential amplifier-double ended input and single ended output-Block diagram of Op-Amp- Ideal characteristics of Op-Amp- Op-Amp parameters- Input resistance- Output resistance- Common mode rejection ratio (CMMR)- Slew rate- Offset voltages – Input bias current- Basic Op-Amp circuits- Inverting Op-Amp- Virtual ground- Non-inverting Op-Amp- Frequency response of Op-Amp.

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
2. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
3. Applied Electronics- R.S.Sedha- S Chand &Co
4. Basic electronics- Gupta Kumar Sharma
5. Analog Electronics- L.K. Maheswari and M.M.S. Anand- PHI
6. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
7. Unified Electronics Vol I,II,III & IV
8. Operational amplifiers and linear integrated circuits – S.V.Subrahmanyam and Y.N.Murty

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : III

PAPER : II **(Module – III)**

TITLE OF THE PAPER : Analog circuits and communication

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Amplifiers - classification of amplifiers - RC Coupled Amplifier	***Types of feedback amplifiers - Voltage-series, Current series, Current shunt, Voltage shunt***

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : III

PAPER : II **(Module – III)**

TITLE OF THE PAPER : Analog circuits and communication

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Amplifiers - classification of amplifiers - RC Coupled Amplifier	***Types of feedback amplifiers - Voltage-series, Current series, Current shunt, Voltage shunt***

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

B.Sc II Year – Electronics
PRACTICAL MODULE- II

LIST OF PRACTICALS for PAPER-II (90 hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Student has to perform any 10 experiments.

Government College: Rajamahendravaram
DEPARTMENT OF ELECTRONICS
B.Sc II year – Electronics
Module –IV: Analog circuits and communication
Semester – IV (w.e.f. 2015 – 2016)
(As Approved in the BOS meeting held on 26 MARCH 2015 for 2016-2017)

UNIT-I

Applications of Op-Amps: Summing amplifier – subtractor - Voltage follower- Integrator- Differentiator – Comparator - Logarithmic amplifier - Sine wave [Wein Bridge] and square wave [Astable] generators- Triangular wave generator - Monostable multivibrator - Solving simple second order differential equation.

UNIT - II

Applications of Op-Amps and Timer IC 555: Basic Op-Amp series regulator and shunt regulator. Ramp generator – ***Active filters – high pass filter, low pass filter, band pass filter (Circuits and working only***) Timer IC 555 and its applications to astable and monostable multivibrators

UNIT-III

Communications: Need for modulation-Types of modulation- Amplitude, Frequency and Phase modulation.
Amplitude modulation-side bands- modulation index- square law diode modulator- Demodulation- diode detector.
Frequency modulation working of simple frequency modulator- Ratio detection of FM waves- Advantages of frequency modulation.
AM and FM radio receivers [block diagram approach].
Mobile communication – Basics of GSM.

UNIT – IV

Satellite communication: introduction to satellite communication – types of orbits – orbital perturbation – co-ordinates, launch and launch vehicles – launching geostationary satellite - applications

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- K. Lalkishore - Pearson Education
2. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
3. Electronic Communication Systems - George Kennedy & Bernard Davis - TMH.
4. Electronic Communication -D. Roddy & J. Coolen- PHI
5. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
6. Microelectronics- J. Millman and A. Grabel - TMH
7. Principles of Electronic Communication Systems –Louis E. Frenzel –TMH
8. Satellite communications – pratt
9. Operational amplifiers and linear integrated circuits – D. Mahesh kumar
10. Satellite Communication – Manojit Mitra

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : II B.Sc

SEMESTER : IV

PAPER : II **(Module –IV)**

TITLE OF THE PAPER : Analog circuits and communication (Module IV)

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Applications of Op-Amps and Timer IC 555	***Active filters – high pass filter, low pass filter, band pass filter(Circuits and working only)***

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM

B.Sc II Year – Electronics
PRACTICAL MODULE- II

LIST OF PRACTICALS for PAPER-II (90 hours - 30 Sessions)

Paper-II Analog Circuits and Communications Lab

1. D.C Power supply
2. Single stage RC – coupled amplifier – frequency response.
3. Inverting amplifier.
4. Non- inverting amplifier.
5. Comparator.
6. Integrator.
7. Differentiator.
8. OP-Amp as Wien bridge oscillator.
9. Astable multivibrator – Determination of frequency (using IC741 Op-Amp).
10. Monostable multivibrator–Determination of pulse width (using IC 741Op Amp).
11. Voltage regulator using IC- 7805and IC-7905.
12. AM modulator and Demodulator.
13. FM modulator.

Student has to perform any 10 experiments.

Government College (A): Rajamahendravaram.
DEPARTMENT OF ELECTRONICS
III B.Sc - Electronics
Semester – V (w.e.f. 2015 – 2016)

PAPER – III Digital Electronics and Microprocessor 8085
(As Approved in the BOS meeting held on 26 MARCH 2015 for 2016-2017)

UNIT-I

Digital electronics: Introduction to number systems - Binary, hexadecimal – conversion from binary to decimal and vice-versa, binary to hexadecimal and vice-versa, decimal to hexadecimal and vice versa, ***Grey code – conversion of Binary code to Grey code and vice versa*** , addition of binary numbers, Subtraction using 2's complement, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables – Positive and negative logic – Logic families and their characteristics – RTL, DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions– Karnaugh Maps – Sum of products (SOP) and Product of sums (POS).

UNIT-II

Combinational and Sequential logic circuits: Multiplexer and De-Multiplexer – Encoder - Decoder, Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) - Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams, ***Ring counter***. Registers – Shift registers - 4bit serial in serial out, serial in Parallel out, parallel in serial out, parallel in parallel out, applications. Successive approximation D/A converter. Digital ramp A/D converter.

Reference Books:

1. Digital Principles and Applications- Malvino & Leach- TMH
2. Digital Fundamentals – F.Loyd & Jain- Pearson Education
3. Modern Digital Electronics- R.P Jain-TMH
4. Fundamentals of Digital Circuits- Anand Kumar- PHI
5. Digital Systems – Rajkamal- Pearson Education
6. Digital Electronic Principles and Integrated Circuits- Maini- Willey India
7. Digital Electronics- Gothman-
8. Digital Electronics –J.W. Bignel & Robert Donova- Thomson Publishers (Indian 5th Ed)

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc

SEMESTER : V

PAPER : III (Module –V)

TITLE OF THE PAPER : **Digital Electronics and Microprocessor 8085** (Module V)

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Digital electronics 2. ***Combinational and Sequential logic circuits***	***1. Grey code – conversion of Binary code to Grey code and vice versa*** 2. Ring counter

Government College: Rajamahendravaram

B.Sc III Year - Electronics

PAPER – III Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III

Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

GOVERNMENT COLLEGE [A]: RAJAMAHENDRAVARAM
III B.Sc– Electronics
DEPARTMENT OF ELECTRONICS
Semester – V (w.e.f. 2015 – 2016)
PAPER – IV
ADVANCE ELECTIVE-I EMBEDDED SYSTEM AND APPLICATIONS
(As Approved in the BOS meeting held on 26 MARCH 2015 for 2016-2017)

Unit– I (22 Hours)

The 8051 Microcontroller

Introduction to microcontrollers and embedded systems: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack; Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer. ***single bit instructions and programming***

Unit–II (23 Hours)

Addressing modes, instruction set and assembly language programming of 8051
Addressing modes and accessing memory using various addressing modes.
Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage.
Time Delay Generation and Calculation; Timer/Counter Programming.
Programming examples: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers,

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal – Wheeler Pub.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Iicrocontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

Government College (A): Rajamahendravaram
DEPARTMENT OF ELECTRONICS
B.Sc III Year - Electronics
Semester – VI (w.e.f. 2016 – 2017)

PAPER – III Digital Electronics and Microprocessor 8085

(As Approved in the BOS meeting held on 26 MARCH 2015 for 2016-2017)

UNIT-III

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description. Timing diagrams- Instruction cycle, machine cycle, fetch and execute cycles. Stack and subroutines. ***Interrupts – hardware and software interrupts – maskable and non-maskable interrupts (basics only)***

Instruction set of 8085: instruction and data formats- classification of instructions –addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT-IV

Interfacing peripherals and applications: Architecture of 8251 (USART). Programmable peripheral interface (8255) - D/A and A/D converters and their interfacing to the Microprocessor. Stepper motor control- seven segment LED.

Reference Books:

1. Microprocessor Architecture and Programming – Ramesh S. Goanker- Penram
2. Introduction to Microprocessor – Aditya. P. Mathur- TMH
3. Microprocessors and Microcontrollers Hardware and Interfacing- Mathivannan- PHI
4. Fundamentals of Microprocessors and Microcontrollers – B. Ram-Dhanpat Rai & Sons.
5. Advanced Microprocessor and Peripherals, Architecture, Programming and Interface- A.K.Ray and K.N. Bhurchandi- TMH
6. Microprocessor Lab Premier- K.A. Krishna Murthy

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc

SEMESTER : V

PAPER : III **(Module –V)**

TITLE OF THE PAPER : **Digital Electronics and Microprocessor 8085** (Module V)

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
Introduction to Microcomputer and Microprocessor	***Interrupts – hardware and software interrupts – maskable and non-maskable interrupts (basics only)*** Architecture of 8251 (USART).

Government College: Rajamahendravaram

B.Sc III Year - Electronics

PAPER – III Digital Electronics and Microprocessor 8085

PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
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9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
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12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

GOVERNMENT COLLEGE (A):RAJAHMUNDRY
DEPARTMENT OF ELECTRONICS
SYLLABUS FOR III B.Sc., ELECTRONICS (w.e.f.2016-2017)
SEMESTER VI - SKILL BASED ELECTIVE [1]
APPLICATIONS OF EMBEDDED SYSTEM
(As Approved in the BOS meeting held on 26 March 2016 for 2016-2017)

Unit – I

Interfacing of peripherals to Microcontroller

8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols

Unit – II

Applications of Embedded Systems

Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors.
Interfacing stepper motor , interfacing a DAC to the 8051
Detailed hardware and Architecture of embedded system, embedded system tools
Introduction to 8086pu – Architecture – Pin diagram – Addressing modes.
Memory Organization 8086, data transfer instructions 8086
Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
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7. The concepts & features of Microcontrollers by Rajkamal - Wheeler Publishers.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc.

SEMESTER : VI

PAPER : IV

TITLE OF THE PAPER : APPLICATIONS OF EMBEDDED SYSTEM

UNIVERSITYSYLLABUS	Excess Input
Interfacing of peripherals to Microcontroller 8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255, Basics of serial communication,8051 connection to RS232, 8051 serial communication Programming, modes and protocols **Applications of Embedded Systems** Temperature measurement, Interfacing an LCD to the 8051, Interfacing to ADC, sensors, generation different types of waveforms. Interfacing stepper motor , interfacing a DAC to the 8051	***Memory Organization 8086, data transfer instructions 8086***

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
SYLLABUS FOR I B.Sc., ELECTRONICS
MODULE-I [BASIC CIRCUIT THEORY]
SEMESTER I
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

UNIT I (12hr)
A.C CIRCUIT FUNDAMENTALS
The sinusoidal voltage and current-Average and R.M.S values- phasor representation- j operator, polar and rectangular forms of complex numbers, A.C applied to RC and RL circuits –phasor diagrams-concept of impedance, numerical problems. ***AC through pure R, L and C with vector diagrams.***

UNIT II(13hr)
PASSIVE NETWORKS
Concept of ideal as well as practical voltage and current sources, Kirchhoff's current law – Kirchhoff's voltage law - Method of solving circuits by Kirchhoff's laws – Loop analysis – Nodal analysis – numerical problems. ***Wheatstone's Bridge***

UNIT III (10hr)
NETWORK THEOREMS
Maximum power transfer theorem -Super position theorem – Thevenin's theorem – Norton's theorem – Thevenising a circuit–Thevenin Norton conversion - problem solving applications for all the theorems.

UNIT IV (14hr)
RC and RL CIRCUITS
Transient response of RL and RC circuits, Time constants, Frequency response of RC and RL circuits, their action as low pass and high pass filters, numerical problems. ***Transient and frequency response of LC circuit, passive differentiating and passive integrating circuits.***

UNIT V (11hr)
RESONANCE IN ELECTRIC CIRCUITS
Resonance in series and parallel R- L- C circuits, Resonant frequency, Q-factor, bandwidth, selectivity. Comparision of series and parallel resonance, numerical problems. ***Feedback concept, Oscillators, tank circuit and types of oscillators.***

Note: ***Topics in bold and italics are added***

TEXT BOOKS:
1. Electric circuits by David A.Bell 7THedition Oxford higher education
2. Robert L Boylestad, —Introductory circuit analysis, Universal Bookstall Fifth edition, 2003
3. Circuit analysis byP.Gnanasivam-Pearson education
4. Networks, lines&fields by Ryder-PHI
5. Circuits and Networks-A.Sudhakar and Shyam mohan-TMH

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS

TOPICS INCLUDED UNDER AUTONOMOUS SET UP

CLASS : I B.Sc.,
SEMESTER : I
PAPER : I
TITLE OF THE PAPER : BASIC CIRCUIT THEORY

ADDITIONAL TOPICS	*JUSTIFICATION*
1. *AC through pure R, L and C with vector diagrams.*	1. *To Understand the Fundamentals concepts diagrammatically*
2. *Wheatstone's Bridge*	2. *To provide theoretical knowledge for the practical component*
3. *Transient and frequency response of LC circuit, passive differentiating and passive integrating circuits.*	3. *To provide application orientation*
4. *Feedback concept, Oscillators, tank circuit and types of oscillators.*	4. *To impart the theoretical understanding for the practical skills*

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
PRACTICAL MODULE -1 (I B.Sc.,)
(ELECTRONIC DEVICES & CIRCUITS LAB)
LIST OF EXPERIMENTS
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)
Work load: 30 hrs per semester 2 hrs/week

LIST OF EXPERIMENTS

(Any Six Experiments should be done)

1. V-I Characteristics of Junction Diode.
2. V-I Characteristics of Zener Diode.
3. Regulated Power Supply using Zener Diode.
4. IC Regulated Power Supply (78XX)
5. BJT input and output Characteristics (CE Configuration) and determination of h-parameters.
6. Characteristics of UJT and determination of its parameters.
7. Characteristics of JFET and determination of its parameters.
8. LDR characteristics
9. Characteristics of L and π section filters using full wave rectifier.

LAB MANUALS

1. Zbar, Malvino and Miller, Basic Electronics, A Text Lab Manual, Tata McGraw Hill.
2. Sugaraj Samuel R., Horsley Solomon, B.E.S. Practicals.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM

DEPARTMENT OF ELECTRONICS

SYLLABUS FOR I B.Sc., ELECTRONICS

MODULE-II [ELECTRONIC DEVICES & CIRCUITS]

SEMESTER II

(As Approved in the BOS meeting held on 06 November 2017 for 2017-18)

UNIT- I

JUNCTION DIODES: (12 hrs)

Basic principles of Semiconductor materials – classification – energy bands in solids – P and N type semiconductor materials – energy band diagrams. PN junction diode - P-N junction theory-depletion region, barrier potential, working in forward & reverse bias condition, Junction capacitance, Diode current equation (no derivation), Effect of temperature on reverse saturation current, V-I Characteristics, Zener and Avalanche Break down, Zener diode – Construction, Working and V-I characteristics, Voltage regulator using Zener diode - Tunnel diode and varactor Diode - Working & Applications.

UNIT- II

BIPOLAR JUNCTION TRANSISTORS (BJT): (18 hrs)

PNP and NPN transistors, current components in BJT, BJT static characteristics (Input and Output), Early effect, CB, CE,CC Configurations (Cut-off, Active and saturation regions), h-parameters, h-parameter equivalent circuit, CE configuration as two port network, The CE amplifier analysis and parameters. Thermal runaway, concept of stability and Stability factor – factors affecting stability. Biasing and Load line analysis – fixed bias and voltage divider biasarrangements, Transistor as a switch.

UNIT - III

FIELD EFFECT TRANSISTOR & UJT: (12 hrs)

FET - Construction - Working – Drain &Transfer characteristics -Parameters of FET – FET as an amplifier. MOSFET- Enhancement MOSFET –Depletion MOSFET – Construction & Working and drain characteristics- Comparison of FET & BJT. UJT Construction-working, V-I Characteristics, Applications. ***Small signal FET models***.

UNIT – IV

PHOTO ELECTRIC DEVICES: (6 hrs)

Structure and operation, characteristics and applications of LDR, Photo Voltaic cell, Photo diode.

LED and LCD. Silicon controlled rectifier (SCR) – construction, working and V- I characteristics, CRO – construction, working and applications.

UNIT - V

POWER SUPPLIES: (12 hrs)

Rectifiers - Half wave, full wave and bridge rectifiers - Efficiency - Ripple factor – Regulation.

Types of filters- Shunt capacitor, L-Section and π Section filters and their working (no derivations) -Three terminal fixed voltage I.C regulators (78XX and 79XX) - Principle and working of switch mode power supplies (SMPS).

TEXTBOOKS:

1. Electronic Devices and Circuits David A.Bell, Fifth edition. Oxford university press

2. A.P Malvino, "Principles of Electronics", TMH, 7th edition

3. T.F. Bogart, Beasley, "Electronic Devices and circuits", Pearson Education, 6th Edition

4. N.N. Bhargava, D.C Kulshreshta, and S.C Gupta,"Basic Electronics and Linear Circuits'' TMH

5. T.L.Floyd, "Electronic Devices and circuits", PHI, fifth edition

6. V.K. Metha, "Principle of Electronics", S CHAND Co. New edition

7. Godse A.P., Bakshi U.A (1st edition), Electronics Devices, Technical Publications rune.

REFERENCE BOOKS:

I. Sedha R.S., A TextBook of Applied Electronics, S. Chand & Company Ltd.

2. Jacob Millman and Christos C. Halkias (2008) Integrated Electronics, Tara Mcgraw-Hill

3. Robert L. Boylestad, Louis Nashelsky (10th edition). Electron

4. Devices and Circuit Theory, Dorling Kindersley (India Pvt. Ltd.)

5. Unified Electronics (Circuit analysis and electronic devices) by Agarwal-Arora.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
PRACTICAL MODULE -1 (I B.Sc.,)
(ELECTRONIC DEVICES & CIRCUITS LAB)
LIST OF EXPERIMENTS
(As Approved in the BOS meeting held on 06 November 2017 for 2017-18)
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9. Characteristics of L and π section filters using full wave rectifier.

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GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
SYLLABUS FOR II B.Sc., ELECTRONICS
MODULE-III [DIGITAL ELECTRONICS]
SEMESTER III
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

Unit – I (8hrs)

NUMBER SYSTEM AND CODES: Decimal, Binary, Hexadecimal, Octal, BCD, Conversions,Complements (1's and 2's.), Addition, Subtraction, Gray, Excess-3 Code conversion from oneto another.

Unit- II (10hrs)

BOOLEAN ALGEBRA AND THEOREMS: Boolean Theorems, De-Morgan's laws. Digitallogic gates, NAND & NOR as universal gates. Standard representation of logic functions (SOPand POS), Minimization Techniques (Karnaugh Map Method: 4 variables),don't care condition.

Unit-III (12hrs)

COMBINATIONAL DIGITAL CIRCUITS:

Adders-Half & full adder. Subtractor-Half and full subtractors, Parallel binary adder. Multiplexers (2:1,4:1)) and Demultiplexers (1:2,4:1), Encoder (8-line-to-3-line) and Decoder (3-line-to-8-line). IC-LOGIC FAMILIES: TTL logic (NAND gate), DTL logic, RTL Logic, CMOSLogic families (NOR gate).

UNIT-IV (15hrs)

SEQUENTIAL DIGITAL CIRCUITS:

Flip Flops: S-R FF , J-K FF, *Clocked(level and Edge Triggered) Flip Flops*, T and D type FFs, Master-Slave FFs, Truth tables, Registers:-shift left register, shift right register

UNIT-V (15hrs)

INTRODUCTION TO COUNTERS AND MEMORY DEVICES:

Counters: up counter ,down counter , Synchronous and Asynchronous (mod 16 ,mod 10)counters, Ring counters

Memory devices: General Memory Operations, ROM, RAM (Static and Dynamic), PROM, EPROM, EEPROM,EAROM, PLA(Programmable logic Array),PAL(Programmable Array Logic)

Topics in Italics are additional topics

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits- Ramakant A. Gayakwad
2. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
3. Applied Electronics- R.S.Sedha- S Chand &Co
4. Basic electronics- Gupta Kumar Sharma
5. Analog Electronics- L.K. Maheswari and M.M.S. Anand- PHI
6. Electronic Devices and Circuits-Millman and Halkias- Tata Mc Graw Hill (TMH)
7. Unified Electronics Vol I,II,III & IV
8. Operational amplifiers and linear integrated circuits – S.V.Subrahmanyam and Y.N.Murty

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS

TOPICS INCLUDED UNDER AUTONOMOUS SET UP

CLASS : II B.Sc.,
SEMESTER : III
PAPER : II
TITLE OF THE PAPER: DIGITAL ELECTRONICS

Topics included	*Justification*
1. *Clocked(level and Edge Triggered) Flip Flops*	1. *To understand the Triggering methods*
2. *Counters: up counter ,down counter*	2. *Understand the Application of Flipflops connected in cascade*
3. *Synchronous and Asynchronous (mod 16 ,mod 10)counters*	3. *To design Digital Clocks,*
4. *Ring counters*	4. *To analyse the principle behind shift register with feedback connection in a ring.*

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
PRACTICAL MODULE -1 (II B.Sc.,)
(DIGITAL ELECTRONICS LAB)
LIST OF EXPERIMENTS

(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

Work load: 30 hrs per semester 2 hrs/week

LAB LIST:

1. Verification of IC-logic gates
2. Realization of basic gates using discrete components (resistor, diodes & transistor)
3. Realization of basic gates using Universal gates (NAND & NOR gates)
4. Verify Half adder and full adder using gates
5. Verify Half subtractor and full subtractor using gates.
6. Verify the truth table of RS, JK, T-F/F using NAND gates
7. 4-bit binary parallel adder and subtractor using IC 7483
8. BCD to Seven Segment Decoder using IC -7447/7448

Lab experiments are to be done on breadboard and simulation software (using multisim) and output values are to be compared and justified for variation.

DEPARTMENT OF ELECTRONICFS

SYLLABUS FOR II B.Sc., ELECTRONICS

MODULE-IV [ANALOG AND DIGITAL IC-APPLICATIONS]

SEMESTER IV

(As Approved in the BOS meeting held on 06th November 2017 for 2017-18)

Unit – I (10hrs)

OPERATIONAL AMPLIFIERS: Definition, Basic op-amp Ideal op-amp, Block diagram of op-amp, inverting, noninverting, virtualground, Adders, subtractors, summing amplifier, voltage follower, op-amp parameters, voltage to current convertor ,integrator, differentiator, differential amplifier, Logarithmic amplifier.

Unit- II (15 hrs)

OP-AMP CIRCUITS: voltage regulator, comparator ,zerocross detecting circuit, instrumentation amplifier, multivibrators-astable, monostable, Bi-stable, Schmitt trigger. sine wave generator, square wave generator, triangular wave generator, Active filters(Basics)-low pass, high pass, band pass filters

IC-555 –functional block diagram and mention it's applications

Unit-III (15hrs):

COMBINATIONAL & SEQUENTIAL LOGIC CIRCUITS (IC-Applications):

Design of Code convertor: BCD to Seven Segment ,BCD to Grey, Grey to Binary.

Design of Counters using State Machine: Mod N counter, Preset Table,Binary Up/Down Counter. Design of Universal Shift Register

UNIT-IV (10hrs)

DATA CONVERTERS:

A/D converter:- Successive Approximation ADC,-Single slope and dual slope converter, Sigma-delta ADC, D/A converter: R-2R Ladder network, Binary Weighted .

UNIT-V (10hrs)

DIGITAL SYSTEM INTERFACING AND APPLICATIONS: interfacing of LED's

Applications of Shift Registers: Serial-in-Serial –out, Serial-in-Parllel-out, Parllel-in-Serial –out, **Parllel -in- Parllel –out** Shift Registers,

TEXT BOOKS:

1. G.K.Kharate-Digital electronics-oxford university press
2. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.
3. Op Amp and Linear Integrated Circuits By Ramakant Gaykwad
4. Linear Integrated Circuits By Roy Choudary

Reference Books :

1. Jacob Millan ,Micro Electronics,McGraw Hill.
2. Mithal G K, Electronic Devices and Circuits Thana Publishers.
3. Allan Motter shead ,Electronic Devices and Circuits – An Introduction- Prentice Hall

GOVERNMENT COLLEGE (A):: RAJAMAHENDRAVARAM

DEPARTMENT OF ELECTRONICS

PRACTICAL MODULE – II (II B.Sc.,)

(ANALOG AND DIGITAL IC-APPLICATIONS)

LIST OF EXPERIMENTS

Work load: 30 hrs per semester 2 hrs/week

1. Op-Amp as inverting and non-inverting
2. Op-Amp as integrator and differentiator
3. Op-Amp as adder & subtractor
4. Op-Amp as voltage to current converter
5. Op-Amp as sine wave generator (Wien bridge oscillator)
6. Op-Amp as sine wave generator
7. Astable multivibrator determination of frequency (using IC-555)
8. Schmitt trigger using IC-555 timer

Lab experiments are to be done on breadboard and simulation software (using multi sim) and output values are to be compared and justified for variation.

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GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f. 2017-2018)
SEMESTER V - PAPER III
CORE III MODULE V- Digital Electronics and Microprocessor 8085
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

UNIT-I (10hr)

Digital electronics: Introduction to number systems

Binary, hexadecimal – conversion from binary to decimal and vice-versa, binary to hexadecimal and vice-versa, decimal to hexadecimal and vice versa, ***Grey code – conversion of Binary code to Grey code and vice versa*** , addition of binary numbers, Subtraction using 2's complement, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables –

UNIT-II (13hr)

Logic families

Positive and negative logic – Logic families and their characteristics – RTL, DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions– Karnaugh Maps – Sum of products (SOP) and Product of sums (POS).

UNIT-III (11hr)

Combinational and Sequential logic circuits:

Multiplexer and De-Multiplexer – Encoder - Decoder, Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) –

UNIT-IV (11hr)

Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams, ***Ring counter***. Registers – Shift registers - 4bit serial in serial out, serial in Parallel out, parallel in serial out, parallel in parallel out, applications. Successive approximation D/A converter. Digital ramp A/D converter.

Reference Books:

1. Digital Principles and Applications- Malvino & Leach- TMH
2. Digital Fundamentals – F.Loyd & Jain- Pearson Education
3. Modern Digital Electronics- R.P Jain-TMH
4. Fundamentals of Digital Circuits- Anand Kumar- PHI
5. Digital Systems – Rajkamal- Pearson Education
6. Digital Electronic Principles and Integrated Circuits- Maini- Willey India
7. Digital Electronics- Gothman-
8. Digital Electronics –J.W. Bignel & Robert Donova- Thomson Publishers (Indian 5th Ed)

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS

TOPICS INCLUDED UNDER AUTONOMOUS SET UP

CLASS : III B.Sc.,
SEMESTER : V
PAPER : III
TITLE OF THE PAPER : Digital Electronics and Microprocessor 8085

ADDITIONAL TOPICS	*JUSTIFICATION*
1. Grey code – conversion of Binary code to Grey code and vice versa	*1. It is important in medical applications like to measure person's height.*

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
SYLLABUS FOR III B.Sc., ELECTRONICS (w.e.f.2017-2018)
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

PRACTICAL PAPER-III
Digital Electronics and Microprocessor Lab

1. Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR gates (By using 7400-series)
2. Construction of gates using NAND, NOR gates.
3. Construction of Half and Full adders and verifying their truth tables.
4. Operation and verifying truth tables of flip- flops- RS, D, and JK using ICs.
5. Construction of Decade counters (7490).
6. Driving Stepper motor using JK flip-flop
7. Binary addition & subtraction. (8-bit & 16-bit)
8. Multiplication & division.
9. Picking up largest/smallest number.
10. Arranging –ascending/descending order.
11. Decimal addition (DAA) & Subtraction.
12. Time delay generation
13. Interfacing R-2R Ladder network (DAC) (4 bits) to generate waveforms.
14. Interfacing a stepper motor and rotating it clockwise/anti clockwise through a known angle.

Note: Students has to perform any 10 experiments

GOVERNMENT COLLEGE [A]: RAJAMAHENDRAVARAM

III B.Sc.,– Electronics

DEPARTMENT OF ELECTRONICS

Semester – V (w.e.f. 2015 – 2016)

PAPER – IV EMBEDDED SYSTEM AND APPLICATIONS

(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

Unit– I (11 Hours)

The 8051 Microcontroller

Introduction to microcontrollers and embedded systems: Overview and block diagram of 8051. Architecture of 8051. Program counter and memory organisation. Data types and directives, Flag bits and PSW Register, Register banks and Stack;

Unit– II (12 Hours)

Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer. ***single bit instructions and programming***

Unit–III (13 Hours)

Addressing modes, instruction set and assembly language programming of 8051
Addressing modes and accessing memory using various addressing modes.
Instruction set: Arithmetic, Logical, Single Bit, Jump, Loop and Call Instructions and their usage.

Unit–IV (10 Hours)

Time Delay Generation and Calculation; Timer/Counter Programming.
Programming examples: Addition, multiplication, subtraction, division, arranging a given set of numbers in ascending / descending order, picking the smallest / largest number among a given set of numbers,

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice Gillispie Mazidi- Pearson Education Asia, 4th Reprint, 2002
2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill
3. The 8051 Microcontroller - architecture, programming & applications By Kenneth J. Ayala- Penram International Publishing, 1995
4. Programming and Customizing the 8051 Microcontroller – By Myke Predko- TMH, 2003
5. Design with Microcontrollers By - J B Peatman- TMH.
6. The 8051 Microcontroller - Programming, interfacing and applications by Howard Boyet and Ron Katz - (MII) Microprocessors Training Inc.
7. The concepts & features of Microcontrollers by Rajkamal – Wheeler Pub.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
ADDITIONAL INPUTS

CLASS : III B.Sc.
SEMESTER : V
PAPER : IV
TITLE OF THE PAPER : EMBEDDED SYSTEM AND APPLICATIONS

ADDITIONAL TOPICS INCLUDED	JUSTIFICATION
Single bit instructions and programming	To analyze different types of programme

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM
DEPARTMENT OF ELECTRONICS
Paper – IV : PRACTICALS

Embedded Systems and Applications Lab

Microcontroller Experiments using 8051 kit

1. Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick the smallest number among a given set of numbers
4. Pick the largest number among a given set of numbers
5. Arrange 'n' numbers in ascending order
6. Arrange 'n' numbers in descending order
7. Generate a specified time delay
8. Interface a ADC and a temperature sensor to measure temperature
9. Interface a DAC & Generate a stair case wave form – with step duration and no. of steps as variables
10. Flash a LED connected at a specified out put port terminal
11. Interface a stepper motor – and rotate it clock wise or anti clock wise through given angle steps
12. Using Keil software write a program to pick the smallest among a given set of numbers
13. Using Keil software write a program to pick the largest among a given set of numbers
14. Using Keil software write a program to arrange a given set of numbers in ascending order
15. Using Keil software write a program to arrange a given set of numbers in descending order
16. Using Keil software write a program to generate a rectangular wave form at a specified port terminal

GOVERNMENT COLLEGE [A] :: RAJAMAHENDRAVARAM

DEPT.OF ELECTRONICS

ADVANCED ELECTIVE PAPER for

III B.Sc COURSE (w.e.f 2016-17)

SEMESTER-VI

CLUSTER ELECTIVE -A

A1: EMBEDED SYSTEMS AND APPLICATIONS

Work load: 60 hrs per semester **4 hrs/week**

Unit – I (12hr)

Interfacing of peripherals to Microcontroller (8255)

Introduction 8255, pin diagram 8255,8051 interfacing to 8255, Programming the 8255, Interfacing other modes of the 8255,

Unit – II (18hr)

Serial communication: Basics of serial communication, 8051 connection to RS232, 8051 serial communication Programming, modes and protocols, SBUF , Serial port control register, Doubling baud rate.

Unit – III (15hr)

Applications of Embedded Systems: , Interfacing an ADC to the 8051,interfacing a DAC to the 8051,Interfacing to LED,Temperature measurement, sensors.

Unit – IV (15hr)

Introduction to 8086: Introduction to 8086pu – Architecture – Pin diagram – Addressing modes,embedded system tools

Reference Books:

1. The 8051 Microcontrollers and Embedded Systems – By Muhammad Ali Mazidi and Janice GillispieMazidi- Pearson Education Asia, 4th Reprint, 2002

2. Microcontrollers – Theory and applications by Ajay V. Deshmukh-Tata McGraw-Hill

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4. Programming and Customizing the 8051 Microcontroller – By MykePredko- TMH, 2003

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PRACTICALS

Embedded Systems and Applications Lab

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Government College (A): Rajamahendravaram
DEPARTMENT OF ELECTRONICS
B.Sc III Year – Electronics

SEMESTER VI

PAPER – III Microprocessor 8085

UNIT-I (12Hr)

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor Block diagram – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description.

UNIT-II(18Hr)

Instruction cycle, machine cycle, fetch and execute cycles. Timing diagrams,Stack and subroutines.***Interrupts – hardware and software interrupts – maskable and non-maskable interrupts (basics only)***

UNIT-III (18Hr)

Instruction set of 8085: addressing modes -instruction and data formats- classification of instructions. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples

UNIT-IV(12Hr)

Interfacing peripherals and applications: Architecture of 8251 (USART). Programmable peripheral interface (8255) - D/A and A/D converters and their interfacing to the Microprocessor. seven segment LED.

Reference Books:

1. Microprocessor Architecture and Programming – Ramesh S. Goanker- Penram
2. Introduction to Microprocessor – Aditya. P. Mathur- TMH
3. Microprocessors and Microcontrollers Hardware and Interfacing- Mathivannan- PHI
4. Fundamentals of Microprocessors and Microcontrollers – B. Ram-DhanpatRai& Sons.
5. Advanced Microprocessor and Peripherals, Architecture, Programming and Interface- A.K.Ray and K.N. Bhurchandi- TMH
6. Microprocessor Lab Premier- K.A. Krishna Murthy

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM

DEPARTMENT OF ELECTRONICS

SYLLABUS FOR III B.Sc., ELECTRONICS (w.e.f.2017-2018)

(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

PRACTICAL PAPER-III

Digital Electronics and Microprocessor Lab

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GOVERNMENT COLLEGE [A] :: RAJAMAHENDRAVARAM

DEPT.OF ELECTRONICS

ADVANCED ELECTIVE PAPER for

III B.Sc COURSE (w.e.f 2016-17)

SEMESTER-VI

CLUSTER ELECTIVE -A

A2: ELECTRONIC COMMUNICATIONS (60 HOURS)

Work load: 60 hrs per semester **4 hrs/week**

UNIT- I (12 hrs)

BASICS OF COMMUNICATION SYSTEMS

Block diagram of communication system. Types of Electronic Communication systems: Simplex, Duplex. Analog /Digital Signals. Information theory analysis, channel capacity, coding

UNIT - II (15 hrs)

NOISE IN COMMUNICATION: External noise-Atmospheric, space noise, man-made noise, internal noise- Thermal, Shot noise Definitions and relationship between Bit rate, Band rate, Bandwidth and signal to Noise Ratio.

UNIT - III (18 hrs)

AMPLITUDE MODULATION

Need for modulation. Amplitude modulation, Modulation index, frequency spectrum, generation of AM (balanced modulator,), Amplitude Demodulation (diode detector), Frequency and phase modulation, modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM (Direct and indirect methods), FM detector (Slope detector, balanced slope detector, PLL)

UNIT- IV (15 hrs)

TRANSMITTERS& RECEIVERS

Transmitters: Communication channels for AM and FM broadcast, AM transmitter: Lowlevel and high level modulation, FM transmitter.

Receivers: Receiver parameters, sensitivity, selectivity and fidelity, Super Heterodynereceiver, AM receivers, FM receivers. Frequency division multiplexing.

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TEXTBOOKS

1. Electronic communication ,sanjeevagupta Krishna publishers.
2. H. Taub and D. Schilling, Principles of Communication Systems, Tata McGraw-Hill (1999)
3. W.Tomasi, Electronic Communication Systems: Fundamental through Advanced,
4. Pearson Education (2004)

REFERENCE BOOKS

1. S.Haykin, Communication Systems, Wiley India (2006)
2. G. Kennedy and B. Davis, Electronic communication systems, Tata McGraw Hill (1999)
3. R. P. Singh and S. D. Sapre, Communication Systems: Analog and Digital, Tata McGraw Hill (2007)
4. L. E. Frenzel, Communication electronics: Principles and applications. Tata McGraw Hill (2002)
5. T.G. Thomas and S. Chandra Sekhar, Communication theory, Tata McGraw Hill (2006)

ELECTRONICS LAB -6(A)

ELECTRONIC COMMUNICATIONS LAB

Work load: 30 hrs per semester **2 hrs/week**

(Any six experiments should be done)

1. Study of Amplitude Modulation and Demodulation.
2. Study of Frequency Modulation and Demodulation
3. Study of Pulse Amplitude Modulation
4. Study of Pulse Width Modulation
5. Study of Pulse Position Modulation
6. Study of Pulse Code Modulation
7. Simulation of AM modulation and Demodulation using software.
8. Simulation of FM modulation and Demodulation using software.

GOVERNMENT COLLEGE [A] :: RAJAMAHENDRAVARAM

DEPT.OF ELECTRONICS

ADVANCED ELECTIVE PAPER for

III B.Sc COURSE (w.e.f 2016-17)

SEMESTER-VI

CLUSTER ELECTIVE -A

A3: ADAVANCED DIGITAL SYSTEM

Work load: 60 hrs per semester **4 hrs/week**

Unit-I: **Combinational Logic Circuits(18hrs**)

Review Of Boolean and De Morgan's Laws-- Encoders-Decoders-Multiplexer-De multiplexer-SOP and POS Forms-K-map four variable.

Unit-II: **Logic Circuits(18hrs**)

Shannon's Expansion Theorem-Consensus Theorem-K-map-Synthesis Of Multiple Output Combinational Logic Circuits by Map Method - Static and Dynamic Hazards-Design Of Static Hazard Free Logic Circuits.

Unit-III: **Threshold Logic(12hrs**)

Threshold gate -realization of conventional gates-linear separability-unateness-threshold logic theorems-synthesis of single gate and multiple gate threshold network.

Unit-IV: **Programmable Logic Devices(12hrs**)

Basic concept-Programmable Read Only Memory(PROM)-Programmable Logic Array(PLA)-Programmable Array Logic(PAL)-Implementation of combinational circuits using PLA's and PAL's.-Moore Machine -state diagrams.

Text books

1. Digital Logic and Computer Design--M Morris Mano

2. Computer System Design and Architecture- HeuringAnd Jordan

LAB EXPERIMENT LIST

IEEE Keywords USING COMPUTER LAB OR IC'S

1. Programmable logic arrays
2. Logic design,
3. Programmable array logic
4. 4X1 MUX
5. 1X4 DEMUX
6. 3X8 DECODER
7. 8X3 ENCODER

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAHMUNDRY
I B.Sc., PHYSICS NEW SYLLABUS
(REVISED SYLLABUS WITH EFFECT FROM 2013-14)

SEMESTER –I

Mechanics

Unit – I

1. **Vector Analysis (10):**
   Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field and related problems. Vector integration, line, surface and volume integrals. Stokes, Gauss and Greens theorems- simple applications.
2. **Mechanics of Particles(10)**
   Laws of motion, motion of variable mass system, motion of a rocket, multi-stage rocket, conservation of energy and momentum. Collisions in two and three dimensions, concept of impact parameter, scattering cross-section, Rutherford scattering
3. **Mechanics of rigid bodies(10)**
   Definition of Rigid body, rotational kinematics relations, equation of motion for a rotating body, angular momentum and inertial tensor. Euler's equation, precession of a top, Gyroscope, precession of the equinoxes

Unit – II

4. **Mechanics of continuous media (8)**
   Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, sign conventions, simple supported beam carrying a concentrated load at mid span, cantilever with an end load
5. **Central forces (12)**
   Central forces – definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational potential and gravitational field, motion under inverse square law, derivation of Kepler's laws, Coriolis force and its expressions.
6. **Special theory of relativity (10)**
   Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity. Lorenz transformation, time dilation, length contraction, addition of velocities, mass-energy relation. Concept of four vector formalism.

NOTE: Problems should be solved at the end of every chapter of all units.

Text Books

1. Berkeley Physics Course. Vol 1. Mechanics by Kittle W Knight, M.A.Ruderman-Tata-McGraw Hill Company Edition 2008
2. Fundamentals of Physics Halliday/Resnick/Walker Wiley India Edition 2007
3. Waves and Oscillations by S.Badami, V.Balasubramanian and K.Rama Reddy Orient Longman
4. First Year Physics – Telugu Academy.
5. Mechanics of Particles, Waves and Oscillations. Anwar Kamal, New Age International
6. College Physics-1 by T.Bhimasankaram and G. Prasad. Himalaya Publishing House.
7. Introduction to Physics for Scientists and Engineers. F.J.Ruche. McGraw Hill.
8. Waves and Oscillations. N.Subramanaian and Brijlal Vikas Publishing House Private Limited

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
B.Sc.,(PHYSICS)
Practical Paper – I

1. Compound Pendulum – determination of 'G' and 'K'.
2. Damping of an oscillating disc – Logarithmic decrement.
3. Oscillations under bifilar suspension – Moment of Inertia
4. Combinations of springs – verification of equations (Series & parallel)
5. Young's Modulus – Uniform (or) non uniform bending
6. Sonometer – Verification of laws of stretched string
7. Sonometer – velocity of transverse wave along a stretched string
8. Simple pendulum – Estimation of standard error.
9. Melde's experiment – Determination of frequency.
10. Fly Wheel – Moment of Inertia.
11. Study of flow of liquids through Capillaries.
12. Viscosity of a fluid by any one method.
13. Surface tension of liquid by any one method
14. Rigidity Modulus – Torsion pendulum
15. Volume resonator - Frequency of tuning fork using $V\text{-}1/n^2$ graph.
16. Lissajous figures using CRO (demonstration expt.)

* One has to complete minimum of 10 experiments.

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAHMUNDRY
I B.Sc., PHYSICS NEW SYLLABUS
(REVISED SYLLABUS WITH EFFECT FROM 2013-14)

SEMESTER – II
WAVES AND OSCILLATIONS

Unit – I

1. **Fundamentals of vibrations (12)**

   Simple harmonic oscillator, and solution of the differential equation– Physical characteristics of SHM, torsion pendulum, - measurements of rigidity modulus , compound pendulum, measurement of 'g', combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies, Lissajous figures

2. **Damped and forced oscillations(12)**

   Damped harmonic oscillator, solution of the differential equation of damped oscillator. Energy considerations, comparison with undamped harmonic oscillator, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance

3. **Complex vibrations(6)**

   Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave, saw-tooth wave

Unit – II **30 hrs**

4. **Gravitation and seismology**

   Gravitational potential – potential energy gravitational field inside a spherical shell or a hallow sphere – potential and field intensity due to a solid sphere at a point (i) inside a sphere and (ii) outside a sphere. Intensity and potential of the gravitational field at a point due to circular disc – inertial and gravitational mass – earthquakes seismic waves 9and seismographs) seismology and seismographs. Gallitzin's seismographs – determination of the epicenter and the focus – modern applications of seismology.

5. **Vibrating Strings (12)**

   Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at ends, overtones, energy transport, and transverse impedance

6. **Ultrasonic's(6)**

   Ultrasonic's, properties of ultrasonic waves, production of ultrasonic by piezoelectric and magnetostriction methods, detection of ultrasonic, determination of wavelength of ultrasonic waves. Velocity of ultrasonic in liquids by Sear's method. Applications of ultrasonic waves.

NOTE: Problems should be solved at the end of every chapter of all units.

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition 2008
2. **University Physics** by Young and Freeman, Pearson Education Edition 2005
3. **Sears and Zemansky's university Physics**
4. **An Introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow.The McGraw Hill Companies.
5. **Mechanics** by Hans & Puri. TMH Publications.
6. **Engineering Physics** by R.K.Gaur & S.L.Gupta. Dhanpat Rai Publications.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
B.Sc.,(PHYSICS)
Practical Paper – I

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13. Surface tension of liquid by any one method
14. Rigidity Modulus – Torsion pendulum
15. Volume resonator - Frequency of tuning fork using $V\text{-}1/n^2$ graph.
16. Lissajous figures using CRO (demonstration expt.)

* One has to complete minimum of 10 experiments.

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II YEAR B.Sc., PHYSICS (w.e.f.2009-10)
3rd semester
OPTICS

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1. **The Matrix methods in paraxial optics: (8)**

   Introduction- matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Image by co-axial optical system. Unit plane, Nodal planes. A system of two thin lenses.

2. **Aberrations: (7)**

   Introduction – Monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration – the achromatic doublet – Removal of chromatic aberration by a separated doublet.

3. **Interference: (15)**

   Principle of superposition – coherence – temporal coherence and spatial coherence – conditions for Interference of light

   Interference by division of wave front: Fresnel's biprism – determination of wave length of light. Determination of thickness of a transparent material using Biprism – change of phase on reflection – Lloyd's mirror experiment.

   Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) – Colours of thin films – Non reflecting films – interference by a plane parallel film illuminated by a point source – Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light (Haidinger Fringes) – Determination of wave length of monochromatic light – Michelson Interferometer – types of fringes – Determination of wavelength of monochromatic light, Difference in wavelength of sodium D_1,D_2 lines and thickness of a thin transparent plate.

4. **Diffraction: (10)**

   Introduction – Distinction between Fresnel and Fraunhoffer diffraction **Fraunhoffer diffraction**:- Diffraction due to single slit and circular aperture – Limit of resolution – Fraunhoffer diffraction due to double slit – Fraunhoffer diffraction pattern with N slits (diffraction grating)

   Resolving Power of grating – Determination of wave length of light in normal and oblique incidence methods using diffraction grating.

   Fresnel diffraction:-

   Fresnel's half period zones – area of the half period zones –zone plate – Comparison of zone plate with convex lens – Phase reversal zone plate – diffraction at a straight edge – difference between interference and diffraction.

5. **Polarization (10)**

   Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light – Brewster's law – Malus law – Nicol prism polarizer and analyzer – Refraction of plane wave incident on negative and positive crystals (Huygen's explanation) – Quarter wave plate, Half wave plate –

Babinet's compensator – Optical activity, analysis of light by Laurent's half shade polarimeter.

6. Laser, Fiber Optics and Holography: (10)

Lasers: Introduction – Spontaneous emission – Stimulated emission – Population inversion. Laser principle – Einstein coefficients – Types of Lasers – He-Ne laser – Ruby laser – Applications of lasers.

Fiber Optics : Introduction – Optical fibers – Types of optical fibers – Step and graded index fibers – Rays and modes in an optical fiber – Fiber material – Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography: Basic Principle of Holography – Gabor hologram and its limitations, Holography applications.

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies*.
2. **Optics** by Subramaniyam and Brijlal. *S. Chand & Co*.
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*.
4. **Optics and Spectroscopy**. R. Murugeshan and Kiruthiga Siva Prasad. *S. Chand & Co*.
5. **Second Year Physics** – *Telugu Academy*.
6. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co*.

Reference Books

1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications*.
2. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. *Narosa Publications*.
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
PHYSICS PRACTICALS
PAPER II

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire – wedge method
4. Determination of wavelength of light – Fresnel's biprism
5. Determination of radius of curvature of given convex lens – Newton's rings
6. Determination of wavelength of light – diffraction at thin wire
7. Resolving power of grating
8. Determination f mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating –normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge – Temperature coefficient of a resistance

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II YEAR B.Sc., PHYSICS (w.e.f.2009 -10)
4th semester
THERMODYNAMICS

Unit – I

1. **Kinetic theory of gases: (8)**
   Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Experimental verification Toothed Wheel Experiment, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.
2. **Thermodynamics: (12)**
   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Kelvin's and Claussius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature- Entropy (T-S) diagram – Change of entropy of a perfect gas-change of entropy when ice changes into steam.
3. **Thermodynamic potentials and Maxwell's equations: (10)**
   Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

Unit – II

4. **Low temperature Physics: (10)**
   Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator and Air conditioning machines. Effects of Chloro and Fluro Carbons on Ozone layer; applications of substances at low-temperature.
5. **Quantum theory of radiation: (10)**
   Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wien's displacement law, Wien's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – deduction of Wien's law, Rayleigh-Jeans law, from Planck's law - Measurement of radiation – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination – Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.
6. **Statistical Mechanics: (10)**
   Introduction to statistical mechanics, concept of ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws, Black Body Radiation, Rayleigh-Jean's formula, Planck's radiation law, Weans Displacement, Stefan's Boltzmann's law from Planck's formula. Application of Fermi-Dirac statistics to white dwarfs and Neutron stars.

NOTE: Problems should be solved at the end of every chapter of all units

Textbooks

Second Year Physics – *Telugu Academy*

Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*

Reference Books

Modern Physics by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co*.

Modern Physics by G. Aruldhas and P. Rajagopal, *Eastern Economy Education*.

Berkeley Physics Course. Volume-5.

Statistical Physics by F. Reif. *The McGraw-Hill Companies*.

An Introduction to Thermal Physics by Daniel V. Schroeder.*Pearson Education Low Price Edition*.

Thermodynamics by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
PHYSICS PRACTICALS
PAPER II

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* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY

Accredited by NAAC grade "A"
(Revised Syllabus W.E.F 2010-11)
III B.Sc., V Semester, paper III
ELECTRICITY AND MAGNETISM

1. **Electrostatics** (10 Periods):
   Gauss Law and its applications – Electric field due to an infinite conducting sheet of charge, Uniformly charged sphere and charged cylindrical conductor. Mechanical force on a charged conductor. Electric potential – potential due to charge spherical conductor and Electric dipole – an infinite line of charge. Potential of a uniformly charged circular disc.
2. **Dielectrics** (6 Periods):
   An atomic view – potential energy of a dipole in an electric field – polarization and charge density – dielectrics and Gauss's Law – Relation between D.E and P. Dielectric constant and susceptibility
3. **Capacitance** (9 Periods):
   Capacity of concentric spheres and cylindrical condenser – capacity of parallel plate condenser with and without dielectric – electric energy stored by a charged condenser
4. **Magnetostatics** (7 Periods):
   Magnetic shell – potential due to magnetic shell – field due to magnetic shell – equivalent of electric circuit and magnetic shell – application of field due to magnetic shell – magnetic induction (B) and field (H) – permeability and susceptibility – Hysteresis loop.
5. **Moving charge in electric and magnetic fields** (8 Periods)
   Hall effect – cyclotron, synchrocyclotron and synchrotron – force on a current carrying conductor – force and torque on current loop – Biot – Savert's Law and calculation of B due to long straight wire, circular current loop and solenoid.
6. **Electromagnetic Induction** (10 Periods)
   Faraday's Law – Lenz's Law – expression for induced emf – electromotive force – time varying magnetic fields – betatran – ballistic galvanometer – theory – damping correction – self and mutual inductance – coefficient of coupling – calculation self inductance of a long solenoid – toriod – energy stored in magnet field
7. **Network theorems**
   Superposition theorem- Thevenins theorem – Norton's theorem – Maximum power transfer theorem – Millman theorem – Reciprocity theorem – application to simple networks.

NOTE Problems should be solved at the end of every chapter of all units

Reference Books:

1. Physics Vol – III	Halliday and Resnik
2. Electricity	Berkeley physics series
3. Electricity and Electronics	Tayal
4. Electricity and Magnetism	Brijlal and Subrahmanyam
5. Electricity and Magnetism	C. J. Smith

6. Electricity and Magnetism — C. J. Smith and Rangawala
7. Electricity and Magnetism With Electronics — K. K. Tewari (R. Chand)
8. Third year Physics — Telugu Academy

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III

1. Carry Foster's Bridge-comparison of resistance.
2. Internal resistance of a cell by potentiometer.
3. Figure merit if moving coil galvanometer.
4. Voltage sensitivity if a moving coils galvanometer.
5. RC Circuit (Frequency response).
6. LR Circuit (Frequency response)
7. LCR Circuit series and parallel resonance Q-factor.
8. Power factor of an AC Circuit.
9. Determination of AC frequency-Sonameter.
10. Design and construction of multimeter.
11. Construction of a model DC power supply.
12. Characterstics of a Junction Diode.
13. Characterstics of Transistor.
14. Characterstics of Zener Diode.
15. Verification of Kirchhoff's Laws.
16. Network theorems

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
PHYSICS SYLLABUS (W E F ACADEMIC YEAR 2010-11)
B.Sc. (Physics) SEMESTER V

Paper IV-(Modern Physics, Quantum Mechanics)

Unit – I **25 hrs**

Atomic Spectra

Introduction – Drawbacks of Bohr's atomic model - Somerfield's elliptical orbits – relativistic correction (no derivation). Stern & Gerlach experiment Vector atom model and quantum numbers associated with it. L-S and j-j coupling schemes. Spectral terms, selection rules, intensity rules. Spectra of alkali atoms, doublet fine structure. Alkaline earth spectra, singlet and triplet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect (basic idea).

Molecular Spectroscopy:

Types of molecular spectra, pure rotational energies and spectrum of diatomic molecule, determination of internuclear distance. Vibrational energies and spectrum of diatomic molecule. Raman Effect, Classical theory of Raman Effect. Experimental arrangement for Raman Effect and its applications.

Unit – II: **25 hrs**

Quantum Mechanics

Inadequacy of classical Physics: (Discussion only)

Spectral radiation – Planck's law. Photoelectric effect – Einstein's photoelectric equation. Compton's effect (quantitative) experimental verification. Stability of an atom – Bohr's atomic theory. Limitations of old quantum theory.

Matter Waves:

de Broglie's hypothesis – wavelength of matter waves, properties of matter waves. Phase and group velocities. Davisson and Germer experiment. Double slit experiment. Standing de Broglie waves of electron in Bohr orbits.

Uncertainty Principle:

Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy and time (E and t). Gamma ray microscope. Diffraction by a single slit. Position of electron in a Bohr orbit. Particle in a box. Complementary principle of Bohr.

Schrodinger Wave Equation:

Schrodinger time independent and time dependent wave equations. Wave function properties – Significance. Basic postulates of quantum mechanics. Operators, Eigen functions and Eigen values, expectation values. Application of Schrodinger wave equation to particle in one and three dimensional boxes, potential step and potential barrier.

Text books

1. Modern Physics by G.Aruldhas & P.Rajagopal, Eastern Economy Edition
2. Concepts of Modern Physics by Arthur Beiser, Tata McGraw Hill Edition.
3. Modern Physics by R.Murugesan and KiruthigaSiva Prasanth. S.Chand &Co.
4. Molecular Structure & Spectroscopy by G.Aruldhas.Prentice Hall of India New Delhi.
5. Spectroscopy- Atomic and Molecular by Guru deep R Chatwal and Shyam Anand- Himalaya Publishing House.
6.Third Year Physics – Telugu Academy.

Reference Books:

1.University Physics with Modern Physics by Young & Freedman A.Lewis Ford.Low Price Edition
(Eleventh Edition)
2. Quantum Physics by Eyvind H.Wichman. Volume 4. The McGraw Hill Companies.
3. Quantum Mechanics by Mahesh C Jain Eastern Economy Edition Prentice Hall of India.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III

1. Carry Foster's Bridge-comparison of resistance.
2. Internal resistance of a cell by potentiometer.
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13. Characterstics of Transistor.
14. Characterstics of Zener Diode.
15. Verification of Kirchhoff's Laws.
16. Network theorems

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GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

Accredited by NAAC Grade"A"

(Revised Syllabus W.E.F.2006-07)

III B.Sc., VI Semester

Paper-III: **ELECTROMAGNETIC WAVE THEORY & ELECTRONICS**

1.Varying and Alternating currents (15 Periods):

CR circuits -LR circuits - Growth and decay of currents. LCR circuit - critical damping- alternating current, relation between current and voltage in pure RC and L-Vector diagrams.LCR circuit power factor series and parallel resonant circuit-Q factor. AC & DC motors-single phase, three phase (basics only)

2. Maxwell's equations and electromagnetic waves (10 Periods)

A review of basic laws of electricity and magnetism - displacement current - Maxwell's equation In differential form. Maxwells wave equation. Plane electromagnetic waves- Transverse nature of electromagnetic waves, Poynting theorem, production of electromagnetic waves(Hertz experiment)

3. Semi-Conductor devices(17 Periods)

Band theory of solids (qualitative) - Intrinsic and extrinsic semiconductors- continuity equation-P-N Junction diode, Zener diode, Half wave and Full wave rectifiers and filter, ripple factor (quantitative) –PNP AND NPN transistors. Current components CB,CE,CC configurations,
Transistor hybrid parameters- determination of hybrid parameters from transistor characterization- transistor as an amplifier – concept of negative feed back and positive feed back Barkhausen condition,
phase shift oscillator(qualitative)

4. Digital Principles (8 periods)

Binary number system,converting Binary to Decimal and vice versa. Binary addition and subtraction (1's and 2's complement methods). Hexadecimal number system. Conversion from Binary to Hexadecimal vice versa and Decimal to Hexadecimal and vice versa.
Logic gates : OR,AND,NOT gates, truth tables,realization of these gates using discrete components.NAND,NOR as universal gates,Exclusive-OR gate,De Morgan's laws- statement and proof, Half and Full adders. Parallel adder circuits.
NOTE: problems should be solved from every chapter of all units

REFERENCE BOOKS:

1.Physics Vol.III	Halliday and Resnik
2.Electronic devices and circuits	Milliman and Halkies
3.Electricity and Electronics	Taya
4.Digital Electronics	Malvino
5.Electricity Magnetism with Electronics	K.K. Tewari(R.Chand)
6.Third year physics	Telugu Academi

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER IV

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
PHYSICS SYLLABUS (W E F ACADEMIC YEAR 2010-11)

B.Sc. (Physics) SEMESTER VI

Paper IV-(Nuclear Physics, Solid State Physics)

Unit – III **15 hrs**

Nuclear Physics

Nuclear Structure:

Basic properties of nucleus – size, charge, mass, spin, magnetic dipole moment and electric quadruple moment. Binding energy of nucleus, deuteron binding energy, p-p and n-p scattering (concepts), nuclear forces. Nuclear models – liquid drop model, shell model.

Alpha and Beta Decays: Range of alpha particles, Geiger – Nuttal law. Gamow's theory of alpha decay. Geiger – Nuttal law from Gamow's theory. Beta spectrum – neutrino hypothesis, Fermi's theory of β-decay (qualitative).

Nuclear Reactions: Types of nuclear reactions, channels, nuclear reaction kinematics. Compound nucleus, direct reactions (concepts).

Nuclear Detectors – GM counter, proportional counter, scintillation counter, Wilson cloud chamber and solid state detector

Unit – IV **25 hrs**

Solid State Physics

Crystal Structure: Crystalline nature of matter. Crystal lattice, Unit Cell, Elements of symmetry. Crystal systems, Bravais lattices. Miller indices. Simple crystal structures (S.C., BCC, CsCl, FCC, NaCl diamond and Zinc Blends)

X-ray Diffraction: Diffraction of X –rays by crystals, Bragg's law, and Experimental techniques - Laue's method and powder method.

Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, quantum nanostructures – nanodot, nanowire and quantum well.

Bonding in Crystals: Types of bonding in crystals – characteristics of crystals with different bindings. Lattice energy of ionic crystals – determination of Medelung constant for NaCl crystal, calculation of Born coefficient and repulsive exponent. Born – Haber cycle.

Magnetism: Magnetic properties of dia, para and ferromagnetic materials. Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism –Concepts of magnetic domains, antiferromagnetism and ferrimagnetism ferrites and their applications.

Superconductivity:

Basic experimental facts – zero resistance, effect of magnetic field, Meissner effect – experimental verification - persistent current, Isotope effect Thermodynamic properties, specific heat, entropy. Type I and Type II superconductors.

Elements of BCS theory-Cooper pairs. Applications. High temperature superconductors (general information)

NOTE: Problems should be solved from every chapter of all units.

Reference books :-

1.Quantum mechanics-mathews and venkatesan
2.Introduction to quantum mechanics –pauling and Wilson.
3.Nuclear physics –Tayal
4.Elements of modern physics –Patil.
5.Atomic and nuclear physics –T.A Little field as N.thorley
6.Quantum chemistry by Ira N.Levine (P.H.I)
7. Nuclear physics by somayajulu, varma, choudary

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER IV

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAHMUNDRY
I B.Sc., PHYSICS NEW SYLLABUS
(NEW MODULAR SYLLABUS W.E.F 2014-15)
SEMESTER –I

Module I: Mechanics

S.No	Month and Week	No. of hours	Topic	Curricular activity	Co-curricular activity	Remarks
1.	June III	04	VECTOR ANALYSIS Scalar and vector fields. • Divergence and curl of a vector field and related problems.			
2.	June IV	04	• *Vector integration*: Line, Surface and Volume integrals. •	Assignment	Quiz	
3.	July I	04	• Stokes theorem • Gauss theorem • Greens theorems			
4.	July II	04	• simple applications for the above theorems	Student seminar		
5.	July III	04	*Chapter II: Mechanics of Particles* • Laws of motion, • Motion of variable mass system,		Student project	
6.	July IV	04	motion of a rocket Multi-stage rocket	Assignment	Quiz	
7.	August I	04	*Chapter II: Mechanics of Particles* continued			

			• Conservation of energy • Conservation of momentum • Collisions in two dimensions • Collisions in three dimensions			
8.	August II	04	• *Rutherford scattering*: Concept of impact parameter Scattering cross-section	Student seminar		
9.	August III	04	*Chapter III: Mechanics of rigid bodies* • Definition of Rigid body • Rotational kinematics relations Equation of motion for a rotating body		Student project	
10.	August IV	04	• Angular momentum • Inertial tensor. • Euler's equation, Precession of a top • Gyroscope precession of the equinoxes	Assignment	Quiz	
11.	September I	04	*Chapter IV: Mechanics of continuous media* • Classification of beams • Types of bending • Point load • Distributed load		Guest lecture	

			• Shearing force and bending moment • Sign conventions • Simple supported beam carrying a concentrated load at mid span • Cantilever with an end load			
12.	September II	04	***Chapter V: Central forces*** • Central forces – definition and examples • Conservative nature of central forces • Conservative force as a negative gradient of potential energy	Student seminar		
13.	September III	04	• Equation of motion under a central force • gravitational potential and gravitational field • Motion under inverse square law • Derivation of Kepler's laws Coriolis force and its expressions		Field work	

14.	September IV	04	*Chapter VI: Special theory of relativity* • Galilean relativity • Absolute frames • Michelson-Morley experiment • Postulates of special theory of relativity • Lorenz transformation • Time dilation	Assignment	Quiz	
15.	October I	04	• Length contraction • Addition of velocities • Mass-energy relation • Concept of four vector formalism			

Text Books

1. Berkeley Physics Course. Vol 1. Mechanics by Kittle W Knight, M.A.Ruderman- Tata-McGraw Hill Company Edition 2008
2. Fundamentals of Physics Halliday/Resnick/Walker Wiley India Edition 2007
3. Waves and Oscillations by S.Badami, V.Balasubramanian and K.Rama Reddy Orient Longman
4. First Year Physics – Telugu Academy.
5. Mechanics of Particles, Waves and Oscillations. Anwar Kamal, New Age International

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
B.Sc.,(PHYSICS)
Module : I (P)

1. Compound Pendulum – determination of 'G' and 'K'.
2. Damping of an oscillating disc – Logarithmic decrement.
3. Oscillations under bifilar suspension – Moment of Inertia
4. Combinations of springs – verification of equations (Series & parallel)
5. Young's Modulus – Uniform (or) non uniform bending
6. Sonometer – Verification of laws of stretched string
7. Sonometer – velocity of transverse wave along a stretched string
8. Simple pendulum – Estimation of standard error.
9. Melde's experiment – Determination of frequency.
10. Fly Wheel – Moment of Inertia.
11. Study of flow of liquids through Capillaries.
12. Viscosity of a fluid by any one method.
13. Surface tension of liquid by any one method
14. Rigidity Modulus – Torsion pendulum
15. Volume resonator - Frequency of tuning fork using $V\text{-}1/n^2$ graph.
16. Lissajous figures using CRO (demonstration expt.)

* One has to complete minimum of 10 experiments.

GOVERNMENT COLLEGE (AUTONOMOUS): RAJAHMUNDRY
I B.Sc., PHYSICS NEW SYLLABUS
(NEW MODULAR SYLLABUS W.E.F 2014-15)
SEMESTER –II

Module II: Waves and Oscillations

S.No	Month & Week	No.of hours per week	TOPICs	Curricular activities	Co-curricular activities	Remarks
1	November I	4	*Chapter I: Fundamentals of vibrations* • Simple harmonic			
		4	• oscillator and solution of the differential equation • Physical characteristics of SHM			
2	November II	4	• Torsion pendulum, measurements of rigidity modulus • Compound pendulum, measurement of 'g'.	Student seminar		
3	November III	4	• combination of two mutually perpendicular simple harmonic vibrations of same frequency • combination of		Student project	

			two mutually 4 perpendicular simple harmonic vibrations with different frequencies • Lissajous figures			
4	November IV	4	*Chapter II*: *Damped and forced oscillations* • Damped harmonic oscillator • Solution of the differential equation of damped oscillator. Energy considerations	Assignment	Quiz	
5	December I	4	• Comparison with un damped harmonic oscillator, • Logarithmic decrement, • relaxation time • quality factor			
6	December II	4	Chapter II: *Damped and forced oscillations contd…..* • Differential equation of forced oscillator and its solution • Amplitude resonance	Student seminar		

			• Velocity resonance				
7	December III	4	*Chapter III: Complex vibrations* • Fourier theorem Evaluation of the Fourier Coefficients.		Student project		
8	December IV		• Analysis of periodic wave functions- Square wave Triangular wave Saw-tooth wave	Assignment	Quiz		
9	January15 I	4	*Chapter IV: Vibrating Strings* • Transverse wave propagation along a stretched string, General solution of wave equation for a stretched string and its significance				
10	January15 II	4	• Modes of vibration of stretched string clamped at ends,	Student seminar	Field work		
11	January15 III	4	• Overtones, • Energy transport in strings • Transverse impedance in strings		Guest lecture		
12	January15 IV	4	Chapter *V:Ultrasonics* Properties of	Assignment	Quiz		

			ultrasonic waves			
13	February I	4	• Production of ultrasonic by piezoelectric method • Production of ultrasonics by magnetostriction method			
14	February II	4	Detection of ultrasonic waves • Determination of wavelength of ultrasonic waves	Student seminar		
15	February III	4	• Measurement of Velocity of ultrasonic waves in liquids by Sear's method. Applications of ultrasonic waves			
16	February IV	4	Chapter *V I:* Gravitation .variation of gravitational potential. Different cases.	Assignment	Quiz	
17	March I	4	Revision			

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista *et al* :Tata-McGraw Hill Company Edition 2008
2. **University Physics** by Young and Freeman, Pearson Education Edition 2005
3. **Sears and Zemansky's university Physics**
4. **An Introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow.The McGraw Hill Companies.
5. **Mechanics** by Hans & Puri. TMH Publications.
6. **Engineering Physics** by R.K.Gaur & S.L.Gupta. Dhanpat Rai Publications.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
B.Sc.,(PHYSICS)
Module : I (P)

1. Compound Pendulum – determination of 'G' and 'K'.
2. Damping of an oscillating disc – Logarithmic decrement.
3. Oscillations under bifilar suspension – Moment of Inertia
4. Combinations of springs – verification of equations (Series & parallel)
5. Young's Modulus – Uniform (or) non uniform bending
6. Sonometer – Verification of laws of stretched string
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8. Simple pendulum – Estimation of standard error.
9. Melde's experiment – Determination of frequency.
10. Fly Wheel – Moment of Inertia.
11. Study of flow of liquids through Capillaries.
12. Viscosity of a fluid by any one method.
13. Surface tension of liquid by any one method
14. Rigidity Modulus – Torsion pendulum
15. Volume resonator - Frequency of tuning fork using $V\text{-}1/n^2$ graph.
16. Lissajous figures using CRO (demonstration expt.)

* One has to complete minimum of 10 experiments.

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II YEAR B.Sc., PHYSICS (w.e.f.2009-10)
Semester - III
MODULE III: OPTICS

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1. **The Matrix methods in paraxial optics: (8)**

   Introduction- matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Image by co-axial optical system. Unit plane, Nodal planes. A system of two thin lenses.

2. **Aberrations: (7)**

   Introduction – Monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration – the achromatic doublet – Removal of chromatic aberration by a separated doublet.

3. **Interference: (15)**

   Principle of superposition – coherence – temporal coherence and spatial coherence – conditions for Interference of light

   Interference by division of wave front: Fresnel's biprism – determination of wave length of light. Determination of thickness of a transparent material using Biprism – change of phase on reflection – Lloyd's mirror experiment.

   Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) – Colours of thin films – Non reflecting films – interference by a plane parallel film illuminated by a point source – Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light (Haidinger Fringes) – Determination of wave length of monochromatic light – Michelson Interferometer – types of fringes – Determination of wavelength of monochromatic light, Difference in wavelength of sodium D_1,D_2 lines and thickness of a thin transparent plate.

4. **Diffraction: (10)**

   Introduction – Distinction between Fresnel and Fraunhoffer diffraction

   Fraunhoffer diffraction:- Diffraction due to single slit and circular aperture – Limit of resolution – Fraunhoffer diffraction due to double slit – Fraunhoffer diffraction pattern with N slits (diffraction grating)

   Resolving Power of grating – Determination of wave length of light in normal and oblique incidence methods using diffraction grating.

   Fresnel diffraction:-

   Fresnel's half period zones – area of the half period zones –zone plate – Comparison of zone plate with convex lens – Phase reversal zone plate – diffraction at a straight edge – difference between interference and diffraction.

5. Polarization (10)

Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light – Brewster's law – Malus law – Nicol prism polarizer and analyzer – Refraction of plane wave incident on negative and positive crystals (Huygen's explanation) – Quarter wave plate, Half wave plate – Babinet's compensator – Optical activity, analysis of light by Laurent's half shade polarimeter.

6. Laser, Fiber Optics and Holography: (10)

Lasers: Introduction – Spontaneous emission – Stimulated emission – Population inversion. Laser principle – Einstein coefficients – Types of Lasers – He-Ne laser – Ruby laser – Applications of lasers.

Fiber Optics : Introduction – Optical fibers – Types of optical fibers – Step and graded index fibers – Rays and modes in an optical fiber – Fiber material – Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography: Basic Principle of Holography – Gabor hologram and its limitations, Holography applications.

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies*.
2. **Optics** by Subramaniyam and Brijlal. *S. Chand & Co*.
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*.
4. **Optics and Spectroscopy**. R. Murugeshan and Kiruthiga Siva Prasad. *S. Chand & Co*.
5. **Second Year Physics** – *Telugu Academy*.
6. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co*.

Reference Books

1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications*.
2. **Feyman's Lectures on Physics** Vol. 1, 2,3 & 4. *Narosa Publications*.
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
PHYSICS PRACTICALS
PAPER II: MODULE II (P)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire – wedge method
4. Determination of wavelength of light – Fresnel's biprism
5. Determination of radius of curvature of given convex lens – Newton's rings
6. Determination of wavelength of light – diffraction at thin wire
7. Resolving power of grating
8. Determination f mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating –normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge – Temperature coefficient of a resistance

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II YEAR B.Sc., PHYSICS (w.e.f.2009 -10)
4th semester
MODULE IV: THERMODYNAMICS

Unit – I

1. **Kinetic theory of gases: (8)**
   Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Experimental verification Toothed Wheel Experiment, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.
2. **Thermodynamics: (12)**
   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Kelvin's and Claussius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature- Entropy (T-S) diagram – Change of entropy of a perfect gas-change of entropy when ice changes into steam.
3. **Thermodynamic potentials and Maxwell's equations: (10)**
   Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

Unit – II

4. **Low temperature Physics: (10)**
   Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator and Air conditioning machines. Effects of Chloro and Fluro Carbons on Ozone layer; applications of substances at low- temperature.
5. **Quantum theory of radiation: (10)**
   Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wien's displacement law, Wien's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – deduction of Wien's law, Rayleigh-Jeans law, from Planck's law - Measurement of radiation – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination – Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.

6. **Statistical Mechanics: (10)**
   Introduction to statistical mechanics, concept of ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws, Black Body Radiation, Rayleigh-Jean's formula, Planck's radiation law, Weans Displacement, Stefan's Boltzmann's law from Planck's formula. Application of Fermi-Dirac statistics to white dwarfs and Neutron stars.

NOTE: Problems should be solved at the end of every chapter of all units

Textbook

1. **Second Year Physics –** *Telugu Academy*
2. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007.*

Reference Books

3. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co*.
4. **Modern Physics** by G. Aruldhas and P. Rajagopal, *Eastern Economy Education*. Berkeley Physics Course. Volume-5.
5. **Statistical Physics** by F. Reif. *The McGraw-Hill Companies*.
6. **An Introduction to Thermal Physics** by Daniel V. Schroeder.*Pearson Education Low Price Edition*.
2. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY
PHYSICS PRACTICALS
PAPER II: MODULE II (P)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire – wedge method
4. Determination of wavelength of light – Fresnel's biprism
5. Determination of radius of curvature of given convex lens – Newton's rings
6. Determination of wavelength of light – diffraction at thin wire
7. Resolving power of grating
8. Determination f mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating –normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge – Temperature coefficient of a resistance

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GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
Accredited by NAACwith grade "A"
(Revised Syllabus W.E.F 2010-11)
III B.Sc., V Semester, paper IV

Paper IV*:* **Modern Physics and Quantum Mechanics**

Unit – I **25 hrs**

Atomic Spectra

Introduction – Drawbacks of Bohr's atomic model - Somerfield's elliptical orbits – relativistic correction (no derivation). Stern & Gerlach experiment Vector atom model and quantum numbers associated with it. L-S and j-j coupling schemes. Spectral terms, selection rules, intensity rules. Spectra of alkali atoms, doublet fine structure. Alkaline earth spectra, singlet and triplet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect (basic idea).

Molecular Spectroscopy:

Types of molecular spectra, pure rotational energies and spectrum of diatomic molecule, determination of internuclear distance. Vibrational energies and spectrum of diatomic molecule. Raman Effect, Classical theory of Raman Effect. Experimental arrangement for Raman Effect and its applications.

Unit – II: **25 hrs**

Quantum Mechanics

Inadequacy of classical Physics: (Discussion only)

Spectral radiation – Planck's law. Photoelectric effect – Einstein's photoelectric equation. Compton's effect (quantitative) experimental verification. Stability of an atom – Bohr's atomic theory. Limitations of old quantum theory.

Matter Waves:

de Broglie's hypothesis – wavelength of matter waves, properties of matter waves. Phase and group velocities. Davisson and Germer experiment. Double slit experiment. Standing de Broglie waves of electron in Bohr orbits.

Uncertainty Principle:

Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy and time (E and t). Gamma ray microscope. Diffraction by a single slit. Position of electron in a Bohr orbit. Particle in a box. Complementary principle of Bohr.

Schrodinger Wave Equation:

Schrodinger time independent and time dependent wave equations. Wave function properties – Significance. Basic postulates of quantum mechanics. Operators, Eigen functions and Eigen values, expectation values. Application of Schrodinger wave equation to particle in one and three dimensional boxes, potential step and potential barrier.

Text books

1. Modern Physics by G.Aruldhas & P.Rajagopal, Eastern Economy Edition
2. Concepts of Modern Physics by Arthur Beiser, Tata McGraw Hill Edition.
3. Modern Physics by R.Murugesan and KiruthigaSiva Prasanth. S.Chand &Co.
4. Molecular Structure & Spectroscopy by G.Aruldhas.Prentice Hall of India New Delhi.
5. Spectroscopy- Atomic and Molecular by Guru deep R Chatwal and Shyam Anand- Himalaya Publishing House.
6.Third Year Physics – Telugu Academy.

Reference Books:

1. **University Physics with Modern Physics** by Young & Freedman A.Lewis Ford.Low Price Edition (Eleventh Edition)
2. **Quantum Physics** by Eyvind H.Wichman. Volume 4. The McGraw Hill Company.
3 **Quantum Mechanics** by Mahesh C Jain Eastern Economy Edition Prentice Hall of India.

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER IV: MODULE IV(P)

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

(Accredited by NAAC with Grade"A")

(Revised modular Syllabus W.E.F.2016-17)

III B.Sc., VI Semester

CORE III: ELECTROMAGNETIC WAVE THEORY & ELECTRONICS

1.Varying and Alternating currents (15 Periods):

CR circuits -LR circuits - Growth and decay of currents. LCR circuit - critical damping-alternating current, relation between current and voltage in pure RC and L-Vector diagrams.LCR circuit power factor series and parallel resonant circuit-Q factor. AC & DC motors-single phase, three phase (basics only)

2. Maxwell's equations and electromagnetic waves (10 Periods)

A review of basic laws of electricity and magnetism - displacement current - Maxwell's equation in differential form. Maxwells wave equation. Plane electromagnetic waves-Transverse nature of electromagnetic waves, Poynting theorem, production of electromagnetic waves(Hertz experiment)

3. Semi-Conductor devices(17 Periods)

Band theory of solids (qualitative) - Intrinsic and extrinsic semiconductors- continuity equation-P-N Junction diode, Zener diode, Half wave and Full wave rectifiers and filter, ripple factor (quantitative) –PNP AND NPN transistors. Current components CB,CE,CC configurations, Transistor hybrid parameters- determination of hybrid parameters from transistor characterization- Transistor as an amplifier – concept of negative feed back and positive feed back Barkhausen condition, phase shift oscillator(qualitative)

4. Digital Principles (8 periods)

Binary number system,converting Binary to Decimal and vice versa. Binary addition and subtraction (1's and 2's complement methods). Hexadecimal number system. Conversion from Binary to Hexadecimal vice versa and Decimal to Hexadecimal and vice versa.

Logic gates : OR,AND,NOT gates, truth tables,realization of these gates using discrete components.NAND,NOR as universal gates,Exclusive-OR gate,De Morgan's laws-statement and proof, Half and Full adders. Parallel adder circuits.

NOTE: problems should be solved from every chapter of all units

REFERENCE BOOKS:

1.Physics Vol.III	Halliday and Resnik
2.Electronic devices and circuits	Milliman and Halkies
3.Electricity and Electronics	Taya
4.Digital Electronics	Malvino
5.Electricity Magnetism with Electronics	K.K. Tewari(R.Chand)
6.Third year physics	Telugu Academi

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III: MODULE III (P)

1. Carry Foster's Bridge-comparison of resistance.
2. Internal resistance of a cell by potentiometer.
3. Figure merit if moving coil galvanometer.
4. Voltage sensitivity if a moving coils galvanometer.
5. RC Circuit (Frequency response).
6. LR Circuit (Frequency response)
7. LCR Circuit series and parallel resonance Q-factor.
8. Power factor of an AC Circuit.
9. Determination of AC frequency-Sonameter.
10. Design and construction of multimeter.
11. Construction of a model DC power supply.
12. Characterstics of a Junction Diode.
13. Characterstics of Transistor.
14. Characterstics of Zener Diode.
15. Verification of Kirchhoff's Laws.
16. Network theorems

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
PHYSICS SYLLABUS (W E F ACADEMIC YEAR 2010-11)
B.Sc. (Physics) SEMESTER VI
Paper IV-(Nuclear Physics, Solid State Physics)

Unit – III **15 hrs**

Nuclear Physics

Nuclear Structure:

Basic properties of nucleus – size, charge, mass, spin, magnetic dipole moment and electric quadruple moment. Binding energy of nucleus, deuteron binding energy, p-p and n-p scattering (concepts), nuclear forces. Nuclear models – liquid drop model, shell model.

Alpha and Beta Decays: Range of alpha particles, Geiger – Nuttal law. Gamow's theory of alpha decay. Geiger – Nuttal law from Gamow's theory. Beta spectrum – neutrino hypothesis, Fermi's theory of β-decay (qualitative).

Nuclear Reactions: Types of nuclear reactions, channels, nuclear reaction kinematics. Compound nucleus, direct reactions (concepts).

Nuclear Detectors – GM counter, proportional counter, scintillation counter, Wilson cloud chamber and solid state detector

Unit – IV **25 hrs**

Solid State Physics

Crystal Structure: Crystalline nature of matter. Crystal lattice, Unit Cell, Elements of symmetry. Crystal systems, Bravais lattices. Miller indices. Simple crystal structures (S.C., BCC, CsCl, FCC, NaCl diamond and Zinc Blends)

X-ray Diffraction: Diffraction of X –rays by crystals, Bragg's law, and Experimental techniques - Laue's method and powder method.

Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, quantum nanostructures – nanodot, nanowire and quantum well.

Bonding in Crystals: Types of bonding in crystals – characteristics of crystals with different bindings. Lattice energy of ionic crystals – determination of Medelung constant for NaCl crystal, calculation of Born coefficient and repulsive exponent. Born – Haber cycle.

Magnetism: Magnetic properties of dia, para and ferromagnetic materials. Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism – Concepts of magnetic domains, antiferromagnetism and ferrimagnetism ferrites and their applications.

Superconductivity:

Basic experimental facts – zero resistance, effect of magnetic field, Meissner effect – experimental verification - persistent current, Isotope effect Thermodynamic properties, specific heat, entropy. Type I and Type II superconductors.

Elements of BCS theory-Cooper pairs. Applications. High temperature superconductors (general information)

NOTE: Problems should be solved from every chapter of all units.

Reference books :-

1.Quantum mechanics-mathews and venkatesan
2.Introduction to quantum mechanics –pauling and Wilson.
3.Nuclear physics –Tayal
4.Elements of modern physics –Patil.
5.Atomic and nuclear physics –T.A Little field as N.thorley
6.Quantum chemistry by Ira N.Levine (P.H.I)
7. Nuclear physics by somayajulu, varma, choudary

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER IV: MODULE IV(P)

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (AUTONOMOUS):: RAJAHMUNDRY
Accredited by NAAC grade "A"
(Revised Syllabus W.E.F 2010-11)
III B.Sc., V Semester, paper III
CORE III, MODULE V- Electricity & Electromagnetism

1. **Electrostatics** (10 Periods):
   Gauss Law and its applications – Electric field due to an infinite conducting sheet of charge, Uniformly charged sphere and charged cylindrical conductor. Mechanical force on a charged conductor. Electric potential – potential due to charge spherical conductor and Electric dipole – an infinite line of charge. Potential of a uniformly charged circular disc.
2. **Dielectrics** (6 Periods):
   An atomic view – potential energy of a dipole in an electric field – polarization and charge density – dielectrics and Gauss's Law – Relation between D.E and P. Dielectric constant and susceptibility
3. **Capacitance** (9 Periods):
   Capacity of concentric spheres and cylindrical condenser – capacity of parallel plate condenser with and without dielectric – electric energy stored by a charged condenser
4. **Magnetostatics** (7 Periods):
   Magnetic shell – potential due to magnetic shell – field due to magnetic shell – equivalent of electric circuit and magnetic shell – application of field due to magnetic shell – magnetic induction (B) and field (H) – permeability and susceptibility – Hysteresis loop.
5. **Moving charge in electric and magnetic fields** (8 Periods)
   Hall effect – cyclotron, synchrocyclotron and synchrotron – force on a current carrying conductor – force and torque on current loop – Biot – Savert's Law and calculation of B due to long straight wire, circular current loop and solenoid.
6. **Electromagnetic Induction** (10 Periods)
   Faraday's Law – Lenz's Law – expression for induced emf – electromotive force – time varying magnetic fields – betatran – ballistic galvanometer – theory – damping correction – self and mutual inductance – coefficient of coupling – calculation self inductance of a long solenoid – toriod – energy stored in magnet field
7. **Network theorems**
   Superposition theorem- Thevenins theorem – Norton's theorem – Maximum power transfer theorem – Millman theorem – Reciprocity theorem – application to simple networks.

NOTE Problems should be solved at the end of every chapter of all units

Reference Books:

1. Physics Vol – III	Halliday and Resnik
2. Electricity	Berkeley physics series
3. Electricity and Electronics	Tayal
4. Electricity and Magnetism	Brijlal and Subrahmanyam
5. Electricity and Magnetism	C. J. Smith
6. Electricity and Magnetism	C. J. Smith and Rangawala
7. Electricity and Magnetism With Electronics	K. K. Tewari (R. Chand)
8. Third year Physics	Telugu Academy

GOVERNMENT COLLEGE, (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III: MODULE III (P)

1. Carry Foster's Bridge-comparison of resistance.
2. Internal resistance of a cell by potentiometer.
3. Figure merit if moving coil galvanometer.
4. Voltage sensitivity if a moving coils galvanometer.
5. RC Circuit (Frequency response).
6. LR Circuit (Frequency response)
7. LCR Circuit series and parallel resonance Q-factor.
8. Power factor of an AC Circuit.
9. Determination of AC frequency-Sonameter.
10. Design and construction of multimeter.
11. Construction of a model DC power supply.
12. Characterstics of a Junction Diode.
13. Characterstics of Transistor.
14. Characterstics of Zener Diode.
15. Verification of Kirchhoff's Laws.
16. Network theorems

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY

Department of Physics

I B.Sc syllabus:: MODULE-I [MECHANICS]

SEMESTER-I

(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

UNIT-I

Chapter I: **Vector Analysis**

Scalar and vector fields. Divergence and curl of a vector field and related problems. *Vector integration*: Line, Surface and Volume integrals. Stokes theorem, Gauss theorem and Green's theorem and their Simple applications.

Chapter II: **Mechanics of Particles**

Newton's laws of motion and applications, Motion of variable mass system, motion of a rocket' Multi-stage rocket- Conservation of energy - Conservation of momentum- Collisions: Collisions in two dimensions, Collisions in three dimensions- Rutherford scattering: Concept of impact parameter, Scattering cross-section.

Chapter III: **Mechanics of rigid bodies**

Definition of Rigid body, Rotational kinematics relations, Equation of motion for a rotating body,Angular momentum, Inertial tensor. Euler's equation, Precession of a top, Gyroscope, precession of the equinoxes.

UNIT-II

Chapter IV: **Kinematics of moving fluids**

Equation of continuity, Euler's equation, Bernoulli's theorem, applications

Chapter V: **Central forces**

Central forces – definition and examples , Conservative nature of central forces ,Conservative force as a negative gradient of potential energy ,Radial and centripetal acceleration in polar coordinates. Equation of motion under a central force, gravitational potential and gravitational field ,Motion under inverse square law Derivation of Kepler's laws ,Coriolis force and its expressions

Chapter VI: **Special theory of relativity**

Galilean relativity, Absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity - Lorenz transformations, Time dilation, Length contraction, Variation of mass with velocity, addition of velocities, mass and energy relation

NOTE: Numerical Problems are to be solved at the end of every chapter in all chapters

Text Books & References

1. Berkeley Physics Course. Vol 1. Mechanics by Kittle W Knight, M.A.Ruderman- Tata-McGraw Hill Company Edition 2008
2. Fundamentals of Physics Halliday/Resnick/Walker Wiley India Edition 2007.
3. Waves and Oscillations by S.Badami, V.Balasubramanian and K.Rama Reddy Orient Longman
4. First Year Physics – Telugu Academy.
5. Mechanics of Particles, Waves and Oscillations. Anwar Kamal, New Age International
6. College Physics-1 by T.Bhimasankaram and G. Prasad. Himalaya Publishing House.
7. Introduction to Physics for Scientists and Engineers. F.J.Ruche. McGraw Hill.
8. Waves and Oscillations. N.Subramanaian and Brijlal Vikas Publishing House Private Limited

GOVERNMENT COLLEGE (A) :: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE - I (I B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of II semester)

LIST OF EXPERIMENTS

1. Calculation of errors in calculation of acceleration due to gravity by simple pendulum
2. Calculation of acceleration due to gravity using compound pendulum
3. Calculation of Moment of Inertia of Fly wheel
4. Calculation of Moment of Inertial of Bifilar pendulum
5. Verification of laws of transverse vibrations of strings using Sonometer
6. Calculation of Viscosity of liquid using Poiselles method
7. Verification of the relation between volume of air and its resonating frequency resonator.
8. Calculation of Young's Modulus by Uniform bending method
9. Calculation of Rigidity of Modulus of wire using Torsional pendulum
10. Calculation of surface tension of water
11. Calculation of Young's Modulus by Non-uniform bending method
12. Calculation of viscosity of highly viscous liquids by Searl's viscometer
13. Melde's experiment - Determination of frequency
14. Sonometer - Verification of laws of stretched string
15. Lissajous figures using CRO (demonstration expt.)

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Physics
I B.Sc syllabus:: MODULE-II **[WAVES & OSCILLATIONS]**
SEMESTER-II

(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

UNIT-I

Chapter I:
Fundamentals of vibrations, Simple harmonic oscillator and solution of the differential equation. Physical characteristics of SHM . Phase velocity and group velocity'. Combination of two mutually perpendicular simple harmonic vibrations of same frequency. Combination of two mutually perpendicular simple harmonic Vibrations with different frequencies Lissajous figures

Chapter II:
Damped and forced Oscillations Damped harmonic oscillator Solution of the differential equation of damped oscillator. Energy considerations Comparison with undamped harmonic oscillator, Logarithmic decrement, quality factor differential equation of forced oscillator and its solution Amplitude resonance Velocity resonance.

UNIT-II

Chapter III:
Complex vibrations Fourier theorem Evaluation of the Fourier Coefficients. Analysis of periodic wave functions - Square wave, Triangular wave , Saw-tooth wave.

Chapter IV:
Vibrating Strings, Transverse wave propagation along a stretched string, General solution of wave equation for a stretched string and its significance velocity of a transverse wave along a stretched string. Modes of Vibration of stretched string, clamped at both the ends, Overtones, Energy transport in strings, Transverse impedance.

Chapter V:
Ultrasonics. Production of Ultrasonics, Properties of ultrasonic waves , Production of ultrasonics by piezoelectric method and by magnetostriction method .Detection of ultrasonic waves Determination of wavelength of ultrasonic waves. Measurement of Velocity of ultrasonic waves in liquids. Applications of ultrasonic waves

Chapter VI:

Gravitation: Definition for gravitational potential and .variation of gravitational potential different cases.

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition 2008
2. **University Physics** by Young and Freeman, Pearson Education Edition 2005
3. **Sears and Zemansky's University Physics**
4. **An Introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow.The McGraw Hill Companies.
5. **Mechanics** by Hans & Puri. TMH Publications.
6. **Engineering Physics** by R.K.Gaur & S.L.Gupta. Dhanpat Rai Publications.

GOVERNMENT COLLEGE [A]:: RAJAHMUNDRY
DEPARTMENT OF PHYSICS
MODULE-II
ADDITIONAL INPUT

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SETUP
1. Fundamentals of vibrations 2. The damped and forced oscillations 3. Complex vibrations 4. Vibrating strings 5. Ultrasonics	6. Seismology – Seismographs – vertical pendulum, horizontal pendulum, determination of epi centre and the focus – Modern applications of seismograph

GOVERNMENT COLLEGE (A) :: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE - I (I B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of II semester)

LIST OF EXPERIMENTS

1. Calculation of errors in calculation of acceleration due to gravity by simple pendulum
2. Calculation of acceleration due to gravity using compound pendulum
3. Calculation of Moment of Inertia of Fly wheel
4. Calculation of Moment of Inertial of Bifilar pendulum
5. Verification of laws of transverse vibrations of strings using Sonometer
6. Calculation of Viscosity of liquid using Poiselles method
7. Verification of the relation between volume of air and its resonating frequency resonator.
8. Calculation of Young's Modulus by Uniform bending method
9. Calculation of Rigidity of Modulus of wire using Torsional pendulum
10. Calculation of surface tension of water
11. Calculation of Young's Modulus by Non-uniform bending method
12. Calculation of viscosity of highly viscous liquids by Searl's viscometer
13. Melde's experiment – Determination of frequency
14. Sonometer – Verification of laws of stretched string
15. Lissajous figures using CRO (demonstration expt.)

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GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS (w.e.f. 2015-16)
MODULE-III [OPTICS]
SEMESTER III
(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

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1. **The Matrix methods in paraxial optics: (8)**
   Introduction- matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Image by co-axial optical system. Unit plane, Nodal planes. A system of two thin lenses.
2. **Aberrations: (7)**
   Introduction - Monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration - the achromatic doublet - Removal of chromatic aberration by a separated doublet.

3. **Interference: (15)**
   Principle of superposition - coherence - temporal coherence and spatial coherence - conditions for Interference of light
   Interference by division of wave front: Introduction and basics of Biprism.(Qualitative treatment only), Lloyd's mirror experiment
   Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) - Colors of thin films - Non reflecting films - interference by a plane parallel film illuminated by a point source - Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) - Determination of diameter of wire-Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light (Haidinger Fringes) - Determination of wave length of monochromatic light - Michelson Interferometer - types of fringes - Determination of wavelength of monochromatic light, Difference in wavelength of sodium D_1,D_2 lines and thickness of a thin transparent plate.
4. **Diffraction: (10)**
   Introduction - Distinction between Fresnel and Fraunhofer's diffraction
   Fraunhofer's diffraction:-
   Diffraction due to single slit- Fraunhofer's diffraction due to double slit - Fraunhofer's diffraction pattern with N slits (diffraction grating) Resolving Power of grating - Determination of wave length of light in normal and oblique incidence methods using diffraction grating.

Fresnel diffraction:-

Fresnel's half period zones - area of the half period zones -zone plate - Comparison of zone plate with convex lens - Phase reversal zone plate - diffraction at a straight edge - difference between interference and diffraction.

5 Polarization (10)

Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light - Brewster's law - Malus law - Nicol prism polarizer and analyzer - Refraction of plane wave incident on negative and positive crystals (Huygens's explanation) - Quarter wave plate, Half wave plate - Babinet's compensator - Optical activity, analysis of light by Laurent's half shade polarimeter.

6. Laser: (6)

Lasers: Introduction - Spontaneous emission - Stimulated emission - Population inversion. Laser principle - Einstein coefficients - Types of Lasers -Components of LASER- He-Ne laser - Ruby laser - Applications of lasers- Laser welding, Laser cutting, hole drilling, LADAR, Diffraction of laser beam, Determination of wavelength.

7 . Fiber Optics and Holography(6)Fiber Optics : Introduction - Optical fibers - Types of optical fibers - Step and graded index fibers - Rays and modes in an optical fiber - Fiber material - Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography: Basic Principle of Holography - Gabor hologram and its limitations, Holography applications.

8.Principles of Photography (5): **(additional input)**

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies.*
2. **Optics** by Subramaniyam and Brijlal. *S. Chand & Co.*
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007.*
4. **Optics and Spectroscopy**. R. Murugeshan and Kiruthiga Siva Prasad. *S. Chand & Co.*
5. **Second Year Physics** – *Telugu Academy.*
6. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co.*

Reference Books

1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications.*
2. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. *Narosa Publications.*
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*

4.Lasers theory and applications – K. Thyagarajan and A.K.Ghatak

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE - II (II B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of IV semester)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire - wedge method
4. Determination of wavelength of light - Fresnel's biprism
5. Determination of radius of curvature of given convex lens - Newton's rings
6. Determination of wavelength of light - diffraction at thin wire
7. Resolving power of grating
8. Determination f mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating -normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge - Temperature coefficient of a resistance

* It is mandatory to carry out atleast 10 experiments of the listed above.

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS (w.e.f.2015-16)
MODULE-IV [THERMODYNAMICS]
SEMESTER IV
(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

Unit – I

1. **Kinetic theory of gases: (8)**
   Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Experimental verification Toothed Wheel Experiment, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.
2. **Thermodynamics: (12)**
   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Heat Engines, Diesel Engines, Auto Engines and calculation of their efficiency. Kelvin's and Claussius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature- Entropy (T-S) diagram – Change of entropy of a perfect gas-.
3. **Thermodynamic potentials and Maxwell's equations: (10)**
   Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

Unit – II

4. **Low temperature Physics: (10)**
   Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator and Air conditioning machines. **Cryogenics – definitions and distinctions – Etymology – Industrial applications - Cryogenic processing – Fuels.**
5. **Quantum theory of radiation: (10)**
   Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wien's displacement law, Wien's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – deduction of Wien's law, Rayleigh-Jeans law, from Planck's law - Measurement of radiation – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination –

Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.

6. **Statistical Mechanics: (10)**
   Introduction to statistical mechanics, concept of ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws, Black Body Radiation, Rayleigh-Jean's formula, Planck's radiation law, Weans Displacement, Stefan's Boltzmann's law from Planck's formula.

NOTE: Problems should be solved at the end of every chapter of all units

Textbooks

1. **Second Year Physics** – *Telugu Academy*
2. **Fundamentals of Physics**. Halliday/Resnick/Walker.C. *Wiley India Edition 2007*

Reference Books

3. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics), *S. Chand & Co.*
4. **Modern Physics** by G. Aruldhas and P. Rajagopal, *Eastern Economy Education.* Berkeley Physics Course. Volume-5.
5. **Statistical Physics** by F. Reif. *The McGraw-Hill Companies.*
6. **An Introduction to Thermal Physics** by Daniel V. Schroeder.*Pearson Education Low Price Edition.*
7. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition.*

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE - II (II B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of IV semester)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire - wedge method
4. Determination of wavelength of light - Fresnel's biprism
5. Determination of radius of curvature of given convex lens - Newton's rings
6. Determination of wavelength of light - diffraction at thin wire
7. Resolving power of grating
8. Determination f mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating -normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge - Temperature coefficient of a resistance

* It is mandatory to carry out atleast 10 experiments of the listed above.

GOVERNMENT COLLEGE (A)::RAJAHMUNDRY
DEPARTMENT OF PHYSICS
III B.Sc. - SEMESTER V
Paper IV-(Modern Physics, Quantum Mechanics)
(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

Unit - I 20 hrs

Atomic Spectra

Introduction - Drawbacks of Bohr's atomic model - Somerfield's elliptical orbits - Relativistic correction (no derivation). Stern & Gerlach experiment Vector atom model and quantum numbers associated with it. L-S and j-j coupling schemes. Spectral terms, selection rules, intensity rules. Hydrogen spectrum, Fine structure and hyper fine structure Spectra of alkali atoms, doublet fine structure. Alkaline earth spectra, singlet and triplet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect (basic idea). Spin-Orbit interaction-relativistic variation of mass-contribution to fine and hyper fine structure-qualitative treatment only

Molecular Spectroscopy:

Types of molecular spectra, pure rotational energies and spectrum of diatomic molecule, determination of internuclear distance. Vibrational energies and spectrum of diatomic molecule. Raman Effect, Classical theory of Raman Effect. Experimental arrangement for Raman Effect and its applications. Rotational spectra of poly atomic molecules [Theory only]

Unit - II: **Quantum Mechanics** 25Hrs.

Inadequacy of classical Physics: (Discussion only)

Compton's effect (quantitative) experimental verification. Stability of an atom -

Matter Waves:

de Broglie's hypothesis - wavelength of matter waves, properties of matter waves. Phase and group velocities. Davisson and Germer experiment. Double slit experiment. Standing de Broglie waves of electron in Bohr orbits.

Uncertainty Principle:

Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy and time (E and t). Gamma ray microscope. Diffraction by a single slit. Position of electron in a Bohr orbit. Particle in a box. Complementary principle of Bohr.

Schrodinger Wave Equation:

Schrodinger time independent and time dependent wave equations. Wave function properties - Significance. Basic postulates of quantum mechanics. Operators, Eigen functions and Eigen values, expectation values. Application of Schrodinger wave equation to particle in one and three dimensional boxes, potential step and potential barrier.

Text books

1. Modern Physics by G.Aruldhas & P.Rajagopal, Eastern Economy Edition

2. Concepts of Modern Physics by Arthur Beiser, Tata McGraw Hill Edition.

3. Modern Physics by R.Murugesan and KiruthigaSiva Prasanth. S.Chand &Co.

4. Molecular Structure & Spectroscopy by G.Aruldhas.Prentice Hall of India New Delhi.

5. Spectroscopy- Atomic and Molecular by Gurudeep R Chatwal and Shyam Anand-Himalaya Publishing House.

6. Third Year Physics – Telugu Academy.

Reference Books

1.University Physics with Modern Physics by Young & Freedman A.Lewis Ford.Low Price Edition (Eleventh Edition).

2. Quantum Physics by Eyvind H.Wichman. Volume 4. The McGraw Hill Companies.

3. Quantum Mechanics by Mahesh C Jain Eastern Economy Edition Prentice Hall of India.

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

Class : **III B.Sc**
SEMESTER : **V**
PAPER : **IV**
TITLE OF THE PAPER : **SPECTROSCOPY, SOLID STATE PHYSICS AND MODERN MAGNETISM**

To pics in the University Syllabus	Additional Topics included under Autonomous setup
1. Molecular Physics 2. Solid State Physics 3. Modern Magnetism	1. Molecular quantum numbers – Molecular orbitals – ground states of Hydrogen, Nitrogen and Oxygen. 2. Microwave Spectrum of Diatomic molecules.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF PHYSICS
LIST OF PRACTICALS IN PAPER IV

and
SCHEME OF EVALUATION

LIST OF PRACTICALS

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

EM, TM

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GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2015-16)
SEMESTER V - PAPER - III
Electricity & Electromagnetism
(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

1. **Electrostatics** (9 Periods): Gauss Law and its applications - Electric field due to an infinite conducting sheet of charge, Uniformly charged sphere and charged cylindrical conductor. Mechanical force on a charged conductor. Electric potential - potential due to charge spherical conductor and Electric dipole - an infinite line of charge. Potential of a uniformly charged circular disc.

2. **Dielectrics** (5 Periods): An atomic view - potential energy of a dipole in an electric field - polarization and charge density - dielectrics and Gauss's Law - Relation between D.E and P. Dielectric constant and susceptibility.

3. **Capacitance** (9 Periods): Capacity of concentric spheres and cylindrical condenser - capacity of parallel plate condenser with and without dielectric - electric energy stored by a charged condenser. **Force between plates of condenser. Attracted disc electrometer- construction and working only**.

4. **Magnetostatics** (6 Periods): Magnetic shell - potential due to magnetic shell - field due to magnetic shell - equivalent of electric circuit and magnetic shell - application of field due to magnetic shell - magnetic induction (B) and field (H) - permeability and susceptibility - Hysteresis loop.

5. **Moving charge in electric and magnetic fields** (7 Periods): Hall effect - derivation of hall coefficient - applications - cyclotron, synchrocyclotron and synchrotron -and its applications - force on a current carrying conductor - force and torque on current loop - Biot - Savert's Law and calculation of B due to long straight wire, circular current loop and solenoid.

6. **Electromagnetic Induction** (9 Periods): Faraday's Law - Lenz's Law - expression for induced emf - electromotive force - time varying magnetic fields - betatron - ballistic galvanometer - theory - damping correction - self and mutual

inductance - coefficient of coupling - calculation self inductance of a long solenoid - toriod - energy stored in magnet field. **Transformers** (basics only)
NOTE Problems should be solved at the end of every chapter of all units

Reference Books:

1. Physics Vol – III	Halliday and Resnik
2. Electricity	Berkeley physics series
3. Electricity and Electronics	Tayal
4. Electricity and Magnetism	Brijlal and Subrahmanyam
5. Electricity and Magnetism	C. J. Smith
6. Electricity and Magnetism	C. J. Smith and Rangawala
7. Electricity and Magnetism With Electronics	K. K. Tewari (R. Chand)
8. Third year Physics	Telugu Academy

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS : III B.Sc

SEMESTER : V

PAPER : III

TITLE OF THE PAPER : ELECTRICITY AND ELECTROMAGNETISM

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Electrostatics 2. Dielectrics 3. Capacitance 4. Magnetostatics 5. Moving charge in electric and magnetic fields 6. Electromagnetic induction	4. Magnetostatics Determination of constant of BG condenser method. 5.C language programming – Constants variables, syntax, for loop, while – do loop and simple programming

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III

1. Figure of merit of a moving coil galvanometer.
2. Voltage sensitivity of a moving coil galvanometer.
3. RC Circuit (Frequency response).
4. LR Circuit (Frequency response)
5. LCR Circuit series and parallel resonance Q-factor.
6. Power factor of an A.C Circuit.
7. Determination of A.C frequency-Sonometer.
8. Design and construction of multimeter.
9. Construction of a model DC power supply.
10. Characteristics of a Junction Diode.
11. Characteristics of Transistor.
12. Characteristics of Zener Diode.
13. Verification of Kirchhoff's Laws.
14. Norton's theorem
15. Thevenin's theorem
16. Maximum power transfer theorem

* One has to complete a minimum of 10 experiments

EM, TM

6203

GOVERNMENT COLLEGE (A): RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2015-16)
SEMESTER VI - PAPER - III
ELECTROMAGNETIC WAVE THEORY & ELECTRONICS
(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

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1. **Varying and Alternating currents** (11 Periods): CR circuits -LR circuits - Growth and decay of currents. Alternating current, relation between current and voltage in pure RC and L-Vector diagrams. LCR circuit power factor series and parallel resonant circuit-Q factor.

2. **Maxwell's equations and electromagnetic waves** (10 Periods): A review of basic laws of electricity and magnetism - displacement current - Maxwell's equation in differential form. Maxwell's wave equation. Plane electromagnetic waves- Transverse nature of electromagnetic waves, Poynting theorem, production of electromagnetic waves(Hertz experiment)

3. **Semi-Conductor devices** (13 Periods): P-N Junction diode, Zener diode, Half wave and Full wave rectifiers and filter, ripple factor (quantitative) -PNP AND NPN transistors. Current components CB,CE,CC configurations, Transistor hybrid parameters- determination of hybrid parameters from transistor characterization- transistor as an amplifier – concept of negative feed back and positive feed back Barkhausen condition, phase shift oscillator (qualitative)

4. **Digital Principles** (8 periods): Binary number system, converting Binary to Decimal and vice versa. Binary addition and subtraction (1's and 2's complement methods). Hexadecimal number system. Conversion from Binary to Hexadecimal vice versa and Decimal to Hexadecimal and vice versa. Logic gates : OR,AND,NOT gates, truth tables, realization of these gates using discrete components. NAND,NOR as universal gates, Exclusive-OR gate, De Morgan's laws- statement and proof, Half and Full adders.

5. **Network theorems (5 periods)**
   Superposition theorem- Thevenins theorem – Norton's theorem – Maximum power transfer theorem.

NOTE: problems should be solved from every chapter of all units

REFERENCE BOOKS:

1.Physics Vol.III	Halliday and Resnik
2.Electronic devices and circuits	Milliman and Halkies
3.Electricity and Electronics	Taya
4.Digital Electronics	Malvino
5.Electricity Magnetism with Electronics	K.K. Tewari(R.Chand)
6.Third year Physics	Telugu Academi

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS : III B.Sc

SEMESTER : VI

PAPER : III

TITLE OF THE PAPER : EM THEORY AND ELECTRONICS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Varying and alternating currents 2. Maxwell' equations and Electromagnetic waves 3. Semi – conductor devices 4. Digital principles	5. Alternating currents: Principles of AC and DC generators and motors 6. Digital communications: Fundaments of data communication system. Emergence of data communication system Characteristics of Data transmission circuits. Digital codes error detection and correction. Data sets and Interconnection requirements: Modem classification, modem interfacing Interconnection of data circuits to Telephone loops

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY

PHYSICS PRACTICALS

PAPER III

1. Figure of merit of a moving coil galvanometer.
2. Voltage sensitivity of a moving coil galvanometer.
3. RC Circuit (Frequency response).
4. LR Circuit (Frequency response)
5. LCR Circuit series and parallel resonance Q-factor.
6. Power factor of an A.C Circuit.
7. Determination of A.C frequency-Sonometer.
8. Design and construction of multimeter.
9. Construction of a model DC power supply.
10. Characteristics of a Junction Diode.
11. Characteristics of Transistor.
12. Characteristics of Zener Diode.
13. Verification of Kirchhoff's Laws.
14. Norton's theorem
15. Thevenin's theorem
16. Maximum power transfer theorem

* One has to complete a minimum of 10 experiments

EM, TM

6204

GOVERNMENT COLLEGE (A)::RAJAHMUNDRY
DEPARTMENT OF PHYSICS

PHYSICS SYLLABUS (w.e.f ACADEMIC YEAR 2015-16)
B.Sc. (Physics)
SEMESTER VI
Paper IV-(Nuclear Physics, Solid State Physics)

(As Approved in the BOS meeting held on 19 March 2015 for 2015-16)

Unit – III **20 hrs**

Nuclear Physics

Nuclear Structure:

Basic properties of nucleus – Nucleus magnetic dipole moment and electric quadruple moment. Binding energy of nucleus, deuteron binding energy, p-p and n-p scattering (concepts), nuclear forces. Nuclear models – liquid drop model, shell model.

Alpha and Beta Decays: Range of alpha particles, Geiger – Nuttal law. Gamow's theory of alpha decay. Geiger – Nuttal law from Gamow's theory. Beta spectrum – neutrino hypothesis, Fermi's theory of β-decay (qualitative). **Nuclear Reactions**: Types of nuclear reactions, channels, nuclear reaction kinematics. Compound nucleus, direct reactions (concepts).

Nuclear Detectors – GM counter, proportional counter, scintillation counter, Wilson cloud chamber and solid state detector

Unit – IV **25 hrs**

Solid State Physics

Crystal Structure: Crystalline nature of matter. Crystal lattice, Unit Cell,

Elements of symmetry. Crystal systems, Bravais lattices. Miller indices. Simple crystal structures (S.C., BCC, CsCl, FCC, NaCl diamond and Zinc Blends) **X-ray Diffraction:** Diffraction of X –rays by crystals, Bragg's law, and Experimental techniques - Laue's method and powder method.

Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, quantum nanostructures – nanodot, nanowire and quantum well. Fabrication of quantum nanostructures.

Introduction to material characterisation techniques: characterisation techniques – XRD , SEM, ZETA potential, UV- VIS - qualitative only.

Bonding in Crystals: Types of bonding in crystals - characteristics of crystals with different bindings. Lattice energy of ionic crystals - determination of Medelung constant for NaCl crystal, calculation of Born coefficient and repulsive exponent. Born - Haber cycle.

Magnetism: Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism - Concepts of magnetic domains, ant ferromagnetism and ferrimagnetism ferrites and their applications.

Superconductivity:

Basic experimental facts - zero resistance, effect of magnetic field, Meissner effect, persistent current, Isotope effect Thermodynamic properties, specific heat, entropy. Type I and Type II superconductors.

Elements of BCS theory-Cooper pairs. Applications. High temperature superconductors (general information)

Note: Problems should be solved from every chapter of all units.

Reference Books

1. Quantum mechanics-Mathews and Venkatesan
2. Introduction to Quantum mechanics -Pauling and Wilson
3. Nuclear Physics -Tayal
4. 4.Elements of modern physics -Patil
5. 5.Atomic and nuclear physics -T.A Little field as N.thorley 6.Quantum
6. chemistry by Ira N.Levine (P.H.I)
7. Nuclear physics by somayajulu, varma, choudary
8. 8.Organic spectroscopy - Kalsi, Pawe

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS : III B.Sc

SEMESTER : VI

PAPER : IV

TITLE OF THE PAPER : MODERN PHYSICS (QUANTUM MECHANICS, NUCLEAR PHYSICS)

Topics in the University syllabus	Additional topics included under Autonomous setup
1.photoelectric effect 2.Wave mechanics 3. Quantum mechanics 4.Nuclear Physics	5.Crystal structure (a) Reciprocal Lattice – Bragg's law in Fourier analysis, Fourier space (b) Reciprocal Lattice to bcc and fcc Lattices (c) Photons and Lattice vibrations – vibrations of mono lattice – Diatomic lattice – group velocity – phase velocity – Brilliouin zone.

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAHMUNDRY
DEPARTMENT OF PHYSICS
LIST OF PRACTICALS IN PAPER IV

and
SCHEME OF EVALUATION

LIST OF PRACTICALS

1. e/m of an electron by Thomson's method.
2. Energy gap of a semiconductor using a Junction Diode.
3. Temperature Characterstics of Thermistors.
4. RC coupled amplifier.
5. Logic Gates (AND OR NOT & NAND) and Verification of Demorgan's theorem.
6. Verification of truth table of Half adder and full adder.
7. Phase shift oscillators.
8. Hysteresis curve of transformer core.
9. Determination of Plank's constant (Photocell).
10. Study of spectra of hydrogen spectrum (Rydburg constant)
11. Study of absorption of α and β rays.
12. Hall-Probe method for measurement of magnetic field.
13. Absorption spectrum of Iodine Vapor.
14. Study of alkaline earth spectra using a concave grating.
15. Draw the characteristics curve of Wein's Bridge.
16. Full wave rectifier Π and L type filters
17. FET characteristics.
18. G.M.counter
19. Experimental arrangement and obtaining of Raman spectra

* One has to complete a minimum of 10 experiments

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR I B.Sc., PHYSICS
MODULE-I [MECHANICS AND PROPERTIES OF MATTER]
SEMESTER I
(As Approved in the BOS meeting held on 26March 2016 for 2016-17)

UNIT I (16 hrs)

1. Vector Analysis : 8 hrs

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field with derivations and physical interpretation. Vector integration(line, surface and volume), State and proof of Gauss and Stokes theorem.

UNIT II

2. Mechanics of particles :10 hrs

Laws of motion, *velocity and acceleration in cartesian , polar and cylindrical coordinates*. Motion of variable mass system, motion of a rocket. Conservation of energy and momentum. *Application to rotating frames*. Collisions in two and three dimensions. Concept of impact parameter, scattering cross-section. Rutherford scattering-derivation

UNIT III (16 hrs)

3. Mechanics of Rigid bodies :10hrs

Definition of rigid body, rotational kinematic relations, equation of motion for a rotatingbody, angular momentum. Euler equation, precession of a top. Gyroscope, precession of the equinoxes.

4. Mechanics of continuous media :6 hrs

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of y, n, k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, sign conventions.

UNIT IV (10Hrs)

5. Central forces : 12 hrs

Central forces, definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force. Derivation of Kepler's laws. Motion of satellites.

UNIT V (12 hrs)

6. Special theory of relativity : 12 hrs

Galilean relativity, absolute frames. Michelson-Morley experiment, negative result. Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, addition of velocities, mass-energy relation. *verification of Einstein's mass energy relation*. Concept of four-vector formalism.

Note: Numerical problems to be solved at the end of the every chapter.

Text/ Reference Books

1. Berkeley Physics Course. Vol I. Mechanics by Kittle W Knight, M.A.Ruderman Tata-McGraw Hill Company Edition 2008
2. Fundamentals of Physics Halliday/ Resnick/ Walker Wiley India Edition 2007
3. Waves and Oscillations by S.Badami, V.Balasubramanian and K.Rama Reddy Orient Longman
4. First Year Physics – Telugu Academy.
5. Mechanics of Particles, Waves and Oscillations. Anwar Kamal, New Age International
6. College Physics-I by T.Bhimasankaram and G. Prasad. Himalaya Publishing House.
7. Introduction to Physics for Scientists and Engineers. F.J.Ruche. McGraw Hill.
8. Waves and Oscillations. N.Subramanaian and Brijlal Vikas Publishing House Private Limited

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS
BOS :: 2016-17

CLASS :I B.Sc.,
SEMESTER :1
PAPER :I
TITLE OF THE PAPER : MECHANICS AND PROPERTIES OF MATTER

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Vector Analysis 2. Mechanics of particles 3. Central forces 4. Special theory of relativity	1. *velocity and acceleration in cartesian , polar and cylindrical coordinates* 2. *Application to rotating frames* 3. *verification of Einstein's mass energy relation*

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE -1 (I B.Sc.,)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(As Approved in the BOS meeting held on 26March 2016 for 2016-17)

LIST OF EXPERIMENTS

1. Calculation of errors in calculation of acceleration due to gravity by simple pendulum.
2. Calculation of acceleration due to gravity using compound pendulum.
3. Calculation of Moment of Inertia of Fly Wheel.
4. Calculation of Moment of Inertia of Bifilar pendulum.
5. Verification of laws of transverse vibrations of strings using Sonometer.
6. Calculation of viscosity of liquid using Poiselles method.
7. Verification of the relation between volume of air its resonating frequency resonator.
8. Calculation of Young's Modulus by uniform bending method.
9. Calculation of Rigidity of Modulus of wire using Torsional pendulum.
10. Calculation of Surface Tension of Water.
11. Calculation of Young's Modulus by Non-uniform bending method.
12. Calculation of viscosity of highly viscous liquids by Searl's viscometer.
13. Melde's experiment - Determination of frequency.
14. Sonometer - verification of laws of stretched string.
15. Lissajous figures using CRO (demonstration experiment.)
16. Coupled Oscillators.

Note. Student has to do any six experiments at the end of each I and II semester. In total 12 at the end of the academic year.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR I B.Sc., PHYSICS
MODULE-I [WAVES & OSCILLATIONS]
SEMESTER II
(As Approved in the BOS meeting held on 26 March 2016 for 2016-17)

UNIT I : 12 Hrs

1. **Simple Harmonic oscillations**
   Simple harmonic oscillator and solution of the differential equation-Physical characteristics of SHM, torsion pendulum-measurements of rigidity modulus, compound pendulum- measurement of 'g', combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies. Lissajous figures. **Group velocity and phase *velocity***

UNIT II: 12 Hrs

2. **Damped and forced oscillations**
   Damped harmonic oscillator, solution of the differential equation of damped oscillator. Energy considerations, comparison with un-damped harmonic oscillator, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance and velocity resonance. ***Power consideration, Sharpness of resonancce, Quality factor, Band width of resonance.***

UNIT III: 10 Hrs

3. **Complex vibrations**
   Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave, saw tooth wave

UNIT IV: 17 Hrs

4. **Vibrating strings : 8 Hrs**
   Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at ends, overtones and harmonics. Energy transport and transverse impedance.

5. **Vibrations of bars: 9 hrs**

Longitudinal vibrations in bars-wave equation and its general solution. Special cases i) bar fixed at both ends ii) bar fixed at the midpoint iii) bar free at both ends iv) bar fixed at one end. Tuning fork.

UNIT V: 09 Hrs

6. **Ultrasonics:9 Hrs**

Ultrasonics, properties of ultrasonic waves, production of ultrasonics by piezoelectric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves. Applications of ultrasonic waves.

Note: Numerical problems to be solved at the end of the every chapter.

TEXT BOOKS

1. BSc Physics Vol.1, Telugu Academy, Hyderabad.
2. Waves and Oscillations. N. Subramanyam and Brijlal, Vikas Publishing House Private Limited.
3. Unified Physics Vol., Mechanics, Waves and Oscillations, Jai Prakash Nath&Co.Ltd. Meerut.
4. Mechanics of Particles, Waves and Oscillat ions. Anwar Kamal, New Age International.

REFERENCE BOOKS:

1. Fundamentals of Physics. Halliday/Resnick/Walker , Wiley India Edition 2007.
2. Waves and Oscillations. S. Badami, V. Balasubramanian and K. Rama Reddy, Orient Longman.
3. College Physics-I. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.
4. Science and Technology of Ultrasonics- Bladevraj, Narosa, New Delhi,2004
5. Introduction to Physics for Scientists and Engineers. F.J. Ruche. McGraw Hill.
6. Mechanics by D S Mathur.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS :I B.Sc.,
SEMESTER :1I
PAPER : I
TITLE OF THE PAPER : WAVES & OSCILLATIONS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Simple Harmonic oscillations 2. Damped and forced oscillations 3. Complex vibrations 4. Vibrating Strings	1. *Group velocity and phase velocity* 2. *Power consideration, Sharpness of resonance, Quality factor , Band width of resonance.*

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE -I (I B.Sc.,)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(As Approved in the BOS meeting held on 26March 2016 for 2016-17)

LIST OF EXPERIMENTS

1. Calculation of errors in calculation of acceleration due to gravity by simple pendulum.
2. Calculation of acceleration due to gravity using compound pendulum.
3. Calculation of Moment of Inertia of Fly Wheel.
4. Calculation of Moment of Inertia of Bifilar pendulum.
5. Verification of laws of transverse vibrations of strings using Sonometer.
6. Calculation of viscosity of liquid using Poiselles method.
7. Verification of the relation between volume of air its resonating frequency resonator.
8. Calculation of Young's Modulus by uniform bending method.
9. Calculation of Rigidity of Modulus of wire using Torsional pendulum.
10. Calculation of Surface Tension of Water.
11. Calculation of Young's Modulus by Non-uniform bending method.
12. Calculation of viscosity of highly viscous liquids by Searl's viscometer.
13. Melde's experiment - Determination of frequency.
14. Sonometer - verification of laws of stretched string.
15. Lissajous figures using CRO (demonstration experiment.)
16. Coupled Oscillators.

Note. Student has to do any six experiments at the end of each I and II semester. In total 12 at the end of the academic year.

3202

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS
MODULE-III [OPTICS]
SEMESTER III
(As Approved in the BOS meeting held on 26March 2016 for 2016-17)

1. **The Matrix methods in paraxial optics: (8)**
Introduction- matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Image by co-axial optical system. Unit plane, Nodal planes. A system of two thin lenses.

2. **Aberrations: (7)**
Introduction – Monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration- the achromatic doublet – Removal of chromatic aberration by a separated doublet. Defects of eye-myopia and hyper- metropia – correction.

3. **Interference: (15)**
Principle of superposition – coherence – temporal coherence and spatial coherence – conditions for Interference of light
Interference by division of wave front: Introduction and basics of Biprism, Determination of wavelength of light and thickness of transparent thin film. Change of phase on reflection Lloyd's mirror experiment (qualitative treatment only)
Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) – Colors of thin films – Non reflecting films – interference by a plane parallel film illuminated by a point source – Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light with contact between lens and glass plate, Newton's rings in transmitted light (Hydinger Fringes) – Determination of wave length of monochromatic light – Michelson Interferometer – types of fringes – Determination of wavelength of monochromatic light, Difference in wavelength of sodium D_1,D_2 lines and thickness of a thin transparent plate.

4. **Diffraction: (10)**
Introduction – Distinction between Fresnel and Fraunhofer's diffraction
Fraunhofer's diffraction:-
Diffraction due to single slit- Diffraction due to circular aperture Fraunhofer's diffraction due to double slit – Fraunhofer's diffraction pattern with N slits (diffraction grating) Resolving Power of grating – Determination of wave length of light in normal and oblique incidence methods using diffraction grating.
Fresnel diffraction:-
Fresnel's half period zones – area of the half period zones –zone plate
Comparison of zone plate with convex lens – Phase reversal zone plate –

Diffraction at a straight edge (simple method) - difference between interference and diffraction.

5. Polarizations (10)

Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light - Brewster's law - Malus law - Nicol prism polarizer and analyzer - Refraction of plane wave incident on negative and positive crystals (Huygens's explanation) - Quarter wave plate, Half wave plate - Babinet's compensator - Optical activity, analysis of light by Laurent's half shade polarimeter.

6. Laser: (6)

Lasers: Introduction - Spontaneous emission - Stimulated emission - Population inversion. Laser principle - Einstein coefficients - Meta stable state-Types of Lasers -Components of LASER- He-Ne laser - Ruby laser - Applications of lasers- Laser welding, Laser cutting, hole drilling, LADAR, Diffraction of laser beam, Determination of wavelength,

7.Fiber Optics and Holography(6)Fiber Optics : Introduction - Optical fibers - Types of optical fibers - Step and graded index fibers- Fiber material - Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography: Basic Principle of Holography - Gabor hologram and its limitations,

Holography applications.

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies.*
2. **Optics** by Subramaniyam and Brijlal. *S. Chand & Co.*
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007.*
4. **Optics and Spectroscopy**. R. Murugeshan and Kiruthiga Siva Prasad. *S. Chand & Co.*
5. **Second Year Physics** - *Telugu Academy.*
6. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co.*

Reference Books

1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications.*
2. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. *Narosa Publications.*
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*
4. **Lasers theory and applications** - K. Thyagarajan and A.K.Ghatak

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE – II (II B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of IV semester)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire – wedge method
4. Determination of wavelength of light – Fresnel's biprism
5. Determination of radius of curvature of given convex lens – Newton's rings
6. Determination of wavelength of light – diffraction at thin wire
7. Resolving power of grating
8. Determination of mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating –normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge – Temperature coefficient of a resistance

* It is mandatory to carry out <u>at least 10 experiments</u> of the listed above.

4202

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS
MODULE-IV [THERMODYNAMICS]
SEMESTER IV
(As Approved in the BOS meeting held on 26 March 2016 for 2016-17)

Unit – I

1. **Kinetic theory of gases: (8)**
   Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Experimental verification Toothed Wheel Experiment, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.
2. **Thermodynamics: (12)**
   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Kelvin's and Claussius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature-Entropy (T-S) diagram – Change of entropy of a perfect gas-.
3. **Thermodynamic potentials and Maxwell's equations: (10)**
   Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

Unit – II

4. **Low temperature Physics: (10)**
   Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator and Air conditioning machines. Effects of chloro fluro carbons on ozone layer
5. **Quantum theory of radiation: (10)**
   Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wien's displacement law, Wien's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – deduction of Wien's law, Rayleigh-Jeans law, Wien's displacement law from Planck's law - Measurement of radiation –Earth as a blackbody – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination – Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.
6. **Statistical Mechanics: (10)**
   Introduction to statistical mechanics, concept of ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas,

Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws, Black Body Radiation, Rayleigh-Jean's formula, Planck's radiation law, Weans Displacement, Stefan's Boltzmann's law from Planck's formula.

NOTE: Problems should be solved at the end of every chapter of all units

Textbooks

1. **Second Year Physics** – *Telugu Academy*
2. **Fundamentals of Physics.** Halliday/Resnick/Walker.C. *Wiley India Edition 2007*

Reference Books

1. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics), *S. Chand & Co.*
2. **Modern Physics** by G. Aruldhas and P. Rajagopal, *Eastern Economy Education.* Berkeley Physics Course. Volume-5.
3. **Statistical Physics** by F. Reif. *The McGraw-Hill Companies.*
4. **An Introduction to Thermal Physics** by Daniel V. Schroeder.*Pearson Education Low Price Edition.*
5. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition.*

GOVERNMENT COLLEGE (A):: RAJAHMUNDRY
Department of Physics
PRACTICAL MODULE - II (II B.Sc)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(To be conducted at the end of IV semester)

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire - wedge method
4. Determination of wavelength of light - Fresnel's biprism
5. Determination of radius of curvature of given convex lens - Newton's rings
6. Determination of wavelength of light - diffraction at thin wire
7. Resolving power of grating
8. Determination of mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polarimeter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating -normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge - Temperature coefficient of a resistance

* It is mandatory to carry out <u>at least 10 experiments</u> of the listed above.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f. 2016-2017)
SEMESTER V - ADVANCED ELECTIVE [1]
MODERN PHYSICS AND QUANTUM MECHANICS

(As Approved in the BOS meeting held on 26 March 2016 for 2016-2017)

25 hrs

Unit – I

Atomic Spectra

Introduction – Drawbacks of Bohr's atomic model - Somerfield's elliptical orbits – Relativistic correction (no derivation). Stern & Gerlach experiment Vector atom model and quantum numbers associated with it. L-S and j-j coupling schemes. Spectral terms, selection rules, intensity rules. Hydrogen spectrum, Fine structure and hyper fine structure Spectra of alkali atoms, doublet fine structure. Alkaline earth spectra, singlet and triplet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect (basic idea). Spin-Orbit interaction-relativistic variation of mass-contribution to fine and hyper fine structure-qualitative treatment only

Unit - II

Molecular Spectroscopy:

Types of molecular spectra, pure rotational energies and spectrum of diatomic molecule, determination of inter nuclear distance. Vibrational energies and spectrum of diatomic molecule. Raman Effect, Classical theory of Raman Effect. Experimental arrangement for Raman Effect and its applications. Rotational spectra of poly atomic molecules [Theory only].

Unit – III:

Quantum Mechanics

25Hrs

Inadequacy of classical Physics: (Discussion only)

Photo Electric effect, Eisenstein Photo Electric equation, Experimental verification. Compton's effect (quantitative) experimental verification. Stability of an atom -

Matter Waves:

de Broglie's hypothesis – wavelength of matter waves, properties of matter waves. Phase and group velocities. Davisson and Germer experiment. Double slit experiment. Standing de Broglie waves of electron in Bohr orbits.

Uncertainty Principle:

Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy and time (E and t). Gamma ray microscope. Diffraction by a single slit. Position of electron in a Bohr orbit. Particle in a box. Complementary principle of Bohr.

Unit -IV:

Schrodinger Wave Equation:

Schrodinger time independent and time dependent wave equations. Wave function properties – Significance. Basic postulates of quantum mechanics. Operators, Eigen functions and Eigen values, expectation values. Application of Schrodinger wave equation to particle in one and three dimensional boxes, potential step and potential barrier.

Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Modern Physics by G.Aruldhas & P.Rajagopal, Eastern Economy Edition
2. Concepts of Modern Physics by Arthur Beiser, Tata McGraw Hill Edition.
3. Modern Physics by R.Murugesan and KiruthigaSiva Prasanth. S.Chand &Co.
4. Molecular Structure & Spectroscopy by G.Aruldhas.Prentice Hall of India New Delhi.
5. Spectroscopy- Atomic and Molecular by Gurudeep R Chatwal and Shyam Anand-Himalaya Publishing House.
6. Third Year Physics – Telugu Academy.

Reference Books:

1. University Physics with Modern Physics by Young & Freedman A.Lewis Ford.Low Price Edition (Eleventh Edition)
2. Quantum Physics by Eyvind H.Wichman. Volume 4. The McGraw Hill Companies.
3. Quantum Mechanics by Mahesh C Jain Eastern Economy Edition Prentice Hall of India.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS :III B.Sc.,
SEMESTER :V
PAPER : ADVANCED ELECTIVE - 1
TITLE OF THE PAPER : MODERN PHYSICS AND QUANTUM MECHANICS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Atomic Physics 2. Molecular Physics	1. Photo Electric Effect 2. Microwave Spectrum of Diatomic molecules. .

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
PHYSICS PRACTICALS - PAPER IV

1. Energy gap of semiconductor using a junction diode
2. Temperature characteristics of a thermistor
3. R.C coupled amplifier
4. Verification of Logic gates OR, AND, NOT, X-OR , NOR, NAND gates
5. Realization of basic logic gates by NAND and NOR gates
6. Verification of De-Morgan's theorems
7. Verification of truth tables for half adder and full adders
8. Determination of Planck's constant (photo cell)
9. FET characteristics
10. Full wave rectifier with L- type and $\pi-$ type filters
11. Draw the characteristic curve of Wien's Bridge
12. Phase shift oscillators
13. e/m of an electron by Thomson's method
14. Hysteresis curve of transformer core
15. Study of spectra of hydrogen spectrum (Determination of Rydberg constant)
16. Hall - Probe method for measurement of magnetic field

Note: One has to complete a minimum of 10 experiments.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f. 2016-2017)
SEMESTER V - PAPAER III
CORE III MODULE V- Electricity & Electromagnetism
(As Approved in the BOS meeting held on 26 March 2016 for 2016-2017)

UNIT-I :Electronic Instruments & Electrostatics (9 Periods): Multimeter, Cathode ray Oscilloscope (CRO)[Circuit diagram and Basic Principles only]. Gauss Law and its applications- Electric field due to an infinite conducting sheet of charge, Uniformly charged sphere and charged cylindrical conductor. Mechanical force on a charged conductor. Electric potential- potential due to charged spherical conductor and Electric dipole- an infinite line of charge. Potential of a uniformly charged circular disc.

UNIT-II :Dielectrics and Capacitance (14 Periods): An atomic view- potential energy of a dipole in an electric field- polarization and charge density- dielectrics and Gauss's Law- Relation between D,E and P. Dielectric constant and susceptibility.
Capacity of concentric spheres and cylindrical condenser- capacity of parallel plate condenser with and without dielectric- electrical energy stored by a charged condenser. **Force between plates of condenser. Attracted disc electrometer- Construction and working only.**

UNIT-III :Magnetostatics, Moving Charge in electric and magnetic fields (13 Periods): Magnetic shell- potential due to magnetic shell- field due to magnetic shell- equivalent of electric circuit and magnetic shell- application of field due to magnetic shell-magnetic induction (B) and field (H)-permeability and susceptibility - Hysteresis loop.
Hall effect- derivation of hall coefficient - applications - cyclotron, synchrocyclotron and synchrotron-and its applications-force on a current carrying conductor- force and torque on current loop- Biot-Savert's Law and calculation of B due to long straight wire, circular loop and solenoid.

UNIT-IV : Electromagnetic Induction (9 Periods): Faraday's Law - Lenz's law- expression for induced emf-electromotive force-time varying magnetic fields- betatron-ballistic galvanometer -theory-damping correction-self and mutual inductance-coefficient of coupling -calculation of coupling-calculation of self inductance of a long solenoid- toroid- energy stored in magnetic field. Transformers (Basics only).

Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Basic Electronics and Linear circuits - NN Bharghava, SC Gupta
2. Principles of Electronics - VK Mehta
3. Physics Vol III - Halliday and Resnick
4. Electricity - Berkeley physics series
5. Electricity and Electronics- Tayal
6. Electricity and Magnetism - Brijlal and Subrahmanyam
7. Electricity and Magnetism - C.J. Smith
8. Electricity and Magnetism - C.J Smith and Rangawala
9. Electricity and Magnetism with Electronics - K.K Tewari (R.Chand)
10. Third year Physics - Telugu Academy.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS :III B.Sc.,
SEMESTER :V
PAPER : III
TITLE OF THE PAPER : ELETRICITY AND ELECTROMAGNETISM

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Electrostatics 2. Dielectrics and capacitance 3.Magnetostatics, moving charge in electric and magnetic fields 4. Electromagnetic induction	1. Electronic instruments-multi meter and cathode ray oscilloscope.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
PHYSICS PRACTICALS - PAPER III

1. Figure of merit of a moving coil galvanometer
2) Voltage sensitivity of a moving coil galvanometer
3) RC circuit (frequency response)
4) LR circuit (frequency response)
5) LCR series circuit resonance, Q -factor
6) Power factor of an AC circuit
7) Determination of AC - frequency by Sonometer
8) Design and Construction of multimeter
9) Characteristics of a Junction Diode
10) Characteristics of Zener Diode
11) Characteristics of Transistor
12) Verification of Kirchoff's laws
13) Construction of a model DC power supply.
14) Thevenin's theorem
15) Norton's theorem
16) Maximum Power transfer theorem

Note: One has to complete a minimum of 10 experiments.

6203

GOVERNMENT COLLEGE (A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2016-2017)
SEMESTER VI - PAPAER III
COREIII - ELECTROMAGNETIC WAVE THEORY & ELECTRONICS
(As Approved in the BOS meeting held on 26 March 2016 for 2016-2017)

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1. **Varying and alternating currents** (11 Periods): CR circuits - LR circuits - Growth and decay of currents. Alternating current, relation between current and voltage in pure R, C and L, Vector diagrams. LCR circuit series and parallel resonant circuit-power factor, Q factor.

2. **Maxwell's equations and electromagnetic waves and Network Theorems** (18 periods): A review of basic laws of electricity and magnetism- displacement current-Maxwell's equation in differential form. Maxwell's wave equations. Plane electromagnetic waves- Transverse nature of electromagnetic waves, Poynting theorem, production and detection of electromagnetic waves (Hertz experiment).
Superposition theorem - Thevenin's theorem - Norton's theorem - Maximum power transfer theorem.

3. **Basic Electronics and Special Semi conductor devices** (18 Periods): P-N junction diode, Zener diode, Half wave rectifier, Full wave rectifier and filter, ripple factor (quantitative) - PNP and NPN transistors. Current components CB, CE, CC configurations, Transistor hybrid parameters - determination of hybrid parameters from transistor characterization- transistor as an amplifier- concept of feedback. Barkhausen condition, phase shift oscillator (qualitative) - **Photo conductive cells, Solar cells, light emitting diode, laser diode, varactor diode, tunnel diode Basic principles only**

4. **Digital Principles** (8 Periods): Binary number system, converting Binary to Decimal and vice versa. Binary addition and subtraction (1's and 2's complement methods). Hexadecimal number system. Conversion from Binary to Hexadecimal vice versa and Decimal to Hexadecimal and vice versa. Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates,Exclusive -OR gate, DeMorgan's laws - statement and proof, Half and Full adders.

Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Electronic devices and Circuits - GK Mithal
2. Physics Vol III - Halliday and Resnick
3. Electronic devices and Circuits - Milliman and Halkies
4. Electricity and Electronics- Tayal
5. Digital electronics - Malvino
6. Electricity and Magnetism with Electronics - K.K Tewari (R.Chand)
7. Third year Physics - Telugu Academy.

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS : III B.Sc.,
SEMESTER : VI
PAPER : III
TITLE OF THE PAPER : EM THEORY AND ELECTRONICS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1. Varying and alternating currents 2.Maxwell's equations and Electromagnetic waves 3.Semi - conductor devices 4. Digital principles 5. Network Theorems	1.Special semi conductor devices- Photo conductive cells, Solar cells, Light emitting diode, Laser diode, Varactor diode, Tunnel diode (Basic principles only)

GOVERNMENT COLLEGE(A) RAJAHMUNDRY
DEPARTMENT OF PHYSICS
PHYSICS PRACTICALS - PAPER III

1. Figure of merit of a moving coil galvanometer
2) Voltage sensitivity of a moving coil galvanometer
3) RC circuit (frequency response)
4) LR circuit (frequency response)
5) LCR series circuit resonance, Q -factor
6) Power factor of an AC circuit
7) Determination of AC - frequency by Sonometer
8) Design and Construction of multimeter
9) Characteristics of a Junction Diode
10) Characteristics of Zener Diode
11) Characteristics of Transistor
12) Verification of Kirchoff's laws
13) Construction of a model DC power supply.
14) Thevenin's theorem
15) Norton's theorem
16) Maximum Power transfer theorem

Note: One has to complete a minimum of 10 experiments.

6204

GOVERNMENT COLLEGE (A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2016-2017)
SEMESTER VI - SKILL BASED ELECTIVE [1]
NUCLEAR PHYSICS, SOLID STATE PHYSICS
(As Approved in the BOS meeting held on 26 March 2016 for 2016-2017)

Nuclear Physics

Unit – I **25 hrs**

Nuclear Structure

Basic properties of nucleus – Nucleus magnetic dipole moment and electric quadruple moment. Binding energy of nucleus, deuteron binding energy, p-p and n-p scattering (concepts), nuclear forces. Nuclear models – liquid drop model, shell model.

Alpha and Beta Decays: Range of alpha particles, Geiger – Nuttal law. Gamow's theory of alpha decay. Geiger – Nuttal law from Gamow's theory. Beta spectrum – neutrino hypothesis, Fermi's theory of β-decay (qualitative).

Unit - II

Nuclear Reactions: Types of nuclear reactions, channels, nuclear reaction kinematics. Compound nucleus, direct reactions (concepts).

Nuclear Detectors – GM counter, proportional counter, scintillation counter, Wilson cloud chamber and solid state detector

Solid State Physics

Unit – III **25 hrs**

Crystal Structure: Crystalline nature of matter. Crystal lattice, Unit Cell, Elements of symmetry. Crystal systems, Bravais lattices. Miller indices. Simple crystal structures (S.C., BCC, CsCl, FCC, NaCl diamond and Zinc Blend) Concept or reciprocal lattice vector and Brilliouin Zone (Basic ideas only)

X-ray Diffraction: Diffraction of X –rays by crystals, Bragg's law, and Experimental techniques - Laue's method and powder method.

Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, quantum nanostructures – nanodot, nanowire and quantum well. Fabrication of quantum nanostructures.

Unit-IV

Bonding in Crystals: Types of bonding in crystals – characteristics of crystals with different bindings. Lattice energy of ionic crystals – determination of Medelung constant for NaCl crystal, calculation of Born coefficient and repulsive exponent. Born – Haber cycle.

Magnetism: Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism – Concepts of magnetic domains, ant ferromagnetism and ferrimagnetism ferrites and their applications.

Superconductivity:

Basic experimental facts – zero resistance, effect of magnetic field, Meissner

effect, persistent current, Isotope effect Thermodynamic properties, specific heat, entropy. Type I and Type II superconductors.

Elements of BCS theory-Cooper pairs. Applications. High temperature superconductors (general information)

NOTE: Problems should be solved from every chapter of all units.

Reference books :-

1.Quantum mechanics-mathews and venkatesan
2.Introduction to quantum mechanics -Pauling and Wilson.
3.Nuclear physics -Tayal
4.Elements of modern physics -Patil.
5.Atomic and nuclear physics -T.A Little field as N.thorley
6.Quantum chemistry by Ira N.Levine (P.H.I)
7. Nuclear physics by somayajulu, varma, choudary
8. Organic spectroscopy - Kalsi, Pawe

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
ADDITIONAL INPUTS

CLASS : III B.Sc.,
SEMESTER : VI
PAPER : SKILL BASED ELECTIVE -1
TITLE OF THE PAPER : NUCLEAR PHYSICS, SOLID STATE PHYSICS

TOPICS IN THE UNIVERSITY SYLLABUS	ADDITIONAL TOPICS INCLUDED UNDER AUTONOMOUS SET UP
1.Nuclear Physics 2. Solid State Physics	1. Reciprocal lattice vector and Brilliouin Zone (Basic Ideas only)

GOVERNMENT COLLEGE(A):RAJAHMUNDRY
DEPARTMENT OF PHYSICS
PHYSICS PRACTICALS - PAPER IV

1. Energy gap of semiconductor using a junction diode
2. Temperature characteristics of a thermistor
3. R.C coupled amplifier
4. Verification of Logic gates OR, AND, NOT, X-OR , NOR, NAND gates
5. Realization of basic logic gates by NAND and NOR gates
6. Verification of De-Morgan's theorems
7. Verification of truth tables for half adder and full adders
8. Determination of Planck's constant (photo cell)
9. FET characteristics
10. Full wave rectifier with L- type and $\pi -$ type filters
11. Draw the characteristic curve of Wien's Bridge
12. Phase shift oscillators
13. e/m of an electron by Thomson's method
14. Hysteresis curve of transformer core
15. Study of spectra of hydrogen spectrum (Determination of Rydberg constant)
16. Hall - Probe method for measurement of magnetic field

Note: One has to complete a minimum of 10 experiments.

GOVERNMENT COLLEGE (A): RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR I B.Sc., PHYSICS
MODULE-I [MECHANICS AND PROPERTIES OF MATTER]
SEMESTER I
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

UNIT I

1. Vector Analysis: 8 hrs

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field with derivations and physical interpretation. Vector integration (line, surface and volume), State and proof of Gauss and Stokes theorem.

UNIT II

2. Mechanics of particles: 10 hrs

Laws of motion, ***velocity and acceleration in Cartesian, polar and cylindrical coordinates***. Motion of variable mass system, motion of a rocket. Conservation of energy and momentum. ***Application to rotating frames***. Collisions in two and three dimensions. Concept of impact parameter, scattering cross-section. Rutherford scattering-derivation

UNIT III

3. Mechanics of Rigid bodies:10hrs

Definition of rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum. Euler equation, precession of a top. Gyroscope, precession of the equinoxes.

4. Mechanics of continuous media :8 hrs

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of y, n, k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, sign conventions.

UNIT IV

5. Central forces : 12 hrs

Central forces, definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force. Derivation of Kepler's laws. Motion of satellites.

UNIT V

6. Special theory of relativity : 12 hrs

Galilean relativity, absolute frames. Michelson-Morley experiment, negative result. Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, addition of velocities, mass-energy relation. ***verification of Einstein's mass energy relation***. Concept of four-vector formalism.

Note: Numerical problems to be solved at the end of the every chapter.

Text/ Reference Books

1. Berkeley Physics Course. Vol 1. Mechanics by Kittle W Knight, M.A.Ruderman- Tata-McGraw Hill Company Edition 2008
2. Fundamentals of Physics Halliday/Resnick/Walker Wiley India Edition 2007
3. Waves and Oscillations by S.Badami, V.Balasubramanian and K.Rama Reddy Orient Longman
4. First Year Physics – Telugu Academy.
5. Mechanics of Particles, Waves and Oscillations. Anwar Kamal, New Age International
6. College Physics-1 by T.Bhimasankaram and G. Prasad. Himalaya Publishing House.
7. Introduction to Physics for Scientists and Engineers. F.J.Ruche. McGraw Hill.
8. Waves and Oscillations. N.Subramanaian and Brijlal Vikas Publishing House Private Limited

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE -1 (I B.Sc.,)
(MECHANICS & OSCILLATIONS LAB)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

LIST OF EXPERIMENTS

1. Calculation of errors in calculation of acceleration due to gravity by simple Pendulum.
2. Calculation of acceleration due to gravity using compound pendulum.
3. Calculation of Moment of Inertia of Fly Wheel.
4. Calculation of Moment of Inertia of Bifilar pendulum.
5. Verification of laws of transverse vibrations of strings using Sonometer.
6. Calculation of viscosity of liquid using Poiselles method.
7. Verification of the relation between volume of air its resonating frequency resonator.
8. Calculation of Young's Modulus by uniform bending method.
9. Calculation of Rigidity of Modulus of wire using Torsional pendulum.
10. Calculation of Surface Tension of Water.
11. Calculation of Young's Modulus by Non-uniform bending method.
12. Calculation of viscosity of highly viscous liquids by Searl's viscometer.
13. Melde's experiment - Determination of frequency.
14. Sonometer - verification of laws of stretched string.
15. Lissajous figures using CRO (demonstration experiment.)
16. Coupled Oscillators.

Note. Student has to do any six experiments at the end of each I and II semester. In total 12 at the end of the academic year.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR I B.Sc., PHYSICS
MODULE-II [WAVES & OSCILLATIONS]
SEMESTER II
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-18)

UNIT I :

1. **Simple Harmonic oscillations 12 Hrs**

Simple harmonic oscillator and solution of the differential equation-Physical characteristics of SHM, torsion pendulum-measurements of rigidity modulus, compound pendulum- measurement of 'g', combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies. Lissajous figures. **Group velocity and phase *velocity***

UNIT II:

2. **Damped and forced oscillations 12 Hrs**

Damped harmonic oscillator, solution of the differential equation of damped oscillator. Energy considerations, comparison with un-damped harmonic oscillator, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance and velocity resonance. ***Power consideration, Sharpness of resonancce, Quality factor, Band width of resonance.***

UNIT III:

3. **Complex vibrations (10 Hrs)**

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave, saw tooth wave

UNIT IV:

4. **Vibrating strings : 8 Hrs**

Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at ends, overtones and harmonics. Energy transport and transverse impedance.

5. **Vibrations of bars: 9 hrs**

Longitudinal vibrations in bars-wave equation and its general solution. Special cases i) bar fixed at both ends ii) bar fixed at the midpoint iii) bar free at both ends iv) bar fixed at one end. Tuning fork.

UNIT V:

6. **Ultrasonics:9 Hrs**

Ultrasonics, properties of ultrasonic waves, production of ultrasonics by piezoelectric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves. Applications of ultrasonic waves.

Note: Numerical problems to be solved at the end of the every chapter.

TEXT BOOKS

1. BSc Physics Vol.1, Telugu Academy, Hyderabad.
2. Waves and Oscillations. N. Subramanyam and Brijlal, Vikas Publishing House Private Limited.
3. Unified Physics Vol., Mechanics, Waves and Oscillations, Jai Prakash Nath&Co.Ltd. Meerut.
4. Mechanics of Particles, Waves and Oscillat ions. Anwar Kamal, New Age International.

REFERENCE BOOKS:

1. Fundamentals of Physics. Halliday/Resnick/Walker , Wiley India Edition 2007.
2. Waves and Oscillations. S. Badami, V. Balasubramanian and K. Rama Reddy, Orient Longman.
3. College Physics-I. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.
4. Science and Technology of Ultrasonics- Bladevraj, Narosa, New Delhi,2004
5. Introduction to Physics for Scientists and Engineers. F.J. Ruche. McGraw Hill.
6. Mechanics by D S Mathur.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE -1 (I B.Sc.,)
(MECHANICS & OSCILLATIONS LAB)
LIST OF EXPERIMENTS
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-18)
Practical paper II: Waves & Oscillations
Work load: 30 hrs per semester 2 hrs/week
Minimum of 6 experiments to be done and recorded

LIST OF EXPERIMENTS

1. Volume resonator experiment
2. Determination of 'g' by compound/bar pendulum
3. Simple pendulum normal distribution of errors - estimation of time period and the error of the mean by statistical analysis
4. Determination of the force constant of a spring by static and dynamic method.
5. Determination of the elastic constants of the material of a flat spiral spring.
6. Coupled oscillators
7. Verification of laws of vibrations of stretched string - sonometer
8. Determination of frequency of a bar - Melde's experiment
9. Study of a damped oscillation using the torsional pendulum immersed in liquid - decay constant and damping correction of the amplitude.
10. Formation of Lissajous figures using CRO.

Suggested student activities
Student seminars, group discussions, assignment

Note: Student has to do any six experiments at the end of each I and II semester.
In total 12 at the end of the academic year.

GOVERNMENT COLLEGE (A) : RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS
MODULE-III [OPTICS]
SEMESTER III
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-18)

UNIT -I

1. The Matrix methods in paraxial optics: (8)

Introduction- matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Image by co-axial optical system. Unit plane, Nodal planes. A system of two thin lenses.

2. Aberrations: (7)

Introduction – Monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and **curvature of field**, **distortion.** Chromatic aberration– the achromatic doublet – Removal of chromatic aberration by a separated doublet.

UNIT - II

3. Interference: (15)

Principle of superposition – coherence – temporal coherence and spatial coherence – conditions for Interference of light

Interference by division of wave front: Introduction and basics of Biprism, Determination of wavelength of light and thickness of transparent thin film. Change of phase on reflection Lloyd's mirror experiment (qualitative treatment only)

Interference by division of amplitude:– Non reflecting films – interference by a plane parallel film illuminated by a point source – Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light with contact between lens and glass plate, **Newton's rings in transmitted light (Hydinger Fringes)** – Determination of wave length of monochromatic light – Michelson Interferometer – types of fringes – Determination of wavelength of monochromatic light, **Difference in wavelength of sodium D_1,D_2 lines** and thickness of a thin transparent plate.

UNIT -III

4. Diffraction: (10)

Introduction – Distinction between Fresnel and Fraunhofer's diffraction

Fraunhofer's diffraction:-

Diffraction due to single slit– **Diffraction due to circular aperture** Fraunhofer's diffraction due to double slit – Fraunhofer's diffraction pattern with N slits (diffraction grating) Resolving Power of grating – Determination of wave length of light in normal and oblique incidence methods using diffraction grating.

Fresnel diffraction:-

Fresnel's half period zones – area of the half period zones –zone plate

Comparison of zone plate with convex lens – Phase reversal zone plate –

Diffraction at a straight edge (simple method) – difference between interference and diffraction.

UNIT -IV

5. Polarizations (10)

Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light – Brewster's law – Malus law – Nicol prism polarizer and analyzer – Refraction of plane wave incident on negative and positive crystals (Huygens's explanation) – Quarter wave plate, Half wave plate – **Babinet's compensator** – Optical activity, analysis of light by Laurent's half shade polarimeter.

UNIT - V

6. Laser: (6)

Lasers: Introduction – Spontaneous emission – Stimulated emission – Population inversion. Laser principle – **Einstein coefficients** – **Meta stable state-**Types of Lasers –Components of LASER- He-Ne laser – Ruby laser – Applications of lasers- **Laser welding, Laser cutting, hole drilling, LADAR, Diffraction of laser beam, Determination of wavelength.**

7.Fiber Optics and Holography(6)

Fiber Optics : Introduction – Optical fibers – Types of optical fibers – Step and graded index fibers– Fiber material – Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography: Basic Principle of Holography – **Gabor hologram and its limitations**, Holography applications.

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies*.
2. **Optics** by Subramaniyam and Brijlal. *S. Chand & Co*.
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*.
4. **Optics and Spectroscopy**. R. Murugeshan and Kiruthiga Siva Prasad. *S. Chand & Co*.
5. **Second Year Physics** – *Telugu Academy*.
6. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics) *S. Chand & Co*.

Reference Books

1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications*.
2. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. *Narosa Publications*.
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*
4. **Lasers theory and applications –** K. Thyagarajan and A.K.Ghatak

GOVERNMENT COLLEGE (A):: RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE – II (II B.Sc.,)
(OPTICS & THERMODYNAMICS LAB)
LIST OF EXPERIMENTS
&
SCHEME OF PRACTICAL EXAMINATION

1. Co-efficient of thermal conductivity of a bad conductor-Lee's method
2. Heating efficiency of a electrical kettle with varying voltages
3. Thickness of a wire – wedge method
4. Determination of wavelength of light – Fresnel's biprism
5. Determination of radius of curvature of given convex lens – Newton's rings
6. Determination of wavelength of light – diffraction at thin wire
7. Resolving power of grating
8. Determination of mean diameter of Lycopodium powder (Diffraction)
9. Study of optical rotation Polari meter
10. Dispersive power of a prism
11. Determination of wavelength of light using diffraction grating minimum deviation method
12. Pulrich diffraction determination of refractive index of a liquid
13. Wavelength of light using diffraction grating –normal incidence method
14. I-d curve using spectrometer
15. Resolving power of a telescope
16. Refractive index of liquid and glass
17. Wavelength of a laser using diffraction grating
18. Stefan's constant
19. Carey-Foster's bridge – Temperature coefficient of a resistance

* It is mandatory to carry out **at least 10 experiments** of the listed above.

GOVERNMENT COLLEGE (A):: RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR II B.Sc., PHYSICS
MODULE-IV [THERMODYNAMICS]
SEMESTER IV
(As Approved in the BOS meeting held on 06 DECEMBER 2017 W.E.F 2016-17)

UNIT – I

1. **Kinetic theory of gases: (8)**
   Introduction – Deduction of Maxwell's law of distribution of molecular speeds, **Experimental verification Toothed Wheel Experiment**, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.

2. **Statistical Mechanics: (10)**
   Introduction to statistical mechanics, concept of ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws.

UNIT-II

3. **Quantum theory of radiation: (10)**
   Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wien's displacement law, Wien's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – deduction of Wien's law, Rayleigh-Jeans law, **Wien's displacement law** from Planck's law - Measurement of radiation –**Earth as a blackbody** – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination – Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.

UNIT -III

4. **Thermodynamics: (12)**
   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Kelvin's and Claussius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature- Entropy (T-S) diagram – **Change of entropy of a perfect gas**-.

UNIT -IV

5. **Thermodynamic potentials and Maxwell's equations: (10)**

Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

Unit – V

6. Low temperature Physics: (10)

Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator and Air conditioning machines. Effects of chloro fluro carbons on ozone layer

NOTE: Problems should be solved at the end of every chapter of all units

Textbooks

1. **Second Year Physics** – *Telugu Academy*
2. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*

Reference Books

1. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasad (for statistical Mechanics), *S. Chand & Co*.
2. **Modern Physics** by G. Aruldhas and P. Rajagopal, *Eastern Economy Education*. Berkeley Physics Course. Volume-5.
3. **Statistical Physics** by F. Reif. *The McGraw-Hill Companies*.
4. **An Introduction to Thermal Physics** by Daniel V. Schroeder.*Pearson Education Low Price Edition*.
5. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.

GOVERNMENT COLLEGE (A):: RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
PRACTICAL MODULE – II (II B.Sc.,)
(OPTICS & THERMODYNAMICS LAB)
LIST OF EXPERIMENTS
Practical Paper IV: Thermodynamics & Radiation Physics
Work load: 30 hrs 2hrs/ week
Minimum of 6 experiments to be done and recorded

1. Specific heat of a liquid - Joule's calorimeter - Barton's radiation correction
2. Thermal conductivity of bad conductor - Lee's method
3. Thermal conductivity of rubber
4. Measurement of Stefan's constant
5. Specific heat of a liquid by applying Newton's law of cooling correction
6. Heating efficiency of electrical kettle with varying voltages
7. Thermo emf - thermo couple - potentiometer
8. Thermal behavior of an electric bulb (filament/ torch light bulb)

9 Measurement of Stefan's constant - emissive method

10. Study of variation of resistance with temperature - thermistor

GOVERNMENT COLLEGE(A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f. 2017-2018)
SEMESTER V - ADVANCED ELECTIVE [1]
MODERN PHYSICS AND QUANTUM MECHANICS

(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

Unit – I

Atomic Spectra (12 hrs)
Introduction – Drawbacks of Bohr's atomic model - Somerfield's elliptical orbits – Relativistic correction (no derivation). Stern & Gerlach experiment Vector atom model and quantum numbers associated with it. L-S and j-j coupling schemes. Spectral terms, selection rules, intensity rules. Hydrogen spectrum, Fine structure and hyper fine structure Spectra of alkali atoms, doublet fine structure. Alkaline earth spectra, singlet and triplet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect (basic idea). Spin-Orbit interaction-relativistic variation of mass-contribution to fine and hyper fine structure-qualitative treatment only

Unit - II

Molecular Spectroscopy (10 Hrs)
Types of molecular spectra, pure rotational energies and spectrum of diatomic molecule, determination of inter nuclear distance. Vibrational energies and spectrum of diatomic molecule. Raman Effect, Classical theory of Raman Effect. Experimental arrangement for Raman Effect and its applications. Rotational spectra of poly atomic molecules [Theory only].

Unit – III:

Quantum Mechanics (13 Hrs)
Inadequacy of classical Physics: (Discussion only)
Photo Electric effect, Eisenstein Photo Electric equation, Experimental verification. Compton's effect (quantitative) experimental verification. Stability of an atom.

Matter Waves:
de Broglie's hypothesis – wavelength of matter waves, properties of matter waves. Phase and group velocities. Davisson and Germer experiment. Double slit experiment. Standing de Broglie waves of electron in Bohr orbits.

Uncertainty Principle:
Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy and time (E and t). Gamma ray microscope. Diffraction by a single slit. Position of electron in a Bohr orbit. Particle in a box. Complementary principle of Bohr.

Unit -IV:

Schrodinger Wave Equation: (10 Hrs)

Schrodinger time independent and time dependent wave equations. Wave function properties – Significance. Basic postulates of quantum mechanics. Operators, Eigen functions and Eigen values, expectation values. Application of Schrodinger wave equation to particle in one and three dimensional boxes, potential step and potential barrier.

Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Modern Physics by G.Aruldhas & P.Rajagopal, Eastern Economy Edition
2. Concepts of Modern Physics by Arthur Beiser, Tata McGraw Hill Edition.
3. Modern Physics by R.Murugesan and KiruthigaSiva Prasanth. S.Chand &Co.
4. Molecular Structure & Spectroscopy by G.Aruldhas.Prentice Hall of India New Delhi.
5. Spectroscopy- Atomic and Molecular by Gurudeep R Chatwal and Shyam Anand-Himalaya Publishing House.
6. Third Year Physics – Telugu Academy.

Reference Books:

1.University Physics with Modern Physics by Young & Freedman A.Lewis Ford.Low Price Edition (Eleventh Edition)
2. Quantum Physics by Eyvind H.Wichman. Volume 4. The McGraw Hill Companies.
3. Quantum Mechanics by Mahesh C Jain Eastern Economy Edition Prentice Hall of India.

GOVERNMENT COLLEGE(A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
(SEMI CONDUCTORS LAB)
PHYSICS PRACTICALS - PAPER III

1. Figure of merit of a moving coil galvanometer
2) Voltage sensitivity of a moving coil galvanometer
3) RC circuit (frequency response)
4) LR circuit (frequency response)
5) LCR series circuit resonance, Q -factor
6) Power factor of an AC circuit
7) Determination of AC - frequency by Sonometer
8) Design and Construction of multimeter
9) Characteristics of a Junction Diode
10) Characteristics of Zener Diode
11) Characteristics of Transistor
12) Verification of Kirchoff's laws
13) Construction of a model DC power supply.
14) Thevenin's theorem
15) Norton's theorem
16) Maximum Power transfer theorem

Note: One has to complete a minimum of 10 experiments.

GOVERNMENT COLLEGE(A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f. 2017-2018)
SEMESTER V - PAPAER III
CORE III MODULE V- Electricity & Electromagnetism
(As Approved in the BOS meeting held on 07 APRIL 2017 for 2017-2018)

UNIT-I

Electronic Instruments & Electrostatics (9 Periods**): Multimeter, Cathode ray Oscilloscope (CRO){ Circuit diagram and Basic Principles only}**. Gauss Law and its applications- Electric field due to an infinite conducting sheet of charge, Uniformly charged sphere and charged cylindrical conductor. Mechanical force on a charged conductor. Electric potential- potential due to charged spherical conductor and Electric dipole- an infinite line of charge. Potential of a uniformly charged circular disc.

UNIT-II

Dielectrics and Capacitance (14 Periods**):** An atomic view- potential energy of a dipole in an electric field- polarization and charge density- dielectrics and Gauss's Law- Relation between D,E and P. Dielectric constant and susceptibility.
Capacity of concentric spheres and cylindrical condenser- capacity of parallel plate condenser with and without dielectric- electrical energy stored by a charged condenser. **Force between plates of condenser. Attracted disc electrometer- Construction and working only**.

UNIT-III

Magnetostatics, Moving Charge in electric and magnetic fields (13 Periods**):** Magnetic shell- potential due to magnetic shell- field due to magnetic shell-equivalent of electric circuit and magnetic shell- application of field due to magnetic shell- magnetic induction (B) and field (H)-permeability and susceptibility - Hysteresis loop.
Hall effect- derivation of hall coefficient - applications - cyclotron, synchrocyclotron and synchrotron-and its applications-force on a current carrying conductor- force and torque on current loop- Biot-Savert's Law and calculation of B due to long straight wire, circular loop and solenoid.

UNIT-IV

Electromagnetic Induction (9 Periods**):** Faraday's Law - Lenz's law-expression for induced emf-electromotive force-time varying magnetic fields-betatron-ballistic galvanometer -theory-damping correction-self and mutual inductance-coefficient of coupling -calculation of coupling-calculation of self inductance of a long solenoid-toroid- energy stored in magnetic field. Transformers (Basics only)**.**

Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Basic Electronics and Linear circuits - NN Bharghava, SC Gupta
2. Principles of Electronics - VK Mehta
3. Physics Vol III - Halliday and Resnick
4. Electricity - Berkeley physics series
5. Electricity and Electronics- Tayal
6. Electricity and Magnetism - Brijlal and Subrahmanyam
7. Electricity and Magnetism - C.J. Smith
8. Electricity and Magnetism - C.J Smith and Rangawala
9. Electricity and Magnetism with Electronics - K.K Tewari (R.Chand)
10. Third year Physics - Telugu Academy.

GOVERNMENT COLLEGE(A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
(SEMI CONDUCTORS LAB)
PHYSICS PRACTICALS - PAPER III

1. Figure of merit of a moving coil galvanometer
2) Voltage sensitivity of a moving coil galvanometer
3) RC circuit (frequency response)
4) LR circuit (frequency response)
5) LCR series circuit resonance, Q -factor
6) Power factor of an AC circuit
7) Determination of AC - frequency by Sonometer
8) Design and Construction of multimeter
9) Characteristics of a Junction Diode
10) Characteristics of Zener Diode
11) Characteristics of Transistor
12) Verification of Kirchoff's laws
13) Construction of a model DC power supply.
14) Thevenin's theorem
15) Norton's theorem
16) Maximum Power transfer theorem

Note: One has to complete a minimum of 10 experiments.

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI - PAPAER III
COREIII - ELECTROMAGNETIC WAVE THEORY & ELECTRONICS
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

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1. Varying and alternating currents (11 Periods**):** CR circuits - LR circuits - Growth and decay of currents. Alternating current, relation between current and voltage in pure R, C and L, Vector diagrams. LCR circuit series and parallel resonant circuit- power factor, Q factor.

2. Maxwell's equations and electromagnetic waves and Network Theorems (13 periods**):** A review of basic laws of electricity and magnetism- displacement current- Maxwell's equation in differential form. Maxwell's wave equations. Plane electromagnetic waves- Transverse nature of electromagnetic waves, Poynting theorem, production and detection of electromagnetic waves (Hertz experiment).

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3. Basic Electronics and Special Semi conductor devices (13 Periods**):** P-N junction diode, Zener diode, Half wave rectifier, Full wave rectifier and filter, ripple factor (quantitative) - PNP and NPN transistors. Current components CB, CE, CC configurations, Transistor hybrid parameters - determination of hybrid parameters from transistor characterization- transistor as an amplifier- concept of feedback. Barkhausen condition, phase shift oscillator (qualitative) **- Photo conductive cells, Solar cells, light emitting diode, laser diode, varactor diode, tunnel diode Basic principles only**

4. Digital Principles (8 Periods**):** Binary number system, converting Binary to Decimal and vice versa. Binary addition and subtraction (1's and 2's complement methods). Hexadecimal number system. Conversion from Binary to Hexadecimal vice versa and Decimal to Hexadecimal and vice versa. Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates,Exclusive -OR gate, DeMorgan's laws - statement and proof, Half and Full adders.
Note: Problems should be solved at the end of every chapter of all units.

Reference Books:

1. Electronic devices and Circuits - GK Mithal
2. Physics Vol III - Halliday and Resnick
3. Electronic devices and Circuits - Milliman and Halkies
4. Electricity and Electronics- Tayal
5. Digital electronics - Malvino
6. Electricity and Magnetism with Electronics - K.K Tewari (R.Chand)
7. Third year Physics - Telugu Academy.

GOVERNMENT COLLEGE(A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
(EM THEORY & ELECTRONICS)
PHYSICS PRACTICALS - PAPER III

1) RC circuit (frequency response)
2) LR circuit (frequency response)
3) LCR series circuit resonance, Q -factor
4) Power factor of an AC circuit
5) Determination of AC - frequency by Sonometer
6) Characteristics of a Junction Diode
7) Characteristics of Zener Diode
8) Characteristics of Transistor
9) Verification of Logic gates OR, AND, NOT, X-OR , NOR, NAND gates
10). Realization of basic logic gates by NAND and NOR gates
11). Verification of De-Morgan's theorems.
12). Verification of truth tables for half adder and full adders

Note: One has to complete a minimum of 06 experiments.

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A1: NUCLEAR PHYSICS
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

Unit – I

Nuclear Structure (10 hours)

Basic properties of nucleus – Nucleus magnetic dipole moment and electric quadruple moment. Binding energy of nucleus, deuteron binding energy, p-p and n-p scattering (concepts), nuclear forces. Nuclear models – liquid drop model, shell model.

Unit - II

Alpha and Beta Decays (10 hours): Range of alpha particles, Geiger – Nuttal law. Gamow's theory of alpha decay. Geiger – Nuttal law from Gamow's theory. Beta spectrum – neutrino hypothesis, Fermi's theory of β-decay (qualitative).

Unit - III

Nuclear Reactions (10 hours) : Types of nuclear reactions, channels, nuclear reaction kinematics. Compound nucleus, direct reactions (concepts).

Unit - IV

Nuclear Detectors (10 hours) – GM counter, proportional counter, scintillation counter, Wilson cloud chamber and solid state detector

Elementary Particle Physics (5 hours) : Particle interactions and families, conservation laws:

NOTE: Problems should be solved from every chapter of all units.

Reference books :-

1.Quantum mechanics-mathews and venkatesan
2.Introduction to quantum mechanics –Pauling and Wilson.
3.Nuclear physics –Tayal
4.Elements of modern physics –Patil.
5.Atomic and nuclear physics –T.A Little field as N.thorley
6.Quantum chemistry by Ira N.Levine (P.H.I)
7. Nuclear physics by somayajulu, varma, choudary
8. Organic spectroscopy - Kalsi, Pawe

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A1: NUCLEAR PHYSICS
PRACTICAL/PROJECT WORK
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

PROJECT WORK HAS BEEN PROPOSED

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A2: SOLID STATE PHYSICS
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

Unit – I

Crystal Structure (15 hours) : Crystalline nature of matter. Crystal lattice, Unit Cell, Elements of symmetry. Crystal systems, Bravais lattices. Miller indices. Simple crystal structures (S.C., BCC, CsCl, FCC, NaCl diamond and Zinc Blend) Concept or reciprocal lattice vector and Brilliouin Zone (Basic ideas only)

Unit - II

X-ray Diffraction (10 hours) : Diffraction of X –rays by crystals, Bragg's law, and Experimental techniques - Laue's method and powder method.
Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, quantum nanostructures – nanodot, nanowire and quantum well. Fabrication of quantum nanostructures.

Unit - III

Bonding in Crystals (10 hours) : Types of bonding in crystals – characteristics of crystals with different bindings. Lattice energy of ionic crystals – determination of Madelung constant for NaCl crystal, calculation of Born coefficient and repulsive exponent. Born – Haber cycle.

Unit - IV

Superconductivity (10 hours) : Basic experimental facts – zero resistance, effect of magnetic field, Meissner effect, persistent current, Isotope effect Thermodynamic properties, specific heat, entropy. Type I and Type II superconductors.
Elements of BCS theory-Cooper pairs. Applications. High temperature superconductors (general information)

NOTE: Problems should be solved from every chapter of all units.

Reference books :-

1. SOLID STATE PHYSICS - C.KETTELE
2. SOLID STATE PHYSICS - A.J. WAHAB
3. SOLID STATE PHYSICS - ALI OMAR
4. UNIFIED PHYSICS VOLUME - IV
5. SOLID STATE PHYSICS - S.O. PILLAI **GOVERNMENT**

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A2: SOLID STATE PHYSICS
PRACTICAL/ PROJECT
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

1.Energy gap of semiconductor using a junction diode
2. Temperature characteristics of a thermistor
3. Determination of Planck's constant (photo cell)
4. e/m of an electron by Thomson's method
5. Hysteresis curve of transformer core
6. Study of spectra of hydrogen spectrum (Determination of Rydberg constant)
7. Hall - Probe method for measurement of magnetic field

Note: One has to complete a minimum of 06 experiments.

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A3: PROPERTIES AND CHARACTERIZATION OF MATERIALS
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

UNIT - I

THERMAL PROPERTIES (10 hours):

An harmonic crystal interactions - thermal expansion, thermal conductivity, lattice thermal resistivity.

Optical properties:

Lattice vacancies, diffusion, Color centres - F centres, other centres in alkali halides, alloys.

UNIT - II

Magnetic Properties (10 hours) :

Dia magnetism, para magnetism, Ferro magnetism, anti ferro magnetism

Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism – Concepts of magnetic domains, antiferromagnetism and ferrimagnetism ferrites and their applications.

UNIT - III

Di electric properties (10 hours) :

Dielectric constant,di electric strength and dielectric loss, polarizability, mechanism of polarization, factors affecting polarization, polarization curve and hysteresis loop, types of dielectric materials, applications; ferroelectric, piezoelectric and pyroelectric materials, clausius - mosotti equation.

UNIT - IV

Electrical and magnetic characterization techniques (15 hours) :

DC & AC Conductivity, Curie temperature, saturation magnetization and susceptibility

Optical Spectroscopy:

Fundamentals of Infra - red spectroscopy and Applications:

REFERENCE BOOKS:

1. SOLID STATE PHYSICS - C. KITTEL
2. FUNDAMENTALS OF MOLECULAR SPECTROSPCOPY CN BANWELL

GOVERNMENT COLLEGE (A):RAJAMAHENDRAVARAM
DEPARTMENT OF PHYSICS
SYLLABUS FOR III B.Sc., PHYSICS (w.e.f.2017-2018)
SEMESTER VI
CLUSTER ELECTIVE - (A) - PAPER IV
A3: PROPERTIES AND CHARACTERIZATION OF MATERIALS
PRACTICAL/ PROJECT
(As Approved in the BOS meeting held on 06 DECEMBER 2017 for 2017-2018)

1. The Frank - Hertz experiment
2. Band gap of a semi conductor (Two Probe Method)
3. Experiments with He - Ne Laser
   (a). Polarization of laser light
   (b). Divergence of laser bean and monochromaticity.
4. Band gap of a semiconductor (Four probe Method)
5. Dielectric constant as a function of temperature and determination of Curie temperature.
6. Hall Effect: Determination of Hall co-efficient and estimation of charge carrier concentration and mobility.
7. Lattice Dynamics: Study of Phonon dispersion characteristics.
8. Coupled Oscillators: Study of the normal modes of vibrations of coupled pendulum, strength of the coupling constant and exchange energy.
9. Study of Magnetic Hysteresis loops of ferromagnetic materials (B - H Curve).

Note: One has to complete a minimum of 06 experiments.