

SRI PADMAVATI MAHILA VISVAVIDYALAYAM: TIRUPATI
SYLLABUS FOR SPMVV PG COMMON ENTRANCE TEST-2018

TEST No: 01

TEST NAME: BIOCHEMISTRY

Unit-I

Biomolecules & Metabolism: Carbohydrates, proteins, amino acids, lipids, vitamins and porphyrins. Metabolism of carbohydrates, lipids, proteins, amino acids and nucleic acids. Biological oxidation and bioenergetics.

Unit-II

Immunology: Types of immunity, cells and organelles of immune system, Antigen - antibody reaction. Immunotechniques, Hypersensitivity, Vaccines.

Unit-III

Molecular Biology: Structure of eukaryotic gene, DNA and RNA structure, DNA replication, Transcription and translation in prokaryotes and eukaryotes, genetic code. Regulation of gene expression in prokaryotes, Principles of recombinant DNA technology. DNA vectors, Transgenesis.

Unit-IV

Analytical Techniques: Microscopy - Light and Electron, Centrifugation, Chromatography, Electrophoresis, Calorimetric and Spectrophotometric techniques, Blotting techniques, PCR, DNA fingerprinting.

Unit-V

Genetics: Mendelian principles, Gene Interaction, Linkage and Crossing over, Mutations - Genetic and chromosomal (Structural and numerical); Chromosomal aberrations in humans. Recombination in prokaryotes transformation, conjugation, transduction, sexduction. Extra genomic inheritance.

Unit-VI

Cell Biology: Ultrastructure of prokaryotic and eukaryotic cell, Structure and function of cell organelles. Cell division - Mitosis and Meiosis. Chromosomes structure, Karyotype.

Unit-VII

Microbiology: Microbes - Types, distribution and biology. Isolation and cultivation of bacteria and virus. Staining techniques. Bacterial growth curve, Microbial diseases - food and water borne, insect borne, communicable diseases in humans.

Unit-VIII

Physiology & Nutrition: Structure and function of liver, kidney and heart, composition of blood, blood types, blood coagulation, Digestion and absorption, Muscle and Nervous system. Biological value of proteins, protein malnutrition, disorders, Chemistry and physiological role of vitamins and minerals in living systems

Unit-IX

Enzymes - classification and mode of action, enzyme assay, enzyme units, enzyme inhibition, enzyme kinetics, Factors regulating enzyme action.

Unit-X

Endocrinology: Hormones – Definition. Classification, biosynthesis, circulation in blood, modification and degradation. Hypothalamus and pituitary hormones. Pancreatic hormones, Adrenal hormones.

TEST No: 02

TEST NAME: BIOTECHNOLOGY

UNIT-1

Organic Chemistry

IUPAC Nomenclature, Alkanes, Cycloalkanes, Alkadienes, Alkynes, Arenes. Concept of aromaticity, Halogen compounds, Hydroxy compounds, Aldehydes and Ketones, Monocarboxylic acids and their derivatives, Nitrogen compounds.

Atoms, Electrons and orbitals, Ionic Bonds Covalent Bonds, Multiple Bonding in Lewis structures, polar covalent Bonds and Electronegativity, Resonance, sp^3 , sp^2 , sp Hybridization, Oxidation, Reduction in organic chemistry, Polycyclic Ring Systems, Heterocyclic compounds.

UNIT-2

Boiling point Elevation, Freezing Point Lowering Osmotic pressure, Ionic strength, dissociation of weak Electrolyte, Debye-Huckel Theory, EMF and activities, Phase Rule, Immiscible liquids, orbital symmetries, Electromagnetic Radiation, Absorption and Einstein Coefficients, Ionic, covalent, Vanderwaals, Radii, Neutron and Electron diffraction, Donnan-Membrane Equilibria, pH and physiological buffer systems, Uses of Radioisotopes.

UNIT-3

Genetics

Mendelian principles of segregation and independent assortment, modern concept of genes, Gene interactions, Multiple alleles; Chromosomal basis of inheritance, Linkage and crossing over and chromosome mapping. Sex determination, sex-linked inheritance, Cytoplasmic inheritance and Mutations; Genetic disorders.

Immunology:

Immune systems, organs and cells of Immune systems. nature of antigens and antibodies, antibody reactions, Blood groups, structure and function of immunoglobulins, Vaccination and types of vaccines.

UNIT-4

Animal Physiology

Types of nutrition in animals, respiration, composition and functions of the blood, coagulation of blood. Structure and functions of kidney. Endocrine glands and their secretions, physiological and biochemical actions of hormones in animals.

UNIT-5

Plant Physiology

Essential plant nutrients and their metabolism, Permeability, diffusion, osmosis, and imbibition, photosynthesis and diversity in carbon reduction pathways (C_3 , C_4 & CAM), photorespiration, elementary account of bioenergetics, nitrogen metabolism, growth and development in plants, Plant growth Hormones, physiology of fruit ripening and storage.

UNIT-6

Cell and tissue Culture:

Introduction to cell and Tissue culture Laboratory facilities Tissue culture media (composition and preparation) Callus and suspension cultures: initiation and maintenance of callus and suspension cultures; single cell clones.

Tissue and micropropagation, regeneration, production of haploids, protoplast culture and somatic hybridization. Cloning in plants - Ti plasmid organization. Concept of transgenic plants Bt cotton and other plant applications.

UNIT-7

Microbiology :

General characters, structure and classification of microorganisms – bacteria, fungi, algae, viruses, mycoplasma, rickettsia. Principles of microscopy, staining, sterilization, isolation, cultivation and maintenance and identification of microorganisms, role of micro organisms in carbon, nitrogen and sulphur cycles in nature, biological nitrogen fixation, common microbial flora of the soil, air, water and normal human body. Epidemiology of water, air and food-borne infections of man and principles of their control and their control.

UNIT-8

Cell Biology:

General features of prokaryotic and eukaryotic cells, Ultra structure of typical plant cell, animal cell and microbial cell, Structure and functions of cell organelle – Plasma Membrane, Endoplasmic reticulum, Golgi apparatus, Lysosomes, Chloroplasts, Mitochondria, Nucleus – chromosome structure, heterochromatin and euchromatin and Ribosomes. Cell division, cell cycle.

UNIT-9

Enzymology & Biochemistry

Classification of enzymes, factors influencing enzyme activity, coenzymes, enzyme inhibition, specificity and mechanism of enzyme action, role of enzymes in metabolism, biological oxidation. Biomolecules, metabolism of carbohydrates, lipids, proteins and Nucleic acids. Vitamins and minerals. Glycolysis, TCA cycle, HMP shunt, Gluconeogenesis, Oxidative deamination, Urea cycle, β -oxidation, Biosynthesis of fatty acids

UNIT-10

Molecular biology & Biotechnology:

Structure and forms of DNA, Structure and types of RNA. Mechanism of replication of DNA, Mechanism of Transcription, Elements of Genetic code and Protein Synthesis. Regulation of gene action - Operon and Regulon hypothesis.

General concepts of genetic engineering and biotechnology, recombinant DNA technology- gene cloning and its applications, somatic hybrids and cybrids, Tissue culture applications, Applications of biotechnology in relation to agriculture, medicine and human welfare.

TEST No: 03

TEST NAME: SERICULTURE/Botany/Zoology

UNIT -I

Microbial Diversity

Origin and evolution of Life - an outline, Viruses: Structure, replication and transmission; plant diseases caused by viruses and their control.

Bacteria: Structure, nutrition, reproduction and economic importance. Plant diseases of important crop plants caused by bacteria and their control. Brief account of Archaeobacteria, Actinomycetes and Mycoplasma. Cyanobacteria: Cell structure, thallus organization of Nostoc, Oscillatoria, Anabena and their uses – Biofertilizers.

Fungi: General characters, classification and economic importance. Structure, reproduction and life history of Albugo, Pencillium, Puccinia, Alternaria. General account of plant diseases caused by Fungi and their control. Lichens: Structure and reproduction; economic importance.

UNIT -2

Cryptogams and Gymnosperms

Algae: General account, thallus organisation, structure, reproduction, classification and economic importance. Structure, reproduction and life history of Oedogonium, Ectocarpus Polysiphonia and Diatoms.

Bryophytes: General characters, classification and alternation of generations. Structure, reproduction, life history and systematic position of Marchantia, Anthoceros and Polytrichum. Evolution of Sporophyte in Bryophytes.

Pteridophytes: General characters, classification, alternation of generations and evolution of sporophyte. Structure, reproduction, life history of Rhynia, Lycopodium, Equisetum. Evolution of stele, heterospory and seed habit in Pteridophytes.

Gymnosperms: General characters, structure, reproduction and classification. Morphology of vegetative and reproductive parts, systemic position, life history of Pinus and Gnetum, Economic importance.

UNIT -3

Anatomy and Embryology

Meristems: Types, histological organisation of shoot and root apices and theories. Tissues and Tissue Systems: Simple and complex. Leaf ontogeny, stomata and epidermal outgrowths. Stem and root: Anomalous secondary growth in Stems - *Achyranthes*, *Boerhavia*, *Bignonia*, *Dracaena*; Root – Beta. Wood structure: General account. Study of local timbers – Teak (*Tectonagrandis*), Rosewood (*Dalbergialatifolia*), Red sanders (*Pterocarpussantalinus*) Nallamaddi (*Terminaliatomentosa* (*T. alata*)), Vegisa (*Pterocarpusmarsupium*) and Neem (*Azadirachtaindica*).

Embryology: Introduction: History and importance of Embryology. Anther structure, Microsporogenesis, Ovule structure and types; Megasporogenesis; Pollination - Types; Pollen - pistil interaction. Fertilization. Endosperm - Development and types. Embryo - development and types; Polyembryony and Apomixis. Palynology: Principles and applications.

UNIT -4

Taxonomy, Tissue Culture and Biotechnology

Introduction: Principles of plant systematics, Systematics vs Taxonomy, Types of classification: Artificial, Natural and Phylogenetic: Bentham & Hooker and Engler & Prantl. An introduction to Angiosperm Phylogeny Group (APG). Nomenclature, ICBN, Vienna code. Herbarium methodology. Systematic study and economic importance of plants belonging to the families: *Annonaceae*, *Capparidaceae*, *Rutaceae*, *Fabaceae*, *Cucurbitaceae*, *Apiaceae*, *Asteraceae*, *Asclepiadaceae*, *Lamiaceae*, *Euphorbiaceae*, *Orchidaceae* and *Poaceae*.

Tissue culture: Introduction, sterilization procedures, culture media preparation; explants. Callus culture; cell and protoplast culture, Somatic hybrids and cybrids. Somaclonal variations. Applications of tissue culture: secondary metabolites and synthetic seeds.

Biotechnology: Introduction, history and scope. DNA technology: Vectors, gene cloning and transgenic plants.

UNIT -5

Physiology

Diffusion, Imbibition, Osmosis; ascent of sap; transpiration; Stomatal structure and movements. Enzymes: Nomenclature, characteristics, mechanism and regulation of enzyme action, enzyme kinetics, factors regulating enzyme action. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect; concept of two photosystems; electron transport; photophosphorylation; Carbon assimilation pathways: C₃, C₄ and CAM; photorespiration. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transport system. Nitrogen metabolism. Lipid metabolism: Physiological effects of Phytohormones-auxins, gibberellins, cytokinins, ABA, ethylene and Brassinosteroids; Physiology of flowering and photoperiodism, role of phytochrome in flowering. Stress Physiology: Concept and plant responses to water, salt and temperature stresses.

Unit –VI

Biology of Invertebrates and Chordates

General characters and classification of Invertebrates: Protozoa, Porifera, Coelenterate, Platyhelminthes, Nematyhelminthes, Annelida, Arthropoda, Mollusca, Echinodermata, General characters and classification of Hemichordata, General characters and classification of Chordates: Pisces, Amphibians, Reptiles, Aves, Mammals

Unit –VII

Animal Physiology

Digestion in Mammals, Respiration: Brief account on types of respiratory mechanisms, respiratory pigments, gas transport with reference to mammals.

Circulation: Composition and functions of blood, Coagulation of blood: Myogenic and Neurogenic hearts, mammalian heart - structure and function, Blood pressure and its role and exchange of materials in capillaries. Excretion: a) Classification of animals based on end products of excretion. b) Formation of nitrogen wastes, c) Nephron : Structure and Function.

Nervous transmission: Structure of neuron, action potential, production and propagation of

nerve impulse and synaptic transmission. Muscle contraction, Endocrine glands: Pineal body, Hypophysis, Hypothalamus, Thyroid, Parathyroid, Thymus, Adrenal, Gut, Pancreas, Testis and Ovary-in mammals.

Unit -VIII

Cell Biology

Cell theory, Differences of Prokaryotic and Eukaryotic cells, Ultrastructure of animal cell, Structure and functions of plasma membrane proteins, Structure and functions of cell organelles – Endoplasmic reticulum, Golgi body, Ribosomes, Lysosomes, centrosomes, Mitochondria and Nucleus, Chromosomes – Structure, types, giant chromosomes, Cell Division - Mitosis, Meiosis, Cell cycle and its regulation.

Unit -IX

Genetics

Mendelism: Laws of inheritance. Genetic interactions □ Epistasis, complementary, supplementary and inhibitory genes. Linkage and crossing over: A brief account, construction of genetic maps □ 2 point, and 3 point test cross data. Mutations: Chromosomal aberrations □ structural and numerical changes; Gene mutations, transposable elements. Gene Expression: Organisation of gene, transcription, translation, mechanism and regulation of gene expression in prokaryotes (Lac. and Trp Operons). Genetic Interactions – incomplete dominance, co-dominance and epistasis, Identification of DNA as the genetic material – Griffith's experiment & Hershey -chase experiment. Human karyotyping, Barr bodies, Lyon's hypothesis and amniocentesis. Chromosomal disorders – Autosomal and Allosomal disorders

Unit -X

Ecology

Physico-chemical factors of the animal Environment: Temperature, light, pressure, atmospheric gases i.e., oxygen and carbon dioxide, biogeochemical cycles: nitrogen, carbon and phosphorus cycles. Animal community and Animal population: Ecosystems (Ecological succession, Ecological pyramids, energy flow in an ecosystem), Animal associations (Parasitism, Commensalism, Symbiosis, Environment and adaptive features of animals inhabiting, deep sea, cave, and desert. Environmental pollution.

INORGANIC CHEMISTRY**1. Chemistry of d-block elements:**

Characteristics of d-block elements with special reference to electronic configuration, variable valence, magnetic properties, catalytic properties and ability of form complexes. Stability of various oxidation states

2. Theories of bonding in metals:

Metallic properties and its limitations, Valence bond theory, Free electron theory, Explanation of thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors and insulators.

3. Metal carbonyls:

EAN rule, classification of metal carbonyls, structures and shapes of metal carbonyls of V, Cr, Mn, Fe, Co and Ni.

Chemistry of f-block elements:

Chemistry of lanthanides-electronic structure, oxidation states, lanthanide contraction, consequences of lanthanide contraction, magnetic properties. Chemistry of actinides-electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

ORGANIC CHEMISTRY**4. Stereochemistry of carbon compounds**

Molecular representations-Wedge, Fischer, Newman and Saw-Horse formulae. Optical isomerism: Optical activity-wave nature of light, plane polarized light, optical rotation and specific rotation. Chiral molecules-definition and criteria (Symmetry elements)-Definition of enantiomers and diastereomers-Explanation of optical isomerism with examples Glyceraldehyde, Lactic acid, Alanine, Tartaric acid, 2, 3-dibromopentane. D, L and R, S configuration methods and E, Z-configuration with examples.

5. Benzene and its reactivity

Concept of aromaticity – aromaticity (definition), Huckel's rule – application to Benzenoid (Benzene, Naphthalene) and Non – Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation).

Reactions – General mechanism of electrophilic substitution, mechanism of nitration. Friedel Craft's alkylation and acylation. Orientation of aromatic substitution – Definition of ortho, para and meta directing groups.

6. Active methylene compounds

Acetoacetic esters: preparation by Claisen condensation, keto-enol tautomerism. Acid hydrolysis and ketonic hydrolysis. Preparation of a) monocarboxylic acids.
b) dicarboxylic acids.

Reaction with urea Malonic ester: preparation from acetic acid.

Synthetic applications: Preparation of

a) monocarboxylic acids (propionic acid and n-butyric acid),

b) dicarboxylic acids (succinic acid and adipic acid), c) α,β -unsaturated carboxylic acids (crotonic acid). Reaction with urea.

7. Organic Spectroscopy (UV, IR and $^1\text{H-NMR}$)

General features of absorption - Beer-Lambert's law and its limitations, transmittance, absorbance and molar absorptivity.

Infra red spectroscopy

Different Regions in Infrared radiations. Modes of vibrations in diatomic and polyatomic molecules. Characteristic absorption bands of various functional groups. Interpretation of spectra-Alkanes, Aromatic, Alcohols Carbonyls, and amines with one example to each.

Proton magnetic resonance spectroscopy ($^1\text{H-NMR}$)

Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

PHYSICAL CHEMISTRY

8. Solutions

Liquid-liquid-ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non ideal solutions. Vapour pressure- composition and vapour pressure-temperature curves. Azeotropes-HCl-H₂O, ethanol-water systems and fractional distillation. Partially miscible liquids-phenol-water, trimethylamine water, nicotine water systems. Effect of impurity on consolute temperature. Immiscible liquids and steam distillation. Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law.

9. Electrochemistry-I

Specific conductance, equivalent conductance. Variation of equivalent conductance with dilution. Migration of ions, Kohlrausch's law. Arrhenius theory of electrolyte dissociation and its limitations. Ostwald's dilution law. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only). Definition of transport number, determination by Hittorf's method. Application of conductivity measurements- conductometric titrations.

Electrochemistry-II

Single electrode potential, sign convention, Reversible and irreversible cells Nernst Equation- Reference electrode, Standard Hydrogen electrode, calomel electrode, Indicator electrode, metal - metal ion electrode, Inert electrode, Determination of EMF of cell, Applications of EMF measurements - Potentiometric titrations.

Phase rule

Concept of phase, components, degrees of freedom. Thermodynamic Derivation of Gibbs phase rule. Phase equilibrium of one component system - water system. Phase equilibrium of two- component system, solid-liquid equilibrium. Simple eutectic diagram of Pb-Ag system, simple eutectic diagram, desilverisation of lead, NaCl-Water system, Freezing mixtures

GENERAL CHEMISTRY

10. Evaluation of analytical data.

Theory of errors, idea of significant figures and its importance, accuracy – methods of expressing accuracy, error analysis and minimization of errors, precision – methods of expressing precision, standard deviation and confidence limit.

Separation techniques

Solvent extraction: Principle and process, Batch extraction, continuous extraction and counter current extraction. Application. Chromatography: Classification of chromatography methods, principles of differential migration adsorption phenomenon, Nature of adsorbents, solvent systems, Rf values, factors effecting Rf values of the following

- a.) Paper Chromatography,
- b.) Thin layer Chromatography (TLC)
- c.) Column Chromatography.

TEST No: 05

TEST NAME: ECONOMICS

UNIT – I

Demand Concept: Law of Demand, Types of Demand, Elasticity of Demand, Types of Elasticity, Measurement of Elasticity, Factors Determining Elasticity.

Supply Concept: Law of Supply, Supply Function, Elasticity of Supply, Measurement of Elasticity of Supply.

UNIT - II

Indifference Curves Analysis: Introduction, Assumptions, Properties of Indifference Curves, Price line, Marginal Rate of Substitution, Consumer's Equilibrium, Income Effect, Substitution Effect, Price Effect.

UNIT- III

Production Function: Law of Variable Proportion, Law of Returns to Scale, Iso - Quants vs Indifference Curves, Iso - Cost Curves, Marginal Rate of Technical Substitution; Least Cost Combination of Factors, Cobb – Douglas Production Function.

UNIT – IV

Demand and Supply of Money: Meaning, Definitions, Functions and Kinds of Money, Demand for Money; Definitions of Money Supply. Determination of Money Supply, High Powered Money and Money Multiplier, Quantity Theory of Money, Cash Transaction and Cash Balance Approaches.

UNIT – V

Trade Cycles: Types and Stages, Models of Trade Cycles: Samuelson, Hicks, Models. Inflation: Theories of Inflation: Demand – Pull and Cost – Push Inflation, Phillips Curve, Measures to Control Inflation, Policies and aspects of Anti – Inflationary Tendencies and Stabilization Policy, Inflation in India.

UNIT – VI

Central Banking System: Objectives of Central Bank, Instruments of Credit Control: General and Selective; Role and Functions of Reserve Bank of India, Role of Monetary Policy in India.

Commercial Banks Nature and Objectives: Functions of Commercial Banks, Nationalization of Banks and Economic Development in India; Co-operative Banks: Nature, Functions, Types and Objectives; Emergence and Sustainability of Micro Finance Institutions, Role of NABARD.

UNIT – VII

Structure of Indian Economy: Basic Features, Trends in National Income, Human Resource Development, Alternative Concepts of Development: Human Development Index, Gender Development index (GDI), Gender Empowerment Index (GEM), Human Poverty Index (HPI), Sustainable Development.

UNIT – VIII

Changes in Environment, Degradation and Evaluation of Environmental Damages on Land Water, Air and Forest; Impact on Quality of Life.

UNIT – IX

Planning in India: Objectives and Priorities of Planning, Plan Holiday – Rolling and Fixed Plans, NITI Aayog, Impact of Five Year Plans on Indian Economy. Globalisation: Impact on Multi - National Companies (MNC), Liberalization, Privatisation and Globalisation Policy (LPG), and Effects on Foreign Direct Investments (FDIs).

UNIT – X

Demonetization: Definitions, Causes, Methodology of Execution, Impact of Demonetization on different Economic Groups and Social Groups, Evaluation of Demonetization, Ruling out of Black Money. Current Affairs of Indian Economy: Proposed Privatisation of Public Sector Undertakings : Airlines and Banks, Education and Health Sectors , Impact og Goods and Services Tax (GST) on Indian Economy.

Unit- 1: PHILOSOPHICAL FOUNDATIONS OF EDUCATION

1. Concept and Scope of Philosophy, Relationship between Philosophy and Education.
2. Concept and Scope of Sociology, Relationship between Philosophy and Education.
3. Rabindranath Tagore views on Indian Education and Gandhi's views on Indian Education.
4. Eastern Schools of Philosophy - Sankhya , Yoga , Nyaya and Vedanta
5. Western Schools of Philosophy - Idealism, Naturalism, Pragmatism and Existentialism.

Unit – 2: SOCIOLOGICAL FOUNDATIONS OF EDUCATION

1. Meaning, nature and scope of sociology , Agencies of socialization , Impact of Socialisation on Education .
2. Dimensions of culture, cultural lag, cultural pluralism, Role of Education in preservation, transmission and promotion of culture.
3. Concept and Principles of Democracy , Equality and equity in Education Teachers as a democrat.
4. Programmes to promote National Integration and International understanding through Education.

Unit-3: EDUCATION CONTEMPORARY INDIA AND EDUCATION AND GENDER DIFFERENCES

1. Human Rights; Right of Children , Issues in Implementing RTE-2009.
2. Equality of Educational Opportunity , Quality concerns & Issues.
3. Factors influencing gender differences and practices.
4. Gender as an influencing factor in course choices .

Unit –4 : HUMAN DEVELOPMENT AND THEORIES OF DEVELOPMENT

1. Concept of Growth, Development and Maturation, Principles.
2. Stages of Growth and Development (Infancy Childhood, Adolescence)
3. Theories of Development: Cognitive theory of Development (Piaget's), Psycho-social theory of development (Erikson), Theory of Moral Development (Kohlberg's) and Theory of psycho-sexual development (Freud).
4. Individual Differences-cognitive abilities, interest, aptitude, creativity, personality and values

Unit – 5: LEARNING AND TEACHING PROCESS

1. Concept of learning, types of learning and factors influencing learning
Learning process: Attention, sensation, perception, and concept formation
2. Memory & forgetting , Transfer of learning.
3. Concept of teaching, teaching as a profession and teacher as a professional, Phases of Teaching.
4. Functions of a Teacher in classroom, school and community

Unit – 6: INFORMATION AND COMMUNICATION TECHNOLOGY

1. Educational Technology – Concept, Growth, Objectives, Characteristics, Advantages, Challenges and Impact
2. Communication – Concept, Elements, Process, Barriers & Types – Teaching as Communication - Communication Technology – Its application in Education
3. Programmed Learning , role of learner and role of teacher in ICT
4. Concept, Applications and Challenges of Computer networks, Internet, E-mail and Digital Space

Unit – 7: ICT IN EDUCATION FOR ENRICHING LEARNING:

1. Application of ICT for Enriching Classroom Experiences - use of Multimedia and Use of Internet based media
2. Project based learning and Collaborative learning
3. Computer as a learning tool, Virtual Classroom, smart Boards.
4. Open Educational Resources , Critical issues in Internet usage – Authenticity, Addiction, Plagiarism, Ethical and Legal Standards .

Unit – 8: INCLUSIVE EDUCATION:

1. Concept, Meaning, Definition and Importance of Inclusive education and Special Education.
2. Educational Provisions for Children with Physical challenges, Intellectual challenges, Emotional and Behavioural Deviations, and Socio – Cultural Deviations.
3. Challenges and Prospects in Identification and Assessment of children in Inclusive Education.
4. Need for Inclusive Education in India for children with Special needs.

Unit – 9: POLICY PERSPECTIVES FOR CHILDREN WITH SPECIAL NEEDS

1. International and National Legislations – UNESCAP, Salamanca Declaration, NPE-1986, RCI Act-1992,PWD Act – 1995, RTE Act -2009.
2. Government Schemes and Provisions – SSA, RMSA.
3. Need For Creation of Barriers free Environment within and Outside Classroom, Need for Parent and Community Involvement.
4. Challenges and Prospects in Providing Education in Inclusive Classrooms.

Unit – 10: ENVIRONMENTAL EDUCATION:

1. Meaning , Importance of Environmental Education, Environmental Management, Major environmental problems in India.
2. Constitutional Amendments Made, Environmental Laws and Environmental Movements in India.
3. Environmental Education at Primary, Secondary and Higher Education Level.
4. Swatch Bharath, Strategies to implement the Swatch Bharath campaign in schools and other educational institution.

Unit –I

- Vocabulary**
- (1) One word substitutes
 - (2) Synonyms and antonyms
 - (3) Homophones and Homonyms
 - (4) Words often confused

Unit – II

- Vocabulary**
- (1) Phrasal verbs
 - (2) Idioms
 - (3) Word meanings

Unit – III

- (1). Tenses
- (2) Parts of speech

Unit – IV

- (1) Active & Passive Voice
- (2) Direct & Indirect speech

Unit – V

Correction of sentences – Identifying the errors in a sentence

- **Unit VI to Unit V** –questions to be based on texts prescribed for General/Special English Syllabus for Degree students.

Unit – VI

Questions on simple literary terms such as sonnet, lyric, ode, comedy, ballad, tragedy, tragic-comedy, allegory, elegy, pastoral elegy, irony, simile, metaphor etc.

Unit - VII

Prose

1. J.B.S. Haldane : The Scientific point of view
2. A. G. Gardiner : On Shaking Hands.
3. A. P.J. Abdul Kalam: The knowledge Society(from Ignited minds)

4. Ngugi Wa”Thiongo: The Language of African Literature (from Decolourising the mind)
5. Francis Bacon : Of Studies

Unit – VIII

Fiction & Short Story

1. Jane Austen : Pride and Prejudice
2. Daniel Defoe : Robinson Crusoe
3. Ruskin Bond : The Boy Who Broke the Bank
4. R. K. Narayana : Half a Rupee Worth
5. O.Henry : After Twenty Years

Unit – IX

Poetry

1. John Keats - To Autumn
2. Kishwar Naheed – I am not that Woman
3. Robert Frost – The Road not taken
4. Nissim Ezekiel - Night of the Scorpion
5. Thomas Gray – Elegy Written in a Country Churchyard

Unit – x

Drama

1. William Shakespeare – The Merchant of Venice
2. Anton Chekhov – A Marriage Proposal
3. William Congreve – The Way of the world
4. G. B. Shaw - Pygmalion
5. Girish Karnad - Tughlaq.

TEST CODE: 08

TEST NAME: HOME SCIENCE (FNS)

UNIT-1

Pregnancy: Impact of maternal malnutrition on outcome of pregnancy Nutrient requirement, intake and gaps, prenatal and antenatal nutritional importance, metabolic adjustments in pregnancy; nutrition intervention and pregnancy outcome; common symptoms (nausea and vomiting, Heartburn- Pica, habits constipation), nutritional management, problems and Complications

UNIT-2

Lactation: Nutritional requirements, intake, gaps, physiology of milk production, hormonal control, effects of lactation on Nutrition composition of Human-Milk, Factors affecting breast milk quality and comparative advantages & disadvantages of breast and formula feeding.

UNIT-3

Infancy: Nutritional requirements, intake and gaps. Suitability of breast milk to the infant. Need for infant formulae, types of infant formulae, care in Preparation, importance of preparation of weaning foods using locally available foods,. Home prepared versus commercial weaning foods, Feeding problems-Lactose and cow's milk protein intolerance, vomiting, diarrhea, teething problems, concept of human milk bank for specific nutritional problems

UNIT-4

Pre-school children: Age, growth & development, nutrient requirements, Intake and gaps. Effects of Macro & Micro nutrient malnutrition on physical mental development.

UNIT-5

School-going children: Nutritional demands, intake and gaps. Importance of breakfast and its impact on school performance, specific nutritional problems, Macro and Micro nutrient deficiencies and their impact on health and nutritional status and control measures.

UNIT-6

Carbohydrates: Functions, storage, effect of excess/low intake of carbohydrates, dietary carbohydrates and oral diseases.

UNIT-7

Lipids: Lipids and fatty acid requirements, functions, storage, lipid transformation in the liver, lip tropic factors, role of essential fatty acids, prostaglandins, deposition of fat in the body, effects of deficiency and excess of fats.

UNIT-8

Proteins and amino acids: Review of functions, sources, protein turnover, Synthesis and stores, proteins as a source of energy, protein requirements through Factorial method and balance study. evolution of dietary protein quality, Vegetable protein mixtures in combating protein malnutrition.

UNIT-9

Diet planning: Menu and meal planning, Principles and importance of diet planning dietary guidelines, normal and therapeutic diets , low cost nutritious recipes.

UNIT-10

Community Nutrition –Nutritional problems, Nutritional status Assessment; Direct and Indirect methods, – Nutrition intervention Programmes for children, women and families, Nutrition Education Programmes.

TEST NO: 09

TEST NAME: HOME SCIENCE (HDFS)

UNIT- I

Basis of human development – biological and biochemical aspects – genes and chromosomes. Heredity and environment – meaning and interaction. The role of nature and nurture in determining intelligence, personality and behavior. Developmental tasks

UNIT- II

Prenatal development- stages –factors influencing, developmental irregularities amniocentesis-ultra scanning. Birth process-types-complications-premature children– multiple births- artificial reproductive methods.

UNIT- III

Period of neonate-adjustments- physical characteristics-physiological functions- reflexes – vocalization- emotions.

UNIT- IV

Period of babyhood- characteristics- early stimulation-developments- physical, motor, social, emotional, cognitive and language- views of Piaget, Freud and Ericson on stages of development.

UNIT- V

Early childhood-developmental trends-physical, motor, social, emotional, and cognitive-interests-views of Piaget, Freud and Ericson on stages of development.

UNIT –VI

Principles and policies - importance, need and scope of early childhood education – objectives of early childhood education – rights of the children – National policies for children – Concept of non-formal, formal and play way method.

UNIT –VII

Contributions of agencies/programmes to early childhood education – ICCW, IAPE, NCERT, ICDS, UNICEF, Mobile Creche. Head Start Programme of USA, Play Group Movement of UK.

UNIT - VIII

Adolescence- health needs-reproductive health care, physical and psychological changes. Changes in social behavior, development of emotional maturity

UNIT –IX

Definition and classification of children with special needs - Rights of the disabled. Physical disabilities : Children with motor impairment, Children with visual impairment - Identification, Diagnosis and Causes.

UNIT-X

Marriage – purpose, factors influencing mate selection process, marital adjustment- definition concept- factors influencing, dissolution –types, factors contributing to increasing divorce, consequences of divorce for marriage partners, for children. Family – definition, types, functions, stages in family life cycle.

TEST NO: 10

TEST NAME: MATHEMATICS

DIFFERENTIAL EQUATIONS & VECTOR CALCULUS

DIFFERENTIAL EQUATIONS

UNIT – I

Differential equations OF FIRST ORDER AND FIRST DEGREE

Linear differential equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors; Change of variables; Simultaneous differential equations, Orthogonal trajectories.

Differential equations of the first order but not of the first degree:

Equations solvable for p ; Equations solvable for y ; Equations solvable for x ; Equations that do not contain x (or y); Equations of the first degree in x and y – Clairaut's equation.

UNIT – II

Higher Order linear differential equations

Solutions of homogeneous linear differential equations of order n with constant coefficients. Solution of the non homogeneous linear differential equations with constant coefficients by means of polynomial operators. Method of variation of parameters; Linear differential equations with non – constant coefficients; The Cauchy – Euler equation.

1. Scope and treatment as in “Differential Equations and their Applications” by Zafar Ahsam, Print ice- Hall of India.
2. Reference Book: RaiSinghania “Ordinary and partial differential equations”, S.Chand & Company.

VECTOR CALCULUS

UNIT – III:

Vector differentiation, ordinary derivatives of vectors, Differentiability gradient, Divergence and curl operators, formulae involving these operators (Excluding Serret-Frenet formulae and related problems). Vector integration, Theorems of Gauss and Stokes, Green's theorem in plane and applications of these theorems.

“A Course of Mathematical Analysis”, Shanthi Narayana and P.K.Mittal, S.Chand Publications.

Ref: 1. “Text Book of vector Analysis”, Shanthi Narayana & P.K. Mittal, S.Chand

2. “Mathematical Analysis”, S.C.Mallik and Sanitha Arora, Wiley
3. “Vector Analysis”, murray. R.Spiegel, Schaum series

ABSTRACT ALGEBRA & LINEAR ALGEBRA

ABSTRACT ALGEBRA

UNIT – IV:

GROUPS:

Binary operations – Definitions and properties, Groups – Definition and elementary properties, Finite groups and group composition tables. Subgroups and cyclic subgroups and cyclic subgroups. Permutations – Functions and Permutations, groups of Permutations, cycles and cyclic notation, even and odd Permutations. The alternating groups of finite cyclic groups. Isomorphism – Definition and elementary properties Cayley's theorem, Groups of Cosets. Application, Normal subgroups, Factor groups, Criteria for the existence of coset groups, Inner automorphism and normal subgroups, factor

groups and simple groups, Homomorphisms – Definition and elementary properties. The fundamental theorem of homomorphisms, applications.

UNIT – V:

RINGS:

Rings definition and examples – Properties of rings – commutative rings, examples – Integral domain examples – skew field, field – examples – zero divisors and related theorems. **1.** Every field is an integral domain. **2.** Every finite integral domain is a field. **3.** Cancellation laws hold in a ring if it has no zero divisors.

1. Scope as in “The first course in Abstract Algebra” by Johan B.Fraleigh, Narosa Publication House
2. Ref: **1.** “Topics in Algebra,” I.N.Herstein, Wiley Eastern
- 3.** “Contemporary Abstract Algebra” Joseph A Gallian, Narosa Publishing House

LINEAR ALGEBRA

UNIT – VI:

Vector Space, General Properties of vector spaces, vector subspaces, linear combination of vectors. Linear sum of two subspaces, Linear independence and dependence of vectors. Basis of vector space. Finite dimension of a subspace. Linear transformations, linear operators Range and null space of linear transformation, Rank and nullity of linear transformation.

The adjoint or transpose of a linear transformation, Sylvester’s law of nullity, characteristic values and characteristic vectors, Cayley – Hamilton theorem. Inner product spaces, Euclidean and unitary spaces, norm or length of a vector, Schwartz inequality, Orthogonality, orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process.

“Linear Algebra”, J.N. Sharma and A.R.Vasista, Krishna Prakasan Mandir

- Ref: **1.** Linear Algebra by Kenneth Hoffman and Ray kernze, Pearson
2. Linear Algebra by Stephen H. Friedberg etal, Prince Hall of India

REAL ANALYSIS & SOLID GEOMETRY

UNIT – VII:

Sequences and Their Limits

Convergent and divergent sequences – sandwich theorem – convergence of $\{r^n\}$ for $-1 < r < 1$ monotonic sequence – necessary and sufficient condition for monotonic sequence to converge and related examples – Bolzano Weirstress theorem– Cauchy sequence – Cauchy’s general principle of convergence.

Series – Convergence and divergence of series

P –series test – comparison test and examples – D’ Alemberts’s ratio test and examples – Cauchy’s nth root test and examples – Alternating series – Leibnitz test.

UNIT – VIII:

Continuity – continuity and discontinuity of a function and examples – every continuous function is bounded – every continuous and bounded function defined on $[a,b]$ attains its bounds – Bolzano’s theorem intermediate value theorem.

Derivative – Every derivable function is continuous – example – Darboux’s theorem increasing and decreasing functions – Rolle’s theorem and examples – Lagrange’s theorem and examples – Cauchy’s mean value theorem and examples – Taylor’s theorem with Lagrange’s and Cauchy’s form of remainder

– Maclaurin’s theorem – Taylor’s and Maclaurin’s series – Expansion of e^x , $\sin x$, $\cos x$, $\log [1+x]$ and $(1+x)^m$ Riemann Integration : Riemann Integral – Riemann Integrable functions – Necessary and sufficient condition for R – integrability – Fundamental theorem of integral calculus.

Scope as in “Introduction to Real Analytics”, Robert G. Bartle & Donald R. Sherbet, John Wiley.

1. “A course of mathematical Analysis” Shanti Narayan & P.K. Mittal, S. Chand & Company
2. “Mathematical Analysis” by S.C. Malik & Sanita Arora, Wiley

SOLID GEOMETRY

UNIT – IX

The Plane:

Equation of a plane in terms of its intercepts on the axes, Equations of the plane through three given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane,

The Line:

Equations of a line, Angle between a line and a plane, The condition that a given line may lie in a given 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. The shortest distance between two lines. The length and equations of the line of shortest distance between two straight lines. Length of the perpendicular from a given point to a given line.

UNIT – X

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. Conjugate points. Conjugate planes; Angle of intersection of two spheres. Conditions for two spheres to be orthogonal, Radical plane. Coaxial system of spheres; Simplified form of the equation of two spheres.

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. Equations of cones with vertex at origin are homogeneous. Condition that the general equation of the second degree should represent a cone. Conditions that a cone may have three mutually perpendicular generators Intersection of a line and a quadric cone. Tangent lines and tangent plane at a point. Condition that a plane may touch a cone. 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.

1. Scope as in “Analytical solid Geometry” by Shanti Narayan and P.K. Mittal, S. Chand & company Ltd.
2. Reference Book: P.K. Jain and Khaleel Ahmed “A text Book of Analytical Geometry of three Dimensions”, Wiley eastern Ltd.

Reference : Text Book of Mathematics for B.A / B.Sc – Vol. I, II, III published by S. Chand & Company (Authors : V. Venkateswara Rao)

TEST NO: 11

TEST NAME: MIICROBIOLOGY

Unit-I

Microbiology: Microbes - Types, distribution and biology. Isolation and cultivation of bacteria and virus. Staining techniques. Bacterial growth curve, Microbial diseases - food and water borne, insect borne, Communicable diseases in humans.

Unit-II

Cell Biology: Ultra structure of prokaryotic and eukaryotic cell, Structure and function of cell organelles. Cell division - Mitosis and Meiosis. Chromosomes structure.

Unit-III

Biomolecules: Carbohydrates, proteins, amino acids, lipids, vitamins.

Enzymes - classification and mode of action, enzyme assay, enzyme units, enzyme inhibition, Factors regulating enzyme action.

Unit-IV

Immunology: Types of immunity, cells and organelles of immune system, Antigen - antibody reaction. Immuno techniques, Hypersensitivity, Vaccines.

Unit-V

Molecular Biology: Structure of eukaryotic gene, DNA and RNA structure, DNA replication, Transcription and translation in prokaryotes and eukaryotes, genetic code.

Unit-VI

Analytical Techniques: Microscopy - Light and Electron, Centrifugation, Chromatography, Electrophoresis, Calorimetric and Spectrophotometric techniques, Blotting techniques, PCR, DNA finger printing.

Unit-VII

Food Microbiology: Food spoilage, conned foods and concept of probiotics, types of Fermentors.

Unit-VIII

Medical Microbiology: Principles of diagnostic Microbiology, tests for anti microbial susceptibility, bacterial toxin, virulence and attenuation. Normal flora of human body, infection and anti-bacterial toxin, virulence and attenuation.

Unit-IX

Environmental Microbiology: Biogeochemical cycles, Ecological adaptations. Natural resources, Biodiversity, Environmental pollution, Global warming and climate change.

Unit-X

Biotechnology: Plant and animal cell culture, cloning, , Biopesticides, Biofertilizers, Bioremediation, Renewable and non - renewable energy resources, Non-conventional fuels.

TEST NO: 12

TEST NAME: JOURNALISM

Unit I

National Current Affairs: Current events of the last six months at the national level

Unit 2

International Current Affairs: Current events of the last six months at the international level

Unit 3

Sports and Cultural Affairs: Current events of the last six months related to sports and cultural affairs at the national level

Unit 4

English Language Skills: Meanings, Synonyms, Antonyms, Idioms, Phrases

Unit 5

Media awareness: Names and Editors of Important National Newspapers, Owners of TV and Radio Channels, Directors of Feature Films

TEST NO: 13

TEST NAME: MUSIC

Unit-1

Musical concepts-Grama – Murchana – Jati –Raga – Mela – Janya.

Unit-2

Swara nomenclatures , 22 sruthis.

Unit-3

Musical forms:-Outline knowledge of musical forms.

Unit-4

Musical Instruments, classification of musical instruments.

Unit-5

Tala, Angas, Saptatalas, 2 sets of Laghujatis, TalaDasaPranas,

Unit-6

Desadi, MadhyadiTalas, Mudras , Ragalakshanas .

Unit-7

Lakashana grandhas

Unit-8

Music institutions and Music Education.

Unit-9

Musicologists of the 20th century and their musical works.

Unit-10

Women composers and Musicians of the 20th century

TEST NO: 14

TEST NAME: BHARATANATYAM

Unit-1- Hasthabhinayam, Sarirabhinayam, Aharyabhinayam, Chestakrithabhinayam

Unit-2- Indian classical Dances.

Unit-3- Folk Dances,

Unit-4- Rasa Theory. Nayakanayaki Bhadas, Taladasapranas

Unit-5- Comparative study of Natyasastra.

Unit-6- Abhinayadarpanam,

Unit-7- Nrutta Ratnavali

Unit-8- Silappadikaram,

Unit-9- Dasarupakas,

Unit-10- Epics & Puranas

1. Mechanics & Properties of Matter**Vector Analysis**

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.

Mechanics of particles and Rigid Bodies

Laws of motion, motion of variable mass system, motion of a rocket, Conservation of energy and momentum. Collisions in two and three dimensions. Concept of impact parameter, scattering cross-section. Rutherford scattering-derivation.

Mechanics of 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.

Mechanics of continuous media:

Elastic constants of isotropic solids and their relation. Poisson's ratio and expression for Poisson's ratio in terms of ν , n , k , Classification of beams, types of bending, Central forces

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.

Special theory of relativity

Galilean relativity, absolute frames. Michelson-Morley experiment, negative result. Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, mass-energy relation.

2. Waves & Oscillations**Simple Harmonic Oscillations**

Simple harmonic oscillator and 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 figure.

Damped and forced oscillations

Damped harmonic oscillator, solution Energy considerations, Comparison with un-damped harmonic oscillator, logarithmic decrement, relaxation time, quality factor, amplitude resonance and velocity resonance in forced oscillations..

Vibrating strings

Transverse wave propagation along a stretched string, general, modes of vibration of stretched string clamped at ends, overtones, energy transport and transverse impedance.

Longitudinal vibrations in bars-wave equation and its general solution, Special cases i) bar fixed at both ends ii) bar fixed at the mid point iii) bar free at both ends iv) bar free at one end. Tuning fork.

Ultrasonics

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.

3..Optics

Aberrations:

Introduction – monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration-the achromatic doublet. Achromatism for two lenses (i) in contact and (ii) separated by a distance.

Interference

Principle of superposition – coherence-temporal coherence and spatial coherence-conditions for interference of light. Fresnel's bi-prism determination of wavelength of light –change of phase on reflection. - Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film). Determination of diameter of wire, Newton's rings in reflected light. Michelson interferometer, Determination of wavelength of monochromatic light using Newton's rings and Michelson Interferometer.

Diffraction

Introduction, distinction between Fresnel and Fraunhofer diffraction, Fraunhofer diffraction –Diffraction due to single slit-Fraunhofer diffraction due to double slit-Fraunhofer diffraction pattern with N slits (diffraction grating). Resolving power of grating, Determination of wavelength of light in normal incidence and minimum deviation methods using diffraction grating, Fresnel's half period zones-area of the half period zones-

Polarisation:

Polarized light: methods of polarization polarization by reflection, refraction, double refraction, scattering of light-Brewster's law-Mauls law-Nicol prism polarizer and analyzer-Quarter wave plate, Half wave plate-optical activity, determination of specific rotation by Laurent's half shade polarimeter-Babinet's compensator - idea of elliptical and circular polarization

4. Lasers

Introduction, spontaneous emission, stimulated emission. Population Inversion, Laser principle-Einstein coefficients-Types of lasers-He-Ne laser, Ruby laser- Fiber Optics Introduction- different types of fibers, modes in an optical fiber, fiber material

5. Thermodynamics & Radiation Physics**Kinetic theory of gases**

Introduction – Maxwell's law of distribution of molecular speeds - Viscosity of gases-thermal conductivity-diffusion of gases.

Thermodynamics

Introduction- Isothermal and adiabatic process- Reversible and irreversible processes-Carnot's engine and its efficiency-Carnot's theorem-Second law of thermodynamics. Kelvin's and Clausius statements-Entropy, physical significance –Change in entropy in reversible and irreversible processes-Entropy and disorder-Entropy of Universe–Temperature-Entropy (T-S) diagram and its uses - Change of entropy of a perfect gas- change of entropy when ice changes into steam.

6. Thermodynamic potentials and Maxwell's equations

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 vander Waal's gas.

Low temperature Physics

Introduction-Joule Kelvin effect-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 - applications of substances at low temperature-

Quantum theory of radiation

Blackbody-Ferry's black body-distribution of energy in the spectrum of black body- Wein's displacement law, Wein's law, Rayleigh-Jean's law Quantum theory of radiation- Planck's law-Measurement of radiation-Types of pyrometers-Disappearing filament optical pyrometer-experimental determination - Angstrom pyroheliometer-determination of solar constant, Temperature of Sun.

7: Electricity, Magnetism &

Electric field intensity and potential: Gauss's law statement and its proof- Electric field intensity due to (1) Uniformly charged sphere and (2) an infinite conducting sheet of charge. Electrical potential - equipotential surfaces- potential due to i) a point charge, ii) charged spherical shell and uniformly charged sphere.

Dielectrics: Electric dipole moment and molecular polarizability- Electric displacement D , electric polarization P - relation between D , E and P - Dielectric constant and susceptibility. Boundary conditions at the dielectric surface.

Electric and magnetic fields: Biot-Savart's law, explanation and calculation of B due to long straight wire, a circular current loop and solenoid - Lorentz force - Hall effect - determination of Hall coefficient and applications.

Electromagnetic induction :Faraday's law-Lenz's law- Self and mutual inductance, coefficient of coupling, calculation of self inductance of a long solenoid, energy stored in magnetic field. Transformer - energy losses - efficiency.

Alternating currents and electromagnetic waves Alternating current - Relation between current and voltage in LR and CR circuits, vector diagrams, LCR series and parallel resonant circuit, Q -factor, power in ac circuits.

Maxwell's equations Idea of displacement current - Maxwell's equations (integral and differential forms), Transverse nature of electromagnetic waves. Poynting theorem (statement and proof), production of electromagnetic waves (Hertz experiment).

8. Electronics

Basic electronics: PN junction diode, Zener diode, Tunnel diode, I-V characteristics, PNP and NPN transistors, - transistor (CE) characteristics γ and β , α CB, CE and CC configurations - Relation between - Determination of hybrid parameters, Transistor as an amplifier.

Digital electronics Number systems - Conversion of binary to decimal system and vice versa. Binary addition and subtraction (1's and 2's complement methods). Laws of Boolean algebra - De Morgan's laws- statement and proof, Basic logic gates, NAND and NOR as universal gates, exclusive OR gate, Half adder and Full adder,

9. Modern Physics

Atomic and molecular physics

Introduction -Drawbacks of Bohr's atomic model- Sommerfeld's elliptical orbits-relativistic correction (no derivation). Vector atom model and Stern-Gerlach experiment - quantum numbers associated with it. L-S and j- j coupling schemes. Zeeman effect and its experimental arrangement. Raman effect, hypothesis,

Stokes and Anti Stokes lines. Quantum theory of Raman effect. Experimental arrangement – Applications of Raman effect.

Matter waves

Matter waves & Uncertainty Principle Matter waves, de Broglie's hypothesis - wavelength of matter waves, Properties of matter waves - Davisson and Germer experiment – Phase and group velocities. Heisenberg's uncertainty principle for position and momentum (x and p), & energy and time (E and t). Experimental verification - Complementarity principle of Bohr.

Quantum (wave) mechanics

Basic postulates of quantum mechanics-Schrodinger time independent and time dependent wave equations-derivations. Physical interpretation of wave function. Eigen functions, Eigen values. Application of Schrodinger wave equation to particle in one dimensional infinite box.

General Properties of Nuclei

Basic ideas of nucleus -size, mass, charge density (matter energy), binding energy, angular momentum, parity, magnetic moment, electric moments. Liquid drop model and Shell model (qualitative aspects only) - Magic numbers.

Radioactivity decay:

Alpha decay: basics of α -decay processes. Theory of α -decay, Gamow's theory, Geiger Nuttal law. β -decay, Energy kinematics for β -decay, positron emission, electron capture, neutrino hypothesis.

10. Crystal Structure

Amorphous and crystalline materials, unit cell, Miller indices, reciprocal lattice, types of lattices, diffraction of X-rays by crystals, Bragg's law, experimental techniques, Laue's method and powder diffraction method.

Superconductivity:

Introduction - experimental facts, critical temperature - critical field - Meissner effect – Isotope effect - Type I and type II superconductors - BCS theory (elementary ideas only) - applications of superconductors.

Unit – I**Social Science For Social Work :**

Basic Concepts of Society - Meaning, Definition and Characteristics. Community - Meaning, Definitions, Characteristics. Groups-Meaning, Definitions, Characteristics, Primary and Secondary groups.

Social Institutions - meaning, Definition, Types, Characteristics. Marriage - Meaning, Definitions, Forms of marriage. Family - Meaning, Definition, types, functions of family. Religion - Meaning, Definition, forms of religion, Functions of religion.

Socialization - Meaning, Definition, Process of Socialization, Agencies/Agents of Socialization, Role of Socialization in human life. Social Deviance-Meaning, Definition, Characteristics, Types, Factors, Facilitating Deviance. Social Change- Meaning of social change, Nature, causes of social change disturbances of social change social change and disorganization.

Social Problems: Meaning, Nature, Causes, Social Attitudes of Social Problems.

Basic concept of Psychology- Definition, Concepts of Developmental Psychology, Social Psychology. Personality development- Meaning of personality, Factors affecting personality. Defense Mechanisms -Meaning and Definitions, types and mode of application. Heredity and Environment - its influence on human growth and personality.

Stages of development: Concepts and characteristics of Pre-natal, Post-natal, Infancy, babyhood, Puberty, adolescence, adulthood, middle age and old age. Meaning, concept and characteristics of Motivation, Frustration, Conflicts, Adjustment and Maladjustment, Intelligence, learning and memory.

Understanding Human Behaviour: Concept of human growth, development & Behaviour. Biological and Psycho-Social Bases of Behaviour: Role of heredity and environment. Factors affecting human behavior, Methods of study human behavior, Theories of development & behaviour -Freud's Psychosexual theory & Erikson's psychosocial theory.

Unit-II

Social Work History and Ideology: Western History of Ideologies for social change- Organized and scientific charity, Clinical social work, Ecological social work, Goals, Values, Functions and Process of Social Work. Western History of Social Work Profession -Rationalism and Welfarism, Liberalism and Democracy, Socialism and Human right. Values and Ethics of Professional Social Work- Concept of Ethics and Values, Ethical Responsibilities in Social Work, Ethical Decision-Making and Dilemmas in Social Work, Code of Ethics for Social Workers.

Unit –III**Work With Individuals and Groups :**

Social Case Work: Definition and concept of Social Case Work (S.C.W.).History of Social Case Work : Indian and Western. Assumptions in Case Work, Importance of Case Work in developing country. Types of Problems faced by individuals and families, Individual differences and needs. Principles of Social case work, Components of Social Case Work, Tools of Social Case Work.

Social Group Work: Meaning, concept and characteristics of Group Work, and its implication in different settings (Open and closed communities, hospitals, residential and nonresidential institution) . Types of groups, Values and Principles in Group Work. Group Work Process.

UNIT-IV

Work With Communities: Concept of community, Sociological & Practitioner perspective, Structure & functions. Analyzing communities. Understanding Community Organisation Practice - Definition of community Organization, Values & principles of community organization, Ethics of community organization practice. Issues In Community Organisation Practice- Directive Vs. Non- Directive approaches, Working with Groups, Leadership functions, Gender, caste ,class as axis of inequality.

Unit – V

Social Work Research:

Scientific Inquiry- Meaning, purpose, scope and importance of social research and social work research. Research design and types of research, steps in scientific research., Hypothesis -meaning and utility of hypothesis in scientific research. Qualities of sound hypothesis. Sampling- Meaning, types of sampling- Probability and Non - probability. Data Collection: Tools of data collection- Interview schedule, Questionnaire, Narrative interview, Observation. Methods of social research- Social survey, Case study. Data processing: Classification, Coding, tabulation, Graphical presentation, Analysis and Interpretation, Report writing. Statistics- Meaning, importance of statistics, Use of computers in research, SPSS.

UNIT-VI

Management Of Development & Welfare Services: Services organizations & Environment- Concept of welfare and Development, Need for welfare & developmental organizations, Registration of organisation, constitution & policy Services & their delivery. Type of services : welfare services, development services, Management of programmes & evaluation. Administration process of welfare and developmental services. Meaning of social policy, social planning, social Audit, Organizational climate & Management processes- Creating a work oriented climate, Understanding authority relationship and interpersonal relationships, Working with boards, committees, and other staff , Working in professional teams.

UNIT-VII

Fields of Social Work:

CHILD WELFARE (with special reference to India): Definition, scope, problems of children, services (correctional and welfare services), special issues related to children, child abuse, street children, child Labour and destitute children and education related issues.

YOUTH WELFARE (with special reference to India): Definition, scope, problems of youth, special issues related to youth. Need for youth development. Youth conflicts. Youth movement in India.

FAMILY WELFARE (with special reference to India): Definition, scope, problems of family, Functions of family welfare worker. Present scheme of family welfare, Family problems.

TRIBAL WELFARE (with special reference to India): Tribal community in India, definition and its characteristics, Problems of tribal, special issues related to tribal (education, health and economic development) Services and scheme for tribal development. Department of tribal development-structure and function.

RURAL WELFARE: Nature of Rural Society. Analysis of Indian Village. Caste, Class relationship Power conflict and Integration. Rural Development: Nature and scope. Concept of Integrated development. Trends of Rural Development. Utilizations of Natural Resources : Hills, Non-cultivated land, Mountains, Lake, Rivers etc. Water management. Community Development and Extension Project in India: Panchayati Raj : Three tier system -structure, organizations and functions. Recent Amendments in Panchayati Raj System. Role of DRDA in village reconstruction. Problems of Rural Community and Intervention: Agricultural labourers, Landless labourers, Small farmers, Farmer's suicide. Problems of Rural women and Programmes for upliftment. Self-help group - Their role in women's empowerment. Gandhian Approach to Rural Reconstruction: The constructive programme and the Sarvodaya movement. Gandhian and Vinoba's movement with special reference to Bhoodan and Gramdan.

Health & Mental Health: Health: Concept, definition(s) and dimensions. Levels of health care in India: Primary, secondary and tertiary. Communicable diseases. Maternal and Child Health. Programmes for promotion of maternal and child health in India. Life style disorders in the contemporary context.

Mental health: Concept, definitions and characteristics of a mentally health person. Difference between mental health and mental illness; normal and abnormal behavior. Causes of mental illness. Basic clinical features of minor and major mental illnesses. Treatment of mental illness: Pharmacological and psycho social approaches. Community mental health initiatives in India.

UNIT-VIII

Industrial Sociology :Definition, Nature, Scope / development. Industrialization and social system. Role of worker and labour welfare, Physical and social approaches towards Labour performance. Labour's Participation in management. Labour welfare-concept, meaning and importance. Globalisation- Introduction, meaning, advantages and disadvantage for Labours. Impact of globalization in the field of Labour. Privatization-concept, importance and impact. Liberalization -definition, meaning and its impacts. Silent features of multi-national companies and developmental factors. Industrial Conflicts-Variou factors creating conflicts in industry. Approaches and attitudes of management towards Labour. Role of Govt. machinaries in supervision of industrial relation. Job security and attitudes of Labour. Present industrial relationship.

Role Of Labour Welfare Officer - Physical and social approaches towards Labour performance. Labour's Participation in management. Labor welfare – concept, meaning and importance.

UNIT -IX

Legal System In India : Right-Concept of rights: legal rights, civil rights and criminal procedure code, equality before law. Rights-rights of children, women, and scheduled castes and scheduled tribes. Criminal Justice System - Criminal justice system in the country, police, Prosecution, judiciary and correction, district courts, session courts, high courts and the Supreme Court. Indian

constitution, directive principles of state policy. Family Court :Nature and scope of family court. Procedure and functions. Role of councillors in family court. Legal Aid : History of legal Aid, Concept of legal Aid, need for legal aid ,who needs legal Aid, Legal Aid Schemes. Public Interest Litigation : History of public interest litigation with special references to India. What is public interest litigation, concept, processes and problems. Right To Information Act 2005 -Need, concept, objective and provision, Merits of right to information Act.

Unit-X

Personal & Professional Growth:

Self And Self Awareness : Understanding self Rational Emotive therapy, Gestalt approach, Transactional analysis Reality therapy, yoga for Therapy, Meditation, techniques. Observation and Reflection: Theory and techniques.

Emotions And Their Expression : Emotions- nature of expression, Understand own pattern Communication choices made to express emotions. Communication - Information and knowledge and skills of rapid reading, writing, creative writing, report writing and public speaking.

Integrated Social Work Practice : Systems and social work -Concept of social systems, Characteristics of social systems. Units of social work intervention and dynamics therein (individual, family, groups communities and organization).

Approach To Intergration : The systems approach, environmental approach, Understanding of life sustaining elements and their interrelationships, to view it as a holistic framework for an approach to integration.

TEST NO: 17

TEST NAME: TELUGU

UNIT I-Pracheena Padya Bhagam

UNIT II- Adhunika Padya Bhagam

UNIT II-NOVEL

UNIT IV-Kathanikalu

UNIT V-NATAKAM

UNIT VI-Telugu Sahitya Charitra

UNIT VII-Telugu Bhasha Charitra

UNIT VIII-Adhunika Basha Nirmanam

UNIT IX-VYAKARANAM-SANDHULU, SAMASALU

UNIT X--VYAKARANAM-ALANKARALU, CHANDASSU

TEST NO: 18

TEST NAME: WOMEN'S STUDIES

UNIT – I

Status of Women in India and Andhra Pradesh.

Concept and Meaning of Status: Indicators of Status

Socio - Economic and Political Status of Women in India and Andhra Pradesh.

Status of Women in Pre – Independence and Post – Independence Period.

UNIT – II

Concepts of Gender: Sex and Gender, Gender Roles, Gender Stereotyping and Gender Discrimination, Gender Equality, Empowerment of Women

Issues and Problems related to Women and Girl Child.

Discrimination faced by Women during Life Cycle Stages.

Violence against Women and Girl Child.

Problems of Single Women, Marginalized and Deprived groups, Child Labour.

UNIT – III

Prominent Women in India, Andhra Pradesh and Abroad.

Women in Politics, Women in Sports, Women Entrepreneurs, Women in Media, Women in History,

Women Achievers, Women's Universities, Women's Institutions/ Organisations.

First Women in different Fields. Women Ministers and Chair Persons.

UNIT – IV

Women's Movements: Pre-Independent, Post - Independent and Current Women Movements, Social and Religious Reform Movements; Post Independence Movement: Chipko Movement, Anti -Arrack Movement. Issues based Movements: Rape, Violence, Sati, and Dowry.

UNIT – V

National Committees and Commissions for Women, Government Organization for Women and Child Development, Women and Education, Women's Education, Gender Bias in Enrolment, Curriculum Content, Dropouts.

UNIT -VI

Policies and Programmes for Women's Development: National Policy for Empowerment of Women. New Economic Policy and its impact on Women. Women Development Programmes of India and A.P. Programmes of Central Government: SHGS, Beti Bachao Beti Padhavo Scheme 2015, Swayamsidha, Swadhar, Swa-Shakti. Balika Samudhryojana ; Programmes of Government of Andhra Pradesh: Kishore Shakti Yojana(KSY)2007, Girl Child Protection Scheme (GCPS) 2005, Maa Inti Mahalakshmi 2013, N.T.R Arogya Seva, Swarna Jayanti Gram Swarozgar Yojana 1999, DWCRA – 1984.

UNIT - VII

Concept and Meaning, Importance of Entrepreneurship, Entrepreneurial Traits, Factors contributing to Women Entrepreneurship, Micro Enterprises, Prominent Women Entrepreneurs in India, Micro Small and Medium Enterprises (MSME) Act – 2005, Association of Lady Entrepreneurs of India (ALEAP), Start up India, Make in India.

UNIT - VIII

Women and Health: Health status of Women in India, Mortality and Morbidity, Infant Mortality Maternal Mortality, Nutrition and Health, HIV and AIDS, Sex Ratio.

National Health and Population Policies, Maternal and Child Health Programmes. Reproductive and Child Health, National Rural Health Mission, ICDS Programmes.

UNIT - IX

Indian Constitution and Provisions Relating to Women.

Personnel laws, Labors Laws, Violence Against Women, Legal Protection: Family Courts - Law Enforcement Machinery, Police and Judiciary, Human Rights as Women's Rights, Indecent Representation of Women Act, Nirbhaya Act, Domestic Violence Act .

UNIT - X

Women and Environment: Scientific Concepts: Physical and Chemical Environment, Ecological Environment and Social and Cultural Environment. Physical and Chemical Environment: Polluting agents. Air, Water, Sound and Soil Pollutions.

Role of Women in Protecting Environment, Chipko Movement. Narmada Bachavo Andolan. Social and Cultural Environment: Population Dynamics and Living Standards

TEST NO: 19

TEST NAME: PHYSICAL EDUCATION

UNIT I – HISTORY OF PHYSICAL EDUCATION

Ancient Physical Education in Greece, Rome and Germany – Ancient Physical Education in India – Indus age, Vedic age, Puranic age, Epic age, Medieval age, British period till 1947 –Physical Education after Independence.

Ancient Olympics, its Origin, History, Significance, Rules, Conduct of Games, Awards, Decline. Modern Olympics: Olympic movement, – Revival of Modern Olympics – Governing body, Rules. Difference between Ancient and Modern Olympics

UNIT II – NATIONAL SPORTS POLICY

Meaning, Definition, Aim, Objectives, Scope of Physical Education. Need and importance of Physical Education in modern society. Relationship of physical education with general education

Growth and development – Motor development – Age and Sex differences - Types of body. Sociological foundation: Individual, Family, Society, Social institution, Community.

Leadership through Physical Education.

UNIT III – SPORTS PSYCHOLOGY

Meaning, Definition of Psychology and Sports Psychology - Heredity and environment – Personality: Types of Personality – Personality Traits – Need and Importance of Sports Psychology.

Definition – Theories of Learning –

Types of learning: Primary, associate and concomitant learning

Learning curve – Transfer of learning , Meaning and Definition, Types of Motivation, Methods of motivation, Effect of Motivation on Sports performance.

UNIT – IV - CELL

Need and importance of Anatomy and Physiology - Cell and its structure – Tissue – Different types of Tissues – Functions of Cells. **Muscle:** Types of muscles – Tendons and ligaments – Structural classification of skeletal muscles - Names of Major muscle groups- Muscle contraction **Skeletal System:** Axial and apendicular skeleton and names of major bones - Classification of bones – Joint - Types of joints.- Joint structure Effect of Exercise on Musculoskeletal system. Blood and components of blood – Blood Groups – Structure and functions of RBC, WBC and Platelets – Structure and Functions of Heart - Cardiac cycle (Systemic, Pulmonary and Coronary) – Cardiac Output - Blood Pressure, arteries, veins and capillaries – Cardiac output - Lymph and its function – Effect of Exercise on Circulatory System.

UNIT-V RESPIRATORY SYSTEM

Structure and functions of Respiratory system - Mechanism of respiration - External and internal respiration - Lung volumes - Effect of Exercise on Respiratory System.

Main organs of Nervous system and their functioning – Functional classification of nervous system – Motor and sensory nerves – Neuromuscular function and its development through exercises.

UNIT- VI - FOOD AND NUTRITION

Nutrients and components of food – Balanced diet – Malnutrition – Under nutrition – Vitamins and Vitamin deficiency diseases: Scurvy, Rickets, and Night blindness. Body Mass Index – Weight Management – Obesity risks : Hyper Tension, Diabetes and Ethero Sclerosis.

Need and importance of personal hygiene, Environmental Hygiene.

Communicable and Non-communicable diseases and their Prevention.

Chickenpox – Mumps – Measles – HIV / AIDS – Cholera – Viral hepatitis – Tuberculosis – Malaria, Common sports injuries and their management.

UNIT-VII: SPORTS TRAINING

Introduction – Meaning – Definition – Need and Objectives of Sports Training - Principles of Sports Training – Coach : Qualities, Qualifications and responsibilities Physical fitness – Meaning – Importance of Physical fitness – Physical Fitness Components: Speed, Strength, Endurance, Flexibility and Co-ordination. Introduction – Warming up – Conditioning – Limbering down – Training Methods: Calisthenics, Weight training, Circuit training, Interval training and fartlek training.

UNIT-VIII : SKILL, TECHNIQUE AND TACTICS

Meaning and Definitions of Skill, Technique and Tactics – Teaching, Training and Coaching - Importance of technique and tactical training. Meaning – Definition of Test, Measurement and Evaluation - Nature and scope of Evaluation – Need & importance of Evaluation in Physical Education. Meaning – Importance – General Evaluation Criteria: Validity, Reliability, Objectivity, Norms. Administration of test.

UNIT-IX: POSTURE AND PHYSICAL FITNESS TESTS

Posture – Postural deformities – Advantages of good posture – New York state posture rating test. Meaning of Physical fitness test – AAHPERD youth fitness test– JCR Motor fitness test – Cooper’s 12 minutes run/walk test – Harvard step test. Hockey – Sehmithals - French achievement test in field hockey.

Volleyball - Russel – Lange Volleyball test.

Football – Mc-Donald Volleying Soccer Test.

Basketball – Knox – Basketball Test.

UNIT-X: PRINCIPLES OF OFFICIATING

Introduction – Aim and Objectives – Principles.

Techniques: Whistling, Signaling, Positioning – Achieving High Standard in officiating.

Introduction – Objectives – Mental and Physical Demand – Job of the Official – Qualities and Qualification of Official. Layout 400Mts, 200Mts track – Jumping pits – Throwing Sector – Rules and regulations – Conduct of events – Officiating.

HISTORY, MEASUREMENT AND OFFICIATING OF FOLLOWING GAMES

1. Basketball 2. Cricket 3. Hockey 4. Kabaddi

HISTORY, MEASUREMENT AND OFFICIATING OF FOLLOWING GAMES

1. Football 2. Handball 3. Volleyball 4. Kho-Kho.

Business Economics

Nature and Uses of Business Economics – Economic Activities – Difference between Economic and Non-Economic Activities - Demand Analysis – Elasticity of demand, Factors influencing elasticity of demand – Supply Analysis –Utility Theory - Indifference Curve Analysis – Production and Cost Function – Law of Variable Proportions - Price determination under Perfect competition – Monopoly - Monopolistic competition– Oligopoly – National Income Concept and Measurement –Theories of International Trade

Financial Accounting – I

Fundamentals of Accounting – Book keeping and Accounting - Accounting Principles and Standards - Rules of Accounting – Capital and Revenue - Journal – Ledger – Trail Balance – Manufacturing Account – Trading Account – Profit and Loss Account – Balance Sheet – Subsidiary Books including different types of cash book – Bank Reconciliation Statement – Bill of Exchange: Definition, Honour and Dishonour of Bills – Rectification of Errors – Depreciation: Meaning, Methods of providing Depreciation – Straight line method – Written down value method – Consignment and Joint Venture Account.

Financial Accounting – II

Accounting for Hire Purchase – Single entry and accounts for Non-trading concerns - Partnership Accounts: Admission, Retirement, Death and Dissolution of Partnership, Treatment of Goodwill – Branch and Departmental Accounts - Advanced Company Accounts: Issue, Forfeiture, Purchase of Business, Liquidation, Issue of Debentures – Holding Company Accounts.

Business Organisation

Forms of Business Organisation: Sole trader, Partnership, Companies and Cooperatives – Industry Structure: Public, Private, Joint and Cooperative - Planning – Organizing – Delegation and Decentralisation of Authority – Leadership concept and styles – Motivation – Theories of Motivation – Types of Motivation – Communication process and barriers – Control: Concept and Process

Functional Management

Functional Areas in Management -Marketing Management: Concept, Marketing Mix and Product life cycle, Market Segmentation – Financial Management: Objectives and Sources of funds – Human Resource Management – Concept and Functions, Human Resource Planning.

Cost and Management Accounting

Nature and Scope of Cost Accounting and Management Accounting – Cost Sheets – Material costs – Labour costs – Overheads cost – Unit costing – Job costing – Contract costing – Marginal costing: Break Even Analysis – Standard Costing and Variance Analysis – Analysis of Financial Statements – Ratio Analysis – Fund flow and Cash flow Analysis.

Banking and Financial System:

Origin of Banking - Importance of Banking to Business – Types of Banks and their functions – Commercial Banks: Types and Functions– Reserve Bank of India – Regional Rural Banks – Role of Foreign Banks - Banking Sector Reforms in India – Electronic Banking – Financial Institutions: Functions and Growth–IFCI, IDBI, SIDBI, SFCs - Overview of Indian Financial System – Capital and Money Market – Primary and Secondary Market - Role of SEBI

Business Laws

The Indian Contract Act: Meaning, characteristics and kinds, Essentials of valid contract – Contract of Indemnity and Guarantee – Contract of Bailment – Contract of Agency – Contingent Contracts - The Sale of Goods Act - The Negotiable Instruments Act: Meaning, Characteristics and types – The Partnership Act: Nature and Characteristics – The Companies Act: Appointment of Directors, Disqualification and Removal – Powers and Duties of Directors.

Income Tax

Overview of Income Tax Act 1961 - Income – Agriculture Income – Person – Assesse – Assessment Year – Gross Total Income – Total Income - Residential Status – Computation of Tax under different heads – Deductions from Gross Total Income – Tax liability of Individuals and Firms – Provisions and Procedures of Compulsory online filing of returns.

Auditing:

Definition and objectives of Auditing - Types of Audit – Audit process and procedure - Audit Planning and Programming – Internal Audit and Internal Control – Internal Audit – Audit Procedure – Company Auditor – Qualification, Rights and Duties –Liabilities of Company Auditor Auditors Report: Contents and Types.

TEST NO: 21

TEST NAME: STATISTICS

1. Descriptive Statistics, Moment, Skewness, Kurtosis and Probability Theory.
2. Random variable and Mathematical Expectations.
3. Discrete and Continuous distributions.
4. Curve fitting, Correlation, Regression and theory of attributes.
5. Theory of sampling and Theory of Estimation.
6. Testing of Hypothesis and Non- Parametric tests.
7. Analysis of Variance and Vital statistics
8. Time Series analysis and Index numbers
9. Statistical quality control, O.R. and L.P.P.
10. Transportations, Assignments and Job Sequencing.

TEST NO: 22

TEST NAME: B.Ed SPECIAL(H.I)

English Language Proficiency

Unit – 1: English Reading Comprehension.

Unit – 2: English Grammar: Parts of Speech, Tenses.

Unit – 3: Transformation of Sentences in English - Simple, Compound and Complex and voices.

Telugu Language Proficiency

Unit – 4: Patana Grahana Shakthi

Unit – 5: Sandhulu, Samasalu, Jaathiyalu

Unit – 6: Alankaralu

Unit –7: Chandassu

Teaching Aptitude and General Knowledge

Unit – 8: Ability to Recognize Individual Difference, Ability to Communicate, Ability to deal with children etc.

Unit – 9: Analytical Thinking and Creative Thinking.

Unit – 10: General Knowledge & Current Affairs.

TEST NO: 23

TEST NAME: M.Ed SPECIAL(H.I)

Unit – 1

PSYCHOLOGY AND EDUCATION

1. Theoretical Approaches to development.
2. Human Learning and intelligence.
3. Assessment: Strategies and Practices.
4. Guidance and counselling.

Unit – 2

INTRODUCTION TO DISABILITIES

1. Introduction to Sensory Disabilities
2. Introduction to Neuro Development Disabilities.
3. Introduction to Locomotor Disabilities.
4. Introduction to Multiple Disabilities.

Unit -3

INCLUSIVE EDUCATION

1. Need and Importance
2. Policies and Frameworks – NPE, POA, Biwako Millanium Framework.
3. Legislations and Programmes – PWD(1995), RTE(2006), RCI(1992),National Trust(1999),SSA (2000), RMSA(2009),IEDSS (2013).
4. Provisions.

Unit – 4

PHILOSOPHICAL FOUNDATIONS OF EDUCATION

1. Philosophies of Education.
2. Contemporary Issues of Education.
3. Education Commissions and Policy.
4. Trends in Education.

Unit – 5

AUDIOLOGY

1. Process of Hearing
2. Identification and assessment of Hearing Loss
3. Hearing Aids.
- 4 Audiograms.

Unit – 6

SPEECH

1. Basics of Articulation and phonology.
2. Mile Stones of Speech Development.
3. Suprasegmentals of speech.
4. Speech Intelligibility.

Unit – 7

LANGUAGE

1. Meaning and Components.
2. Stages of Language Development.
3. Impact of Deafness on language Development.
4. Assessment of Language.

Unit – 8**COMMUNICATION**

1. Concept and Types.
2. Oralism.
3. Indian Sign Language.
4. Augmentative and Alternative Communication.

Unit – 9**EDUCATIONAL INTERVENTION AND TEACHING STRATEGIES**

1. Importance of Early Intervention.
2. Auditory Training.
3. Speech Interventions.
4. Educational Intervention Strategies.

Unit -10**BASIC RESEARCH AND STATISTICS**

1. Introduction to Research.
2. Types of Research.
3. Process of Research.
4. Measurement and Analysis of Data.

TEST NO: 24

TEST NAME: M.VOC (FTAD)

UNIT –I

Introduction to textile fibres, classification of fibers based on sources and origin, basic textile terminology. Primary and secondary properties of various fibres.

UNIT-II

Design – Elements of Design; Line, line types, line direction, application of line in garments, types of illustration created by line in dress, Principles of design-Balance, Rhythm, Proportion, Emphasis, Harmony.

UNIT – III

Fabric construction methods – weaving loom and loom, parts of loom, methods of weaving weave types, knitting – types of knits, non woven fabrics – lace making, Nets, Felts. Textile finishes – classification, mechanical and chemical finishes.

UNIT – IV

Dyeing - Introduction, classification and selection of dyes – types of dyes; direct, acid, reactive, basic, vat, azoic, sulphur, disperse and mordant dyes.

UNIT – V

Introduction, Manufacturing and Properties of different natural and man-made fibres - Cotton, Wool, Silk, Rayon, Acetate and Triacetate, Polyamide (Nylon-6, Nylon-6.6) Acrylics, Modacrylic, Elastomeric fibre.

UNIT – VI

Classification of Sewing machines and their applications - Machine Exercise, Control and Safety parameters Paper Exercise Introduction to seams and seam allowance (woven and Knit fabrics) – Plain, Press Open, Felt / edge stitch, welt seam (Feed of Arm) Double top arm) double top stitch, tuck seam, slot, French, lapped, piped, cord, Fagotted.

UNIT – VII

Draping:- definition, terminology principles of draping, preparation and uses, measurement and tools used in draping. Basic Draping techniques: - front and back bodice, front & back skirt. Dart location and manipulation.

UNIT – VIII

Basic embroidery stitches – Flat, loop, crossed, knotted Drawn and Pulled thread work (Assist work, Cut work, Swiss work, Shadow work), Running stitch, Satin stitch Cording and Back stich, Zigzag line & Braiding.

UNIT – IX

Design research and process – selection of mood board, story board, fabric development, design development & range development; making the final product and its presentation (display or show).

UNIT – X

Colour and Colour Theory – Properties of colour / colour dimensions, colour wheels, colour scheme / harmonies, use of colour in designing, viral effects of colour in dress.

TEST NO: 25

TEST NAME: M.VOC (NHCS)

UNIT-I

Nutrition and Dietary adequacies: Classification of food, food groups, RDA for different nutrients; food groups, planning of foods, Balanced diets for various age groups, Dietary guidelines, nutrient density, exchange patterns, Assessment of Nutritional Status-(ABCD techniques).

UNIT-II

Diet therapy -Definition, purposes of a therapeutic diet, principles and types of hospital diet: clear fluid, full fluid, soft, light, bland and regular diet, Special Feedings- Enteral and Parenteral nutrition.

Dietitian –Types, qualities, qualification and role of dietitian in managing hospital dietary.

UNIT-III

Nutritional care for Deficiency Disorders-PEM, nutritional anemia, vitamin-A deficiency, iodine deficiency, osteoporosis and Osteomalacia - Etiology, symptoms and dietary management, Malnutrition-Under weight and Overweight.

UNIT-IV

Macronutrients-Carbohydrates, Proteins and Fat: Sources and Functions of macro nutrient in body; Role of carbohydrates in health and disease with special reference to different carbohydrates, protein and fats.

UNIT-V

Micronutrients-Vitamins and Minerals: Classification, chemistry, dietary sources, RDA, functions & deficiency disorders of all vitamins, classification, function, dietary sources, daily requirement & deficiency disorders of all minerals.

UNIT-VI

Micro-Organisms: Classification- Bacteria, Viruses, Yeast, Moulds, Protozoa, Algae-

General characteristics, structure, Source of infection, growth of microbes, portals of entry and exit of microbes, transmission of infection.

UNIT-VII

Health Care: Concept of health, definitions- dimensions, health relative concept, determinants of health, Characteristics and classification of Indicators, Levels of health care.

UNIT-VIII

Public Health: Concepts and Definitions, Introduction to Health Promotion and Disease Prevention, theoretical Principles of Health Behavior Importance of chronic diseases, risk factors associated with chronic diseases, disease prevention and Management.

UNIT-IX

Clinical Analysis: Preparation of Buffers and various biochemical reagents, calculations of Normality and molarity of the reagents, pH estimations, Reducing sugar-Benedict test, protein: - Heat and acetic acid test, and sulfosalicylic acid method, ketone bodies-Roth era's test.

UNIT-X

Reproductive Health: Anatomy and Physiology of the reproductive system, pregnancy and delivery stages- anti natal, pre natal and post natal care of lactating mother. Introduction to family planning (methods).

TEST No. 38

TEST NAME: 5 YEAR INTEGRATED B.A/M.A COURSE IN PUBLIC POLICY AND ANTHROPOLOGY.

SYLLABUS

Class VI to Class X syllabus of Social Sciences (NCERT)