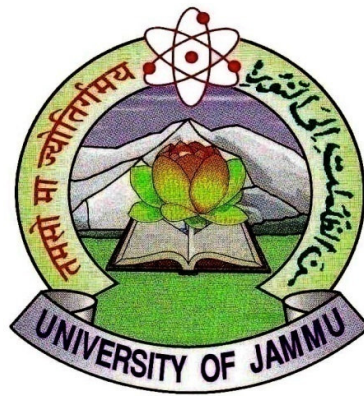


UNIVERSITY OF JAMMU

JAMMU



SYLLABUS

JAMMU UNIVERSITY ENTRANCE TEST

(JUET – 2014)

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BIOTECHNOLOGY / BIOCHEMISTRY / MICROBIOLOGY

Basic Microbiology: History and scope of Microbiology, origin of microbes, pure cultures techniques, microbial culture media, sterilization, culture collection, purification and preservation. Principles and application of microscopy (bright field, darkfield, phase contrast, fluorescence and immunofluorescence, confocal microscopy, electron microscopy).

Classification of bacteria; cultivation and reproduction in bacteria and viruses; Plant, animal and bacterial viruses, Retroviruses. Distribution, classification and reproduction of algae (Fristch) and fungi (Ainsworth). Morphology, motility and reproduction in protozoa.

Industrial products derived from microbes, industrial enzymes, production of antibiotics, vitamins and vaccines, Single cell proteins, bio-fertilizers, nitrogen fixation. Infectious disease transmission, respiratory diseases caused by bacteria and viruses, tuberculosis, sexually transmitted disease including AIDS.

DNA Structure: different forms of DNA: A,B, Z, Satellite DNA, DNA replication, Enzymology of DNA replication, Okazaki fragments, Rolling circle replication. Transcription: basal transcriptional apparatus and transcription factors, reverse transcription. Regulation of gene expression, Operon concept, Post transcriptional and Post translational regulations, Antisense RNA, Translation: structure, Protein synthesis.

Biophysical and biochemical techniques: Centrifugation-Principle, theory and applications, chromatography-principle, theory and applications of chromatography. Spectrophotometry, Electrophoresis; basic principle, theory and applications.

Enzymology, Enzyme vs chemical catalysts; Nomenclature and classification of enzymes, Enzyme activity, enzyme action, Enzyme substrate complex, Types of enzymes. Enzymes; nomenclature and characteristics, concept of holoenzymes, apoenzyme co-enzyme and co-factors;

Plant Biochemistry: diffusion, osmosis, transport of water through xylem, transpiration; mechanism of opening and closing of stomata; Macro- and micro elements, Importance of mineral nutrients to the plant and their role, deficiency and toxicity symptoms. Photosynthesis- importance, pigments, action spectra, enhancement effect, photosynthesis I & II, Z-scheme, Calvin, C4 and CAM pathway and photorespiration; Respiration – aerobic and anaerobic, Kreb's cycle

Tools in genetic engineering: Restriction enzymes: Polymerases, ligases, kinases, phosphatases, exonucleases, DNase, RNase and proteinases; Cloning vectors; plasmids cosmids, Genomic and cDNA libraries, Polymerase chain reaction, DNA sequencing, DNA fingerprinting, molecular markers; gene cloning; Southern blotting, Introduction to Bioinformatics.

Water and its properties; physicochemical properties of water; Dissociation and association constants pH, buffers, pI, pKa, solutions, solubility criteria for solubility, hydrophobicity and hydrophilicity, Dielectric constant; Thermodynamics; free energy, enthalpy and entropy.

Carbohydrates, structure of mono-, di-, and polysaccharides. Glycoproteins, peptidoglycans, lipopolysaccharides; Carbohydrate metabolism-glycolysis, TCA cycle, Electron transport chain, oxidative phosphorylation, pentose phosphate pathway, glyoxylate cycle.

Amino acids, Chemical reactions; Structural organization of proteins, primary, secondary, tertiary and quaternary structure of proteins, Protein classification and functions; Biosynthesis and degradation of amino acids; Reduction and assimilation of atmospheric nitrogen.

Lipids and fats, classification of lipids and fatty acids, general structure and functions of major subclasses of lipids-acylglycerol, phosphoglycerides, sphingolipids, glycosphingolipids, terpenes, steroids and sterols: biosynthesis and degradation of fatty acids.

Nucleic acids, structure of nucleosides and nucleotides, biologically important nucleotides and their functions. Biosynthesis and degradation of nucleic acids. Vitamins and hormones; types of vitamins and their deficiency symptoms, steroid and peptide hormones.

Cell Biology: Ultrastructure and functions of primary cell wall, plasma membrane, E.R, golgi bodies, chloroplasts, mitochondria, ribosomes, nucleolus and nuclear membrane; Physical and chemical structure of chromosomes, centromere, telomere and sex chromosomes, Mitosis and meiosis:

Genetics: Structure and replication of nuclear DNA, types, effects and detection of intra- and inter-chromosomal alterations (deletions, duplications, inversions and translocations). Types, origin and effect of euploidy and aneuploidy. Spontaneous and induced mutations in pro- and eukaryotes, methods and uses; Transposons-structure and mechanism of transposition; Mendel's laws of segregation and independent assortment; allelic and non-allelic interactions; Linkage and recombination.

Plant tissue culture: Basic concept, cellular totipotency, differentiation and morphogenesis. Culture media (White's and Murashige and Skoog's); Plant growth regulators (Auxins, Cytokinins and Gibberellins) and their use in plant tissue culture; Initiation and maintenance of callus and suspension cultures; Somatic embryogenesis, Shoot tip culture for production of virus free plants.

Gene transfer in plants: using *Agrobacterium tumefaciens*, vectorless gene transfer; Major genes transferred through genetic engineering; application of Genetic engineering, production of transgenic plants with resistance against herbicides and insects; Golden Rice, Bt cotton.

BOTANY

General account of viruses, mycoplasma and cyanobacteria; Structure, nutrition, reproduction and economic importance of bacteria; General characteristics, economic importance and classification of algae (Fritsch 1935, 1945), fungi (Ainsworth, 1971), bryophytes Smith, 1955) and pteridophytes (Sporne, 1975); Important features of chlorophyceae, anthophyceae, phaeophyceae and rhodophyceae; Important features of masotigomycotina, zygomycotina and ascomycotina with emphasis on their life histories; Structure and reproduction in hepaticae, anthocerotales and musci; Important characteristics, structure and reproduction of psilopsida, lycopsida, sphenopsida and pteropsida.

Ultrastructure and functions of primary cell wall, plasma membrane, E.R, golgi bodies, chloroplasts, mitochondria, ribosomes, nucleolus and nuclear membrane; Physical and chemical structure of chromosomes, centromere, telomere and sex chromosomes. Mitosis and meiosis; Structure and replication of nuclear DNA, Organization of DNA in pro- and eukaryotic genomes; nucleosome model; Genetic code, transcription; regulation of gene expression in prokaryotes and eukaryotes, Protein synthesis, (1D, 2-D and 3-D) structure and function of proteins. Types, effects and detection of intra- and inter- chromosomal alterations (deletions, duplications, inversions and translocations). Types, origin and effect of euploidy and aneuploidy; Spontaneous and induced mutations in pro-and eukaryotes, methods and uses; Transposons-structure and mechanism of transportation; Mendel's laws of segregation and independent assortment; allelic and non-allelic interactions; Linkage and recombination.

Fossil Gymnosperms– a general account with emphasis on Bennettiales; morphology, anatomy and reproduction in *Williaisonia* and *Cycadeoidea*; Fossil angiosperms – a general account; Gymnosperms– general characters and diversity; morphology, anatomy, reproduction and life cycle of *Pinus* and *Ephedra*; Angiosperms – origin and evolution; characteristic features of some primitive angiosperms with special reference to *Magnolia*; Classical and modern history of angiosperm taxonomy; Taxonomic identification: Keys, floras, monographs, reviews; Botanical nomenclature–principles and rules, taxonomic ranks, type concept and principle of priority. Classification of angiosperms; role of anatomy, embryology and cytology in taxonomy; Morphological diversity of families: Ranunculaceae, Brassicaceae, Astraceae, Fabaceae, Solanaceae, Euphorbiaceae, Liliaceae, Amaryllidaceae and Poaceae; Basic architecture and branching pattern in seed plants.

Structural modifications of roots and shoots – a general account; Factors responsible for dwindling plant diversity & strategies adopted for its conservation; Apical meristems of root and shoot-structure, organization and role. Vascularization of primary root in mono & dicots; Epidermal modifications in mono- & dicots (stomata & trichomes) Vascular cambium and its derivatives, their role in translocation of water, minerals & food. Secondary growth – a general account, growth rings, heartwood, sapwood; periderm. Leaf- origin, development and vascularisation, senescence and abscission; Flower-structure, development & functions, micro- and megasporogeneses, micro- and megagametogeneses. Pollination types, attractants and rewards for pollinators, Pollen-pistil interaction, self incompatibility, Double fertilization, embryo & endosperm development, Formation of fruit and seed, Seed dormancy, types and importance; seed dispersal and seed germination, Propagation by vegetative means & importance; Morphological, anatomical and physiological responses of plants to water (hydro- and xerophytes), light (photoperiodism, helio- and sciophytes) and temperature (thermoperiodicity and vernalization).

Enzymes- discovery, nomenclature and characteristics, concept of holoenzymes, apoenzyme, co-enzyme and co-factors; Water-physical properties and importance to plant life, diffusion, osmosis, transport of water through xylem, transpiration; mechanism of opening and closing of stomata; Macro- and micro elements, Importance of mineral nutrients to the plant and their role, deficiency and toxicity symptoms. Photosynthesis– Importance, pigments, action spectra, enhancement effect, photosynthesis I & II, Z-scheme, calvin, C4 and CAM pathway and photorespiration; Respiration – aerobic and anaerobic, kreb's cycle; Recombinant DNA Technology- tools, techniques and uses; gene cloning, restriction endonucleases, gel electrophoresis, Southern blotting, vectors; Basic concept of Plant Tissue Culture, cellular totipotency, differentiation and morphogenesis.

Soil structure, profile, development and composition; Global warming and Climate change; Structure and composition of ecosystems; food chain, food web, ecological pyramids and energy flow; Community and population ecology: Characteristics, growth curves and Succession. Utilization of food (Wheat, maize, potato), fibres (Cotton and Jute), beverages (tea and coffee), spices (Asafoetida, Cumin, fennel, cloves, cinnamon, cardamom, coriander), Vegetable oils (groundnut, mustard and coconut) yielding plants. Medicinal plants of J&K - general account.

BUDDHIST STUDIES

Life of Gautama Buddha:

Birth and early Life; Renunciation; Enlightenment and Spread of Dhamma; Mahaparinirvana

Buddhist Councils:

First; Second; Third; Fourth

Fundamental Principles of Buddhism:

Four Noble Truths; Eightfold Noble path; Threefold Characteristics of Phenomena; Law of Dependent Origination

Royal Patronage of Buddhism:

Bimbisara; Ajatashatru; Ashoka; Menander

Spread of Buddhism during the reign of:

Kanishka; Guptas; Harshavardhana; Palas

Ancient Seats of Buddhist Learning:

Nalanda; Vikramshila; Odantpuri; Valabhi

Buddhist Stupas, Caves and Monasteries:

Sanchi; Dhamekh; Ajanta; Alchi; Hemis

Countries of Buddhist Faith:

Countries of Theravada Faith— Sri Lanka, Myanmar, Thailand, Cambodia, Laos and Indonesia.

Countries of Mahayana Faith— China, Korea, Mongolia, Japan, Vietnam and Tibet.

Prominent Chinese Travelers in India:

Fa-Hien; Xuangzang (Hiuen Tsang); I-Tsing

Applied/Engaged Buddhism:

Buddhism & Women Empowerment; Buddhism & Environment; Buddhism & Youth; Tourist Potential of Buddhism

B.Lib.I.Sc. (Bachelor of Library and Information Science)

1. Basic understanding of Different Subject
2. Aptitude for Libraries
3. Basic Computer & IT Skills
4. Basic English

B.P.Ed (PHYSICAL EDUCATION)

1. History of Sports
2. Sports Aptitude
3. General Knowledge of Different Games/ Sports

CHEMISTRY

Physical Chemistry: Colloidal State: Classification of colloids. Solids in liquids (sols): properties kinetic, optical and electrical stability of colloids, Protective action, Hardy-Schulze law, Gold number. **Solid State:** Space lattice, unit cell, Laws of crystallography- (i) Law of constancy of interfacial angles (ii) Law of rationality of indices (iii) Law of symmetry. Symmetry elements in crystals. **Gaseous State:** Postulates of kinetic theory of gases, Deviation from ideal behavior, van der Waals equation of state, Molecular Velocities: Root mean square, average and most probable velocities, Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter. **Liquid State:** Structural differences between solid, liquid and gas, Difference between liquid crystal, solid and liquid. **Chemical Kinetics and Catalysis:** Rate of a reaction, factors influencing the rate of a reaction-concentration, temperature, pressure, solvent, light, catalyst. Concentration dependence of rates, Mathematical characteristics of simple chemical reactions-zero order, first order, second order, pseudo order, half life and mean life. Determination of the order of reaction-differential method, method of integration, method of half life period, Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Simply collision theory, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects. **Thermodynamics:** First law of thermodynamics, Internal energy and enthalpy, Heat capacity, heat capacities at constant volume, pressure and their relationship, Joule's law. Joule-Thomson coefficient and inversion temperature. Calculation of w , q , dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process. Second law of thermodynamics: Carnot cycle and its efficiency, Carnot theorem, Thermodynamic scale of temperature. Concept of entropy: entropy as a state function, entropy as a function of V & T , entropy as a function of P & T , entropy as criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases. **Chemical Equilibrium:** Equilibrium constant and free energy, thermodynamic derivation of law of mass action. Le Chatelier's principle. **Phase Equilibrium:** Statement and meaning of the term-phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibrium of one component system-water. **Electrochemistry:** Electrical transport-conduction in metals and in electrolyte solution, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution, Migration of ions and Kohlrausch law, Arrhenius theory of electrolytes, dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law its uses and limitation, Debye-Huckel-Onsager's equation for strong electrolytes – elementary treatment only. Transport number, definition and determination by Hittorf method and moving boundary method. Applications of conductivity measurements: determination of (i) degree of dissociation (ii) K_a of acids (iii) solubility product of sparingly soluble salt, Conductometric titrations, concentration cell with and without transport, liquid junction potential, potentiometric titrations. Definition of pH and pK_a , Determination of pH using hydrogen, quinhydrone and glass electrodes by potentiometric methods. Buffers-mechanism of buffer action. **Elementary Quantum Mechanics:** Black-body radiation, Planck's radiation law, photoelectric effect, heat capacity of solids, Bohr's model of hydrogen atom (no derivation) and its defects, de Broglie hypothesis, Heisenberg's uncertainty principle, Hamiltonian operator, Schrodinger wave equation, physical interpretation of the wave function, postulates of quantum mechanics. Solution of the Schrodinger equation for particle in a box. **Solution, dilute solutions and colligative properties:** Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solution, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis, law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point. Abnormal molar mass, degree of dissociation and association of solutes.

Inorganic Chemistry: Chemical bonding: VSEPR theory, valence bond theory and hybridization models, MO theory, multicenter bonding, percentage ionic character from dipole moment and electronegativity difference. Ionic structures, radius ratio rule, lattice defects, semiconductors, lattice energy and Born-Haber cycle, solvation energy and solubility of ionic solids, Fajan's rule, metallic bond, weak interactions. **Chemistry of elements of transition series:** General characteristics, comparative study of 3d, 4d and 5d transition elements in respect of ionic radii, oxidation states, magnetic behavior, spectral properties and stereochemistry. Werner's theory, nomenclature and isomerism in coordination compounds, crystal-field theory. **Hard and soft acids and bases (HSAB):** Classification of acids and bases hard and soft. Pearson's HSAB concept. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness. **Thermodynamic and kinetic aspects of metal complexes:** Thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planer complexes. **Magnetic properties of transition metal complexes:** Types of magnetic behavior, methods of determining magnetic susceptibility, L-S coupling, application of magnetic moment data for metal complexes. **Organometallic Chemistry:** Definition, nomenclature and classification of organometallic compounds. Preparation, properties, bonding of metal-alkyls, metal-alkene complexes, homogeneous hydrogenation, metal carbonyls. **Bioinorganic Chemistry:** Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkaline earth metal ions. Nitrogen fixation.

Organic Chemistry: Structure and Bonding: Charge transfer complexes, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding. **Reactive intermediates:** Carbocations, carbanions, free radicals, carbenes (with examples). **Optical isomerism:** Elements of symmetry, Enantiomers, diastereomers, relative and absolute configuration. **Geometrical isomerism:** E & Z system of nomenclature. **Alkenes:** The Saytzeff rules, Hofmann elimination, relative stabilities, electrophilic and free-radical addition, Markownikoff's rule, hydroborations-oxidation. **Alkanes:** Isomerism in alkanes, methods of formation Wurtz reaction, Kolbe reaction, Corey House reaction and decarboxylation of carboxylic acids). **Aromatic electrophilic substitution:** general pattern of the mechanism, role of σ and π -complexes. Mechanism of nitration, halogenation, sulphonation, Friedel-Crafts reaction. Activating and deactivating substituents, orientation and ortho/para ratio. **Nucleophilic substitution:** S_N2 and S_N1 reactions. **Spectroscopy:** IR, Intensity and position of IR bands, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds. 1H -NMR: nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, PMR spectra of ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone. **Monohydric alcohols:** formation by reduction of aldehydes, ketones, carboxylic acids and esters. **Dihydric alcohols:** oxidative cleavage [$Pb(OAc)_4$ and HIO_4] and Pinacol-Pinacolone rearrangement. **Phenols:** Reimer Tiemann reaction, Fries rearrangement. **Carbonyl compounds:** Nucleophilic addition to carbonyl group, Benzoin, Aldol, Perkin and Knoevenagel condensations. Baeyer-Villiger oxidation, Cannizzaro reaction, Wolff-Kishner, $LiAlH_4$ reduction. Relative stability of acyl derivatives. Interconversion of acid derivatives. Preparation of carboxylic acid derivatives, Chemical reactions. **Carbonyl enolates:** Alkylation of diethyl malonate and ethyl acetoacetate. Claisen condensation. Keto-enol tautomerism. **Grignard reagents:** formation, structure and chemical reactions. **Amino acids:** classification, structure and stereochemistry, acid base behavior, isoelectric point and electrophoresis. **Heterocyclic Compounds:** synthesis, aromatic characteristics of pyrrole, furan, thiophene and pyridine and their electrophilic substitution. Mechanism of nucleophilic substitution reactions in pyridine. Comparison of basicity of pyridine, piperidine and pyrrole. **Carbohydrates:** Monosaccharides, Mechanism of osazone formation, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses. **Synthetic Polymers:** addition or chain-growth polymerization, Ziegler-Natta polymerization and vinyl polymers. Condensation or step growth polymerization.

COMMERCE

Accounting:

Accounting Ratios: Liquidity, efficiency, profitability and solvency; Components and preparation of cash flow statement; Break –even analysis; Profit-volume ratio; Methods of inventory valuation; Cost classification; Overhead classification; Normal versus abnormal loss; Labour rate methods; Process costing; Joint product and by-product process costing.

Taxation:

Direct and indirect tax systems; Cannons of taxation; Merits and demerits of direct and indirect taxes; Exempted incomes; Salary income and tax liability; Various types of allowances and perquisites; Concept of VAT

Auditing:

Rights, duties powers and liabilities of company's auditor; Qualification and qualities of company auditor; Vouching: Meaning and types; Auditors Report: Qualified and unqualified; Investigation: Meaning and need; Audit versus Investigation.

Business Laws:

Bailment and pledge; Contract of agency; Negotiable instruments; Memorandum of association and Articles of associations; Formation and winding up of companies; Various types of shares and debentures.

Money and Financial System:

Types of financial markets: Money and capital markets; Online banking; Various types of investors.

Economics and Statistics:

Micro Vs Macro economics; Cardinal Versus Ordinal approach; Introduction to various markets based upon competition: Monopoly & monopolistic; Dispersion: Range, mean deviation and standard deviation; Correlation and regression analysis; Types & methods of constructing index numbers.

Management:

Taylor's Scientific management; Henry Fayol's managerial philosophy; System Vs contingency approach; Functions of management; Concepts of delegation; Accountability and responsibility.

DOGRI

Sheeraza Dogri Ghazal Ank No. 147 (Prescribed Poets: Prof. Ram Nath Shashtri, Dr. Jitendra Udhamपुरi, Darshan Dharshi, Mohan Singh, Virender Kesar, Prof. Champa Sharma, Ashwini Magotra, Padam Dev Nirdosh, Vijay Verma), Sheeraza Dogri No. 168 (Talmian Dogri Kavitan Part-I& II), Sheeraza Dogri No.154 (Chonamen Dogri Nibandh Vishesh Ank, Part-I & II) and Sarha Sahitya-1997 Ekanki Ank published by J&K Academy of Art, Culture and Languages, Jammu.

Bawa Jitto by Prof. R.N. Shastri, Trutti Di Dor by Sh. Ved Rahi, Dogri Sahitya Charcha by Prof. Laxmi Narayan and Katha Kunj Bhag-II published by Dogri Sanstha, Jammu

History of Dogri Poetry, Short Story and Drama upto 1980 (Book prescribed: Dogri Sahitya Da Itihas by Shiv Nath) and History of Dogri Novel (Book prescribed: Dogri Sahitya Da Itihas by Shiv Nath), published by Sahitya Akademi, New Delhi.

Matterean by Inderjeet Kesar published by Jai Mata Parkashan, 2-P, Sector-3, Chhanni Himmat, Jammu.

ECONOMICS / ECONOMICS (Specialization in Public Policy)

Micro Economics : Theory of demand, Theory of production, Market structure, Factor pricing, Welfare economics

Indian Economy : Indian Economy at the time of Independence, Structure of the Indian economy and planning , Agriculture in India, Industrial development in India

Macro Economics : National Income and Social Accounts, Output and employment, Financial markets and rate of interest , Trade cycles, Macro economic policy and inflation

Money, Banking and Public Finance : Money and theories of money, Commercial banking and central banking, Nature and scope of public finance, Taxation, Public debt and financial administration

International Economics : Importance of trade and trade theories, Gains from trade, Tariffs and quotes, Balance of payments and International Institutions, Foreign trade in India.

Development and Environmental Economics: Development and economic Growth, Economic development, population and Institution, Sectoral view of development, International aspects of economic development, Environment and ecology

EDUCATION

Psychology and Education: Meaning of: i) Education ii) Psychology iii) Educational Psychology, Relationship between Education and Psychology. Difference between Psychology and Educational Psychology. **Theories of Learning** – Thorndike’s Trial and Error Theory – Concept, Experiment, Laws of Learning based on the theory. Educational implications of the theory. **Gestalt Theory of Learning** by Wolfgang Kohler, Concept, Experiment, Educational Implications of theory. **Intelligence** : Meaning and Definition of Intelligence. **Two Factor Theory** by Charles Spearman, Description of the Theory, Characteristics of ‘g’ factor and ‘s’ factor, Educational Implications of the Theory. **Primary Mental Abilities Theory** by LL Thurstone: Description of the Theory, Educational Implications of the Theory. **Intelligence Tests**: Concept of Intelligence Tests, Uses of Intelligence Tests. Concepts of I.Q (Intelligence Quotient) MA (Mental Age) and CA (Chronological Age), Classification of I.Q. given by L.M. Terman.

Memory and Forgetting : Meaning and Definitions of Memory and Forgetting. **Components of Memory** : Learning, Retention, Recall and Recognition. Types of Memory, Signs of Good Memory, Methods of memorizing, Factors responsible for causing forgetting.

Measures of Central Tendency : Concepts of Mean, Median and Mode, Computation of Mean, Median and Mode of grouped and ungrouped data. Uses of Various Measures of Central Tendency in educational situations. **Education : Concept, Aims and Agencies**: Concept of Education: Functions of Education : Preservation, Transmission and Enrichment. **Aims of Education**: Concept of Aims, Individual Aim, Social Aim, Individual Vs Social Aim. **Agencies of Education**: Concept of Agencies of Education, Family, Home and School as major agencies imparting education in a society.

Curriculum and its Development: Curriculum : Meaning and Definitions. **Types of Curricula**- Subject Centred and Learner Centred. Basic Principles of Curriculum Construction. **Curricular and Co-curricular Activities**: Concepts and Types of Co-Curricular Activities, Importance of Organizing Co-curricular Activities in Educational institutions. **Education and Social Change**: Meaning and Definitions of Social Change, Factors responsible for bringing about social change, Role of Education. **Education and National Integration** – Concept of National and Emotional Integration, Barriers in way of achieving National Integration, Role of Education in promoting National Integration.

Methods of Studying Human Behaviour

Introspection- Meaning and definitions, process involved in introspection, merits and limitations of the method. **Observation** –Meaning and Definitions, Types: Controlled and Uncontrolled, steps involved during observation, merits and limitations. **Experimental** – Meaning and definitions, characteristics, steps involved in experimental method, merits and limitations.

Gifted and Creative Children: Meaning and definitions, difference between gifted and creative children. Characteristics of gifted children, identification of gifted children, educational provisions for the gifted children. **Mentally Retarded children:** Concept of mental retardation, causes of mental retardation, educational provisions for mentally retarded children **Motivation and Adjustment: Concept :** Types of motivation (intrinsic and extrinsic) Bases of motivation –needs (physiological and psychological) and drives. **Personality: Concept,** Development of Personality, Types of Personality , Assessment of Personality : Subjective Techniques (Anecdotes, Autobiography and Case Study), Projective Techniques

Elementary Education: Concept , objectives of elementary education. Concept of Universalization of Elementary Education (UEE), Promotion of UEE through Sarva Shiksha Abhiyan (SSA) **Secondary Education:** Concept, Objectives of secondary education, Organizational Pattern as suggested by Kothari Commission of Education (1964-66) and National Policy on Education 1986, Main problems of secondary education and remedial measures to solve these problems. **Higher Education :** Concept, objectives of higher education as per National Policy on Education. Problems being faced in higher education with emphasis on problem of Selective Admission, Autonomy & Examination and their remedial measures.**Women Education:** Concept of women education, Need for prioritizing women education, Problems of women education and suggestive remedial measures. **Adult Education:** Concept of Adult Education, Functions of adult education. National Adult Education Programme (NAEP)-Meaning and its features, National Literacy Mission (NLM), objective and importance. **Educational Technology :** Concept of Educational Technology , Various approaches to implement educational technology towards Quality Education, Role of ICT in Education. **Teacher Education:** Concept of teacher education, objectives of teacher education in India. Problems of teacher education, Role of NCTE in improving the quality of teacher education in India.

Idealism : Concept, Salient features of Idealisms with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher. **Pragmatism :** Concept, Salient Features of Pragmatism with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher. **Naturalism :** Concept, Salient Features of Naturalism with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher.

Concept of Indian Society : Social Justice and Equality, Human Rights, Consumer Rights, Gender Equality, Environmental Degradation, Globalization and Privatization- Role of Education. **Community and Education :** Meaning of Community , Role of Education for upliftment of Community, Mass Media as a Social Means of Education. **Education and Culture-** Concept of Culture, Features of Indian Culture, Relation between Education and Culture. **Inclusive Education :** Meaning, Scope and Role of Inclusive Education. **Vedic Education :** Meaning of Vedas, Aims of Education, Curriculum and Organization, Yoga- Meaning and Importance of Yoga Philosophy. **Buddhist Education :** Aims of Education, Curriculum, Women Education, Qualities and Duties of Teachers. **Islamic Education :** Salient Features, Aims, Process of education and curriculum with reference to Maktabas and Madrasas, Islamic Centres of Higher Education at Delhi, Agra, Jaunpur and Bihar. Sargent Report (1944), Radha Krishnan Commission –(1948), Mudaliar Commission-(1952-53), Kothari Commission-(1964-66), National Policy of Education (NPE) 1986 and 1992, CABE- Meaning, Composition and functions, NCERT- Meaning, Composition and Functions.

ELECTRONICS

Network analysis: Kirchoff's laws, Source transformation, Mesh and Nodal analysis, Star delta transformation, Thevenin's, Norton's and Maximum power transfer theorem; Transient analysis of RC, RL, RLC circuit using differential equations and Laplace transform, Series and Parallel resonance; Filters: Fundamentals, constant k & m derived filters; PN-junction diode equation and equivalent circuit, Rectifiers, Zener diode, LED, Solar cell, Tunnel and Varactor diode; Bipolar junction transistor (configurations, biasing and small signal analysis using h parameters); UJT, FET and MOSFET (construction, working, and characteristics); Oscillators (Barkhausen criteria, Phase shift, Wein bridge and Crystal oscillators); Effects of voltage series feedback.

Basic PMMC movement and its use for voltage & current measurement, AC voltmeter, Electronic multimeter, Digital voltmeters, Q meter); CRO (block diagram, working, and applications); Transducers (photoelectric, piezoelectric, potentiometric, strain gauges, thermocouples, thermistors); Op-amp: ac and dc characteristics, closed loop configurations and applications (integrator, differentiator, voltage to current converter, current to voltage converter, summer, subtractor, and comparators) ; 555 timer; Logic gates and their families(TTL and CMOS); Boolean algebra, K-maps upto 4 variables, half and full adders; subtractors; parity checkers; magnitude comparators; decoders; and encoders; sequential circuits (flip-flops, registers, and counters); memories (ROM: PROM, EPROM, and EEPROM; RAM); A/D and D/A converters.

Propagation of waves (free space, tropospheric, and ionospheric propagation); surface waves; antennas (equivalent circuits, radiation fields, polarization, ionospheric radiation, power gain of Hertzian dipole, grounded, and ungrounded antennas); analog modulation and demodulation (amplitude and frequency); digital modulation (pulse amplitude, pulse width, pulse position, pulse code modulation); fibre optic communications (introduction, principles, and advantages); satellite communication (introduction, orbits, station keeping, satellite altitude, transmission path, path loss, and noise considerations); principle of TV communication (TV systems and standards, scanning and blanking pulses, composite video signal). 8085 microprocessor architecture (address bus, data bus, control bus, and registers, internal data operations, externally initiated operations, demultiplexing AD7-AD0, generating control signals, op-code fetch, memory read, and memory write); 8085 programming (instruction classification, instruction formats, addressing modes, data transfer instructions, arithmetic operations, logic operations, branch operations, looping, 16-bit arithmetic instructions, logic operations, counters and time delays); interfacing devices (8255, 8253 and 8279); C programming: data types, operators, data input and output statements, functions, arrays, pointers, structures and unions.

ENGLISH

UNIT-I: HISTORY OF ENGLISH LITERATURE

1. **Elizabethan Period:** The Renaissance and Reformation Movements; Influence of Renaissance and Reformation on the Elizabethan Literature; Main trends of Elizabethan Prose, Poetry and Drama
2. **Jacobean and Restoration Period:** Main features of Jacobean Drama; Main characteristics of Restoration Comedy
3. **Neo-Classical Period:** Main characteristics of Neo-Classical Poetry; Main Features of Neo-classical Prose; Leading characteristics of Neo-classical Drama
4. **Romantic Period:** Background of the Romantic Movement; Leading characteristics of Romantic Poetry; Main characteristics of Romantic Prose
5. **Victorian Literature:** Main trends of the Victorian Poetry; Main features of the Victorian Prose; Main characteristics of the Victorian Fiction
6. **Twentieth Century Literature (1900-1959):** Main trend of the 20th Century Poetry; Main Dramatic trends ; Main trends of English Novel

Unit –II: DRAMA

Kind of Drama: Tragedy, Comedy, Tragi-comedy, Comedy of manners, History Play.

William Shakespeare: Macbeth; Julius Caesar; **R.B. Sheridan:** The Rivals; **Henrik Ibsen:** Doll's House; **G.B. Shaw:** Candida

Unit – III: PROSE AND FICTION

Key Concepts: Epigrammatic, Aphorism, Pathos, Irony, Satire, Wit, Realism
Verisimilitude

Prose: **Francis Bacon:** Of Studies; **Joseph Addison:** The Exercise of Fans; **Charles Lamb:** In praise of Chimney Sweepers; **Arthur Clutton Brock:** The Defects of English Prose; **J.B. Priestley:** On Doing Nothing

Novel: **Charlotte Bronte:** Jane Eyre; **R.K. Narayan:** The Vendor of Sweets

Unit- IV: POETRY

KINDS OF POETRY : Lyric, Ode, Elegy, Sonnet, Ballad, Dramatic Monologue; **Figures of Speech:** Simile, Hyperbole, Oxymoron, Synecdoche, Personification, Metaphor, Metonymy, Paradox, Apostrophe, Pun, Allusion, Allegory, Alliteration, Assonance, Onomatopoeia, Conceit, Zeugme.

POEMS: **John Milton:** Satan's Speech; **Andrew Marvel:** To His Coy Mistress; **John Keats:** Ode to Autumn Eve of St. Agnes; **William Wordsworth:** Ode to Duty, Lines Composed on Tintern Abbey; **Matthew Arnold:** Scholar Gypsy; **T.S. Eliot:** Journey of the Magi; **Wilfred Owen:** Strange Meeting; **Robert Browning:** My Last Duchess; **S.T. Coleridge:** Youth and Age; **William Shakespeare:** The Lover, The Lunatic and the Poet; **Emily Dickinson:** Renunciation.

ENVIRONMENTAL SCIENCES**UNIT-I : THE LIVING WORLD**

Nature and scope of Biology : its relation with other sciences, techniques and instruments, why to study Biology, scientific method. Being alive : What does it mean ? Present approach to understand life process; molecular approach; life as an expression of energy; steady state and homeostasis; self duplication and survival; adaptation; death as a positive part of life; an attempt to define life in the light of the above. Origin of life, evolution and its maintenance; origins of life, evolution, the living crust and interdependence, our place and our role, the positive and negative aspects of progress in biological sciences. The future of living world, identification of human responsibility in shaping our future.

UNIT-II : DIVERSITY OF LIFE

Introduction. The enormous variety of living things, the need for classification to cope with this variety ; taxonomy and phylogeny; the meanings of a five kingdom classification- monera, protista, plantae, fungi and animalia. The basic features of five kingdom classification; concept of species, taxon and categories - hierarchical levels of classification; binomial nomenclature, principles of classification and nomenclature; kingdom **monera** (archaebacteria, actinomycetes); **protista** (photosynthetic protista, Slime mould and protozoan protista); **fungi** (zygomycetes, ascomycetes and basidiomycetes; Lichens & mycorrhizae); **plantae** (algae, bryophytes, pteridophytes, gymnosperms, angiosperms); **animalia** (porifera, coelenterata, helminths, annelids, mollusca, arthropoda, echinoderms; chordate).

UNIT - III : NATURAL RESOURCES

Forest resources: Use & over-exploitation, deforestation. Timber extraction, mining, dams & their effects on forests & tribal people. Water resources: Use & over utilization of surface and groundwater, floods, drought, conflicts over water, dams-benefits & problems. Mineral resources : Use & over-exploitation environmental effects of extracting & using mineral resources. Food resources : World food problems, changes caused by agriculture & overgrazing effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, Energy resources : Growing energy needs, Renewable & non-renewable energy sources, use of alternate energy sources. Land resources : Land as a resource, land degradation, man induced landslides, soil erosion & desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT - IV : COMMUNITY AND ECOSYSTEMS

Population: Interaction between environment and population, Biotic community interaction between different species, biotic stability, concept of an ecosystem, structure and function of an ecosystem, producers, consumers and decomposers, energy flow in the ecosystem, ecological succession, food chains and food webs, ecological pyramids. Types, characteristic features, structure and function of the forest ecosystem, grassland ecosystem, aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

UNIT-V : BIODIVERSITY & ITS CONSERVATION

Introduction- definition : genetic, species & ecosystem diversity ; Bio-geographical classification of India ; value of biodiversity : consumptive use, social, ethical, aesthetic & option values ; biodiversity at global, national & local levels ; India as a mega-diversity nation ; hot-spots of biodiversity ; threats to biodiversity - habitat loss, poaching of wildlife, man-wildlife conflicts : endangered & endemic species of India ; conservation of biodiversity : In situ & Ex-situ conservation of biodiversity.

UNIT -VI : ENVIRONMENTAL POLLUTION

Definition, causes, effects & control measures of : air pollution, water pollution, soil pollution, marine pollution, noise pollution, thermal pollution, nuclear hazards ; Solid waste management : causes, effects & control measures of urban & industrial wastes ; role of an individual in prevention of pollution ; Disaster management : floods, earthquake, cyclones & landslides.

UNIT - VII : SOCIAL ISSUES AND THE ENVIRONMENT

From unsustainable to sustainable development; urban problems related to energy, water conservation, rain water harvesting, watershed management, Resettlement & rehabilitation of people ; its problems & concerns. Environmental ethics : Issues & possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents & holocaust. Wasteland reclamation, Consumerism & waste products, Environment Protection Act, Air(Prevention & Control Pollution)Act, Water (Prevention & Control Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, public awareness.

UNIT-VIII : APPLICATION OF BIOLOGY

Bio-fertilizers- green manures, nitrogen fixation - symbiotic & non symbiotic. Communicable diseases including STD & diseases spread through blood transfusion such as AIDS & Hepatitis. Immune response - vaccines & antisera, allergies & inflammations. Inherited diseases & dysfunctions sex linked diseases, genetic incompatibility & genetic counseling. Cancer : major types, causes, diagnosis & treatment. Human population growth - problems & control , Test tube babies, amniocentesis.

FOOD SCIENCE AND TECHNOLOGY

UNIT-I

- Basic five food groups and how to use food guide. Inter-relationship between nutrition and health.
- -Water balance-effect of deficiency.
- Recommended dietary allowances, B.M.R activities. Utilization of food for energy requirements.
- -Carbohydrates:- classification, structure, properties, food sources, function. Other sweetening agents.
- -Fats and oils-classification, properties, food sources, functions, emulsions.
- -Amino acids and proteins-sources, functions, properties, denaturation. Assessment of protein quality, nitrogen balance, protein deficiency changes during cooking and processing of Carbohydrates, fats & protein
- -Minerals-functions, sources, and deficiency.
- -Vitamins- classification, sources, functions and deficiency.
- -Vitamin and mineral loss during processing, fortification, enrichment and restoration.
- -Enzymes, nomenclature, kinetics, controlling enzyme action. Enzymes added to food during processing, enzyme inhibitors present in food.
- -Pigments & Flavours in fats, fruits & vegetables.

UNIT-II

- Introduction to microbiology, General characteristics of bacteria, fungi, virus, algae.
- -Role of microbiology- Environmental effect on microbial growth.
- -Effects of micro-organisms on food degradation and food born illness- Bacteria, virus, molds, yeasts and parasites.
- -Control of micro-organisms, growth curve, oxygen availability, temperature and others.
- -Microbial intoxications and infections-sources of contaminations of food, toxin production and physiological action and method of control. Beneficial effects of micro-organisms, relevance of microbiological standards for food safety.
- -Microbial spoilage & contamination of cereals and cereal products, sugar and sugar products, vegetables and fruits, Fish and other sea foods, Eggs and poultry, Meat products milk and milk products, Canned and other processed foods.
- -Food contamination:-sources & transmission.
- -Importance of personal hygiene of food handler.
- -Safety in food, procurement, storage handling and preparation, control of spoilage.

UNIT-III

- -Sensory assessment of food quality by various methods.
- -Types of panels trained and consumer panels, semi-trained. Importance of packaging, Evaluation of food package, criteria, appearance, protection, function, cost, material and forms of packing, Different food packaging material, Packaging and labeling, Shelf life estimation methods.
- -Principles of food processing & preservation:-thermal processing, ionizing, radiation, refrigeration, freezing, dehydration, chemicals.
- -Basic processing technology of cereals and legumes, oil seeds, fruits and vegetables, milk and milk products, meat, fish, poultry and eggs.
- -Fermentation technology, preservatives and additives, extruded foods.
- -Spectrophotometry, Fluorimetry, Radioactivity, chromatography.

UNIT-IV

- -Food Laws & Food Standards.
- -Food Adulteration, adulterants & tests for detection.
- -Importance of toxicology.
- -Naturally occurring toxins in various foods.

- -Physical treatment of food and health hazards, carcinogens, Genetically engineered Foods and their safety.
- -Sampling techniques, preparation of sample.
- -General physical methods to analyse foods:- Lactometer, Refractrometer, Polarimetry & Polarography, Food Rheology, Viscosity, Surface tension, Freezing point.
- -General Chemical methods of analysis in Food:- proximate principles, Specific gravity, Total protein, Total fats, Total carbohydrates, Crude fibre and dietary fibre.

UNIT-V

- -Market and consumer research. Needs and types of foods – consumption trends, Economics, Psychological, Anthropological and Sociological dimensions of food consumption.
 - -Trends in social changes and its role in diet pattern in the social trends as a frame work in new product innovation.
 - -Food situation in India and outside. Tapping the unconventional post harvest losses and prospects for food processing for export.
 - -Product development – Primary processing, secondary processing.
 - -Fabricated foods. Convenience foods.
- Entrepreneurship:- Plant location, Investment, Financing in Project, Equipment and Space, Costing of product, advertising and marketing.

GEOGRAPHY

Physical Geography: Origin of the Earth, Earth's Interior and Composition, rocks-origin and types, Geomorphic agents and processes, Geomorphic landforms, Volcanoes and Earthquakes. Atmospheric composition and structure, Atmospheric temperature, pressure, Weather and climate, Climatic classification, Atmospheric disturbance-Cyclone, Western Disturbance. Configuration of Ocean floor, Temperature of sea water, salinity of seawater, ocean water circulation and currents, Tsunami, Coral Reefs, Ocean Deposits.

Geography of India: India in context to Asia, Physiographic division of India, Indian Monsoon, River system, Climate and natural vegetation, Soil, Indian Agriculture, Environmental Problems and measure of Conservation.

Resource Geography: Classification of resources, Major resources with reference to water, Mineral, Agricultural, Soil, Petroleum, Forest and Biotic resources and their world distribution, Resource depletion and their conservation.

Geography of Asia: Countries and Regions of Asia, Physiography, Climate, Vegetation, Population, Asia's position in the World, European exploration of Asia.

Geography of Jammu & Kashmir: J&K in context of India, Physiography, Climate, Drainage, Agriculture, Horticulture, Apiculture, Sericulture, Industries, Export import, Transport and communication, Tourism Development.

Practical Geography: Scale, Projections, Statistical techniques in Geographical Analysis-Mean, Median Mode, Standard Deviation, Isoleth and Choropleth, GIS, Remote Sensing and GPS.

GEOLOGY

The entrance test (JUET-2014) for M.Sc. Geology shall be based on the syllabi of the Geology at Undergraduate Level i.e. as per syllabi of Geology in B.Sc. Part I, II & III.

GEOLOGY (Hydrology and Soil Dynamics)

1. **Physical and Structural Geology:** Origin of the Earth, Age of the Earth, Interior of the earth, Structure and constitution of the interior of the earth, Earthquakes: Definition, Effects, Causes, Distribution of earthquake belts. Concepts of Plate Tectonics, Weathering: Types, Products, Geological work of Running water and Underground water. Exploring Earth's interior with geophysical techniques. Earth's thermal history, Convection currents, Gravitational Field, Isostasy
Introduction to Structural geology: Topographic maps, Geologic maps, Outcrops and their trends with reference to slope and topography. Clinometer compass and its uses, attitude of beds, Study of Folds, Faults, Unconformities, Joints
2. **Hydrogeology:** Hydrologic cycle, Origin of water, Meteoric, Juvenile, Magmatic and Vertical distribution, Zones of aeration and saturation, water table, springs, rock properties affecting groundwater. Brief description of types on interstices, porosity, specific yield, specific retention and permeability, Types of aquifers: Unconfined, Confined, Perched, Aquifuge, Aquitard, Aquiclude, Ground water levels and a short account of causes for their fluctuations
3. **Mineralogy/ Economic Geology / Crystallography:** Megascopic and Microscopic identification and description of important minerals and rocks, Processes of formation of ore deposits, Common forms and structures of ore deposits, Classification of ore deposits, Control of ore deposition, Metallogenic epochs, Study of important metallic and nonmetallic deposits. Identification and descriptions of crystal models of normal class type minerals in each system. Important twin crystal models
4. **Environmental Geology and Engineering Geology:** Introduction to Environmental Geology, Short account of renewable and non-renewable resources, Mitigation and Disaster and remedial measures relating to natural hazards. Environmental degradation due to mining and mineral processing, effects of urbanization on quality of surface waters and causes for groundwater pollution, Impacts of man on environment, types of pollution.
Role of Engineering geologists in planning, design and construction of major man-made structural features, Elementary concepts of rock mechanics and rock engineering. Soil mechanics, Site investigation, characterization and problems related to civil engineering projects: Environmental considerations related to civil engineering projects. Geological hazards (landslides and earthquakes) their significance, causes and preventive/remedial measures.
Engineering properties of rocks and soils, Dams and Reservoirs, Brief description of the following types: Earth dam, Concrete dam, Arch dam and Buttress dam, Tunnels- Geological consideration and description
5. **Hard Rock Petrology/Sedimentology:** Classification of Igneous rocks - based on mode of occurrence, mineralogy, chemistry, textures and microstructures, Brief outline of standard Metamorphic Facies (Green schist, Amphibolite, Hornfels, Granulite, Eclogite), Description of metamorphic rock types - Strongly foliated (Slates, Phyllites, Schists), Weakly foliated (Mylonites, Gneisses, Migmatites), Non foliated (Quartzite, Marble, Skarn, Hornfels, Argillite, Granulite)
Classification of Sedimentary rocks based on mineralogical composition and characters of the sediments (size and shape), Description of sedimentary rocks – Rudaceous group, (Conglomerate, Breccia), Arenaceous group, (Sandstone, Grit, Arkose, Greywacke) Argillaceous group, (Shale), Calcareous group (Limestone, Dolomite) and Oxides-Hydroxides group (Laterite, Bauxite). Processes and environments of sedimentation
6. **Stratigraphy and Palaeontology:** Geological time-scale, Stratigraphic procedures of correlation of unfossiliferous rocks, Precambrian stratigraphy of India, Stratigraphy of the Palaeozoic, Mesozoic and Cenozoic formations of India, Morphology and time-ranges of important fossil Groups, Siwalik vertebrate fauna and Gondwana flora

HINDI

**निर्धारित पुस्तक — ‘काव्यतारा’ संपादक — डॉ. बद्रीनाथ तिवारी, डॉ. राजेन्द्र प्रसाद सिंह
प्रकाशक — राजकमल प्रकाशन, नई दिल्ली।**

पुस्तक के पीछे अभ्यास के लिए प्रश्न दिए गए हैं।

‘साहित्यिक आलोचना’

कविता, निबंध, नाटक, कहानी, उपन्यास — परिभाषाएं एवं तत्व तथा उपन्यास और कहानी में अन्तर।

हिन्दी साहित्य का इतिहास

1. आदिकाल : नामकरण, परिस्थितियां, प्रवृत्तियां, प्रमुख रचनाकार (विद्यापति, अमीर खुसरो, चन्द्रबरदाई, नरपति नाल्ह)
2. पूर्वमध्यकाल (भक्तिकाल) की ऐतिहासिक पृष्ठभूमि, सभी प्रमुख धाराओं की विशेषताएं, प्रमुख कवि (सूर, तुलसी, कबीर, जायसी) एवं उनकी कृतियां
3. रीतिकाल : नामकरण, परिस्थितियां, प्रवृत्तियां, प्रमुख रचनाकार (बिहारी, भूषण, घनानन्द, देव)
4. आधुनिक काल ‘क’ पद्य भाग — भारतेन्दु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता (मात्र प्रवृत्तियां)
‘ख’ गद्य भाग — कहानी, उपन्यास, नाटक एवं निबन्ध (उद्भव एवं विकास)

काव्यांग परिचय

‘क’ काव्य का स्वरूप हेतु एवं प्रयोजन। रस के विभिन्न भेद

- ‘ख’
1. प्रमुख छंद — दोहा, चौपाई, सोरठा, इन्द्रवज्रा, भुजंग प्रयात, सवैया
 2. प्रमुख अलंकार — अनुप्रास, यमक, श्लेष, उपमा, उत्प्रेक्षा, रूपक, विभावना, अतिशयोक्ति

B.A. Part-II

निर्धारित पुस्तक — ‘रश्मिस्थी’ (खण्डकाव्य) — लेखक — रामधारी सिंह दिनकर

प्रकाशक — केदारनाथ सिंह, उदयाचल राजेन्द्रनगर, पटना-4

पाठ्यक्रम का विवरण

1. रश्मिस्थी — काव्यरूप/खण्डकाव्य
2. रश्मिस्थी में भाग्य और पौरुष सम्बन्धी विचार
3. रश्मिस्थी में युद्ध और धर्म सम्बन्धी चिन्तन
4. रश्मिस्थी में वर्तमान जीवन की अभिव्यक्ति
5. ‘रश्मिस्थी’ शीर्षक की सार्थकता
6. प्रमुख पात्रों का चरित्र चित्रण
7. कवि दिनकर का साहित्यिक परिचय

निर्धारित पुस्तकें

1. ध्रुवस्वामिनी, लेखक — जयशंकर प्रसाद, प्रकाशक — राजकमल प्रकाशन, दिल्ली
2. गद्य फुलवारी — राजपाल प्रकाशन

विवेच्य विषय — नाटक

1. ध्रुवस्वामिनी की ऐतिहासिकता
2. स्त्री विमर्श की दृष्टि से ध्रुवस्वामिनी
3. ध्रुवस्वामिनी की मूल समस्या/प्रतिपाद्य/उद्देश्य
4. प्रसाद की नाट्यकला
5. ध्रुवस्वामिनी की रंगमंचीयता

विवेच्य विषय — गद्य फुलवारी

1. हिन्दी रेखाचित्र/संस्मरण/यात्रा वृत्तान्त के विकास में पाठ्यक्रम में निर्धारित लेखकों का स्थान
2. व्यंग्य साहित्य के विकास में पाठ्यक्रम में निर्धारित लेखकों का स्थान
3. एकांकी के विकास में धर्मवीर भारती का स्थान
4. हिन्दी निबन्ध के विकास में निबन्धकार (पाठ्यक्रम में निर्धारित) का स्थान
5. पाठ्यक्रम में निर्धारित सभी पाठों का आलोचनात्मक मूल्यांकन

B.A. Part-III**निर्धारित पुस्तक**

‘शकुन्तलायन’ लेखक — डॉ. ओमप्रकाश गुप्त, प्रकाशक — राजपाल एण्ड सन्ज, दिल्ली

पाठ्यक्रम का विवरण

1. शकुन्तलायन का महाकाव्यत्व
2. नामकरण की सार्थकता
3. नारी भावना
4. प्रकृति चित्रण
5. प्रमुख पात्रों का चरित्र चित्रण
6. काव्य सौन्दर्य

निर्धारित पुस्तकें

1. उपन्यास — आप का बंटी — मन्नु भंडारी, राधाकृष्ण प्रकाशन
2. कहानी संग्रह — कहानी एकादशी, लेखक — दशरथ ओझा, प्रकाशक — शिक्षा भारती कश्मीरी गेट, दिल्ली (पहली नौ कहानियाँ ही पाठ्यक्रम में निर्धारित हैं)

पाठ्यक्रम का विवरण

1. **उपन्यास — आपका बंटी**
 1. बाल मनोविज्ञान की दृष्टि से आप का बंटी
 2. वैवाहिक सम्बन्धों की प्रकृति और आप का बंटी
 3. शिल्पगत प्रयोग की दृष्टि से आप का बंटी
 4. महिला उपन्यास — लेखन और मन्मू भंडारी
2. **कहानी एकादशी**
 1. हिन्दी कहानी का उद्भव और विकास
 2. निर्धारित कहानियों की तात्विक आलोचना
 3. निर्धारित कहानियों के प्रमुख पात्रों का चरित्र-चित्रण

HISTORY

Indus valley: Economy; Vedic Age: Society, Economy & Polity; Jainism and Buddhism: Origin and Growth; The Mauryas: Sources, Asoka's policy of *Dhamma*; Post Mauryas: Trade Commerce and Cultural Developments; Guptas: Cultural Developments; Harsha: Territorial expansion and Administration; Contributions of Lalitaditya, Avantivarman and Dida to Kashmir history.

Sultanate of Delhi under Qutubuddin Aibak and Iltutmish; Balban's Theory of Kingship, Alauddin Khilji's Market Control and Conquests; Muhammad Tughluq's Transfer of Capital and Token Currency; Firoz Shah Tughluq's Agrarian Reforms and Public Welfare Activities, Conquests of Sikandar and Ibrahim Lodi, Architecture of the Sultanate of Delhi, Jammu under Raja Maldev and Ranjit Dev, Kashmir under Zain-ul-Abidin.

Causes and Spread of 1857 India's First War of Independence; Brahmo Samaj, Arya Samaj and Theosophical Society; Acts of 1858, 1909 and 1919; Factors and Spread of Indian National Movement; Moderate and Extremist Groups of Indian National Congress; Non-Cooperation Movement; Simon Commission; Quit India Movement; Cabinet Mission; Mountbatten Plan; Jammu and Kashmir State under Maharaja's Gulab Singh & Ranbir Singh.

Causes and Growth of Industrial Revolution; American War of Independence; French Revolution; Unifications of German & Italy; Russian Revolution, Causes of Spread of World War-I; Peace Settlement of 1919 League of Nations; Causes, Spread and Impact of World War-II; Formulation of UNO.

HOME SCIENCE (Human Development & CRME)**Introduction to Home Science:**

- I. Meaning, philosophy and scope of Home Science
- II. Home science as a discipline: Structure and components.
- III. Interdisciplinary nature of Home Science education
- IV. Home Science for personal, professional and community development.
- V. Vocational development through Home Science.

Extension and Communication:

- I. Extension Education: Concept, nature, history, philosophy and principles of extension education, Characteristics and nature of extension work, extension education and services.
- II. Home Science Extension: History, development and relevance, Home Science extension as A discipline qualities of an extension worker.
- III. Programme Planning: Concept, scope and process, Models, Implementation and Evaluation
- IV. Communication: Concept, history, nature, significance, Process and Approaches-Individual, group, mass, Audio-Visual aids-Types and uses.
- V. Developmental Communication: Definition, Models of Developmental Communication, Use of ICT in developmental communication.

Human Development:

- I. Life Span Development: Principles of human development, Tasks and Milestones, Stages of Development Child rearing and socialization practices.
- II. Methods of Child Study: Interview, Observation, Sociometry, Case Study
- III. Early Childhood Care and Education: Definition, importance and scope, ICDS: Introduction, objectives, beneficiaries
- IV. Family Studies: Marriage and Family: Definition, types, family life cycle, Issues concerns of various types of families, family counseling.
- V. Women and Child Welfare: Demographic profile of women and children in nutrition, education and survival, Children at risk: Street and working, parentally deprived, neglected and delinquent, children in armed conflict, Children with special needs: Concept and classification, developmental needs of orthopedically challenged, mentally challenged and sensory impaired.

Food and Nutrition:

- I. Food: Functions of Food, Food groups and their nutritive value, Concept of Nutrition and nutritional needs of various age groups.
- II. Food preparation , preservation and processing:Effect of preparation on food component, Factors effecting food acceptance, Principles & methods of food preservation and processing, Food adulteration, Food Laws and food standards.
- III. Normal and Therapeutic Diet: Meal Planning:Importance basic principles and factors affecting meal planning, Normal Diet:Nutrition through life cycle;Therapeutic Diet: Diet for Diabetes, Hypertension, liver diseases, gastrointestinal diseases
- IV. Community Nutrition: Nutritional and health status and Methods of Assessment, Malnutrition: Factors affecting and types
- V. Nutritional Programme and Agencies working to combat malnutrition: ICDS Mid-day meal, Vit A and Vit D prophylaxis, Nutritional Anaemia, ORT, prophylaxis programs, Role of WHO, FAO, UNICEF, CARE, NIN, NFI, FND, FIRI, NNMB, ICMR, ICAR.

Clothing and Textiles:

- I. Textile Fibres and Yarns:Classification of textile fibres, properties and structure of cotton, wool, silk, rayon, nylon and acrylic fibres,Spinning, types and properties of yarns, classification of weaves, methods of fabric construction.
- II. Clothing: History, theories and significance of clothing,Factors affecting clothing, Equipment & Tools for clothing construction
- III. Finishing & Laundering:Importance and classification of finishes,Dyeing and printing: Dyed and printed fabrics of India, Laundering: Classification, equipments and agents for laundering natural and manmade fabrics.
- IV. Fashion Design: Elements, principles and components of fashion design, Fashion Cycle, Factors affecting fashion
- V. Fashion Marketing and Buying:Definition of Marketing, fashion marketing in practice, Importance and problems of textile industry, Buying and care of household linen and personal garments.

Resource Management:

- I. Management: Concept and steps of Management process, Classification and Availability of Resources goals, values, standards, decision making and work simplification
- II. Elements of Design: Principles and elements of Art and Design, Colour: Definition, dimension, theories, classification of colour, colour schemes, Application of elements and principles of design
- III. Family Resource Management: Family Income: Types and expenditure, Family Budget: Steps, factors and Importance, Savings and Investments: Meaning and Type
- IV. Market and Price: Definition, types and function of Market & price, Factors affecting

marketing and pricing, Sales promotion practices, branding, labelling, packaging and advertising. V. Consumer Economics: Definition of consumption, utility, production and exchange, Consumer problems: Causes and Solution, Consumer protection and education.

Entrepreneurship Development:

- I. Conceptual framework: Definition, need and process, Entrepreneurship opportunities in Home Science
- II. Enterprise planning, Types of business and self employment opportunities.
- III. Launching: Process of launching an enterprise.
- IV. Management: Personnel, production, marketing, finance and quality control.
- V. Women Entrepreneurs: Characteristics, role, demand and challenges.

Fundamental of Computers and Research:

- I. Computer Basics: Overview, components, devices, operating systems.
- II Introduction to MS Word, MS Excel, MS power point, internet.
- III. Research methods: Definition, types and tools.
- IV. Classification and analysis of data.
- V. Report writing.

HUMAN GENETICS

Cell: Structure, function and Cell organelles

Introduction to cell; Prokaryotic and eukaryotic cell; Nucleus; Mitochondria; Endoplasmic Reticulum; Golgi Complex

Chromosomes: Types of Chromosomes

Polytene chromosome; Lamp brush chromosome

Chromosomal changes

Structural; Numerical

Chromosomal abnormalities

Down syndrome; Klinefelter syndrome; Turner syndrome

Human sex chromosomes: An introduction, Cell division

Mitosis; meiosis

DNA structure and function

Physical and chemical structure of DNA; DNA replication

Human Physiology

Digestive system and associated glands

i. Stomach, ii. Intestine, iii. Liver, iv. Pancrease

Human blood and its composition

Endocrine gland: Anatomy and physiology

Embryology: Gametogenesis: i. Spermatogenesis, ii. Oogenesis

Fertilization : i. External fertilization, ii. Internal fertilization

Cancer: Definition; Types; Cancer causing genes; Tumor suppressor genes

Stem cells: i. Sources, ii. Applications

Detailed study of: i. Paramecium, ii. Amoeba

Parasitology: Life cycles of: i. Fasciola hepatica, ii. Taenia solium

KASHMIRI

شاعری:

- ۱۔ لیل واکھ، شینہ شری، غزل، زہا میر
- ۲۔ فرہنگ سیتی کولین منہ جنگ، شیخ صنغان، مکر جہاں، جانا دارن ہنزو دیل
- ۳۔ بہار نامہ، حسن ہرگس اندر نیران مٹھ لون، پٹنلس من، بہار
- ۴۔ بھر ڈل، آساگی تارکھ و تان انساں، پہلی کور، دہہ و ہری، کرنا و تارکھنا اپور، مندور
- ۵۔ بے زبردن ہالی، چلیہ دارا آسہ ہا، آکھ پرون شہر، مشرہ، نیلہ تاگ، انجام، سوہ لاکھ پیچہ

نثر: (افسانہ) ہروداد، حاس مٹھ روئل، چھ رازدانے، سوال مٹھ کلگ، ہلیہ سے نکیرے ٹائی لاج، پرالب، کریشن، توتن کھامون

(ڈراما) ب. جی، دستار، منولی کتہ

(تاریخ، زبان و ثقافت) ۱۔ لفظ اہمیت، خابن ہنز علاقہتی زبان، کلچر و زبان، مڈ زہوم،

۲۔ زبان، کاشرین لگہ ہاتن مٹھ کاشر تہگی آکار، کاشر زہانہ قدیم کاشرس تو اڑتس منز، کاشر لگہ کتھ تہ تواریخ،

۳۔ کشمیر منہ تواریخ، کاشر زبان تہ کاشر ادب، کاشر دیو مالہ

۴۔ کاشر صوتیات، فطرس منز ماحول تہی نظام، بھل پٹھ تان

(ترجمہ) ڈاکٹر ہانیہ گرسند تجربہ، خود فرض جن، شہزادی یوسہ زون پٹھے منگان، بنگلس، اچھو ڈھے کاشر رٹھے، جیلگ لطف

شاعر تہ ادیب: لیل وید، شیخ العالم، غلام احمد مجبور، میر غلام رسول نازکی، وہاب پرے حاجتی، محمود گامی، مقبول شاہ کرلیہ واری، مومن صاب، غلام نبی فراق، عبدالاحد آزاد، رحمن راہی، قاضی غلام محمد، موتی لال ساتھی، محمد امین کاتل، ارچن دیو مجبور، ناجی متور، ماسٹر زہدہ کول، اختر می الدین، سوم ناتھ سادھو، ہسی نردوس، بشر بقیر، شیخ شوق، رتن لال ستاچی، شادرمضان، موتی لال تہو، نسیم شٹانی، مجروح رشید، محمد شیخ کھلی، برکات جہا، رتن لال شانیت، مرغوب ہانہائی، ہلی محمد لون، ہری کرشن کول، محمد یوسف نیگ، ہشیر اختر، دینا ناتھ نام، رسول میر، گریرن، رسا جاودانی، غلام رسول کامگار، نشاط کشتواڑی، غلام نبی خیال، پدم ناتھ گوجہ خاتون، پرمانند

TEXT BOOK PRESCRIBED:

ILLAM TE ADAB ,B.A Part I,II and III

Published By Department of Kashmiri,

Kashmir University Srinagar

LAW (LL. B PROFESSIONAL) 3 YEARS

- a) Legal Aptitude.
- b) General English
- c) General Knowledge

M. Ed

Education : Concept, Aims and Agencies: Concept of Education: Functions of Education : Preservation, Transmission and Enrichment.

Aims of Education: Concept of Aims, Individual Aim, Social Aim, Individual Vs Social Aim.

Agencies of Education: Concept of Agencies of Education, Family, Home and School as major agencies imparting education in a society.

Curriculum and its Development: Curriculum : Meaning and Definitions.

Types of Curricula- Subject Centred, Learner Centred. Basic Principles of Curriculum Construction.

Curricular and Co-curricular Activities: Concepts and Types of Co-Curricular Activities, Importance of Organizing Co-curricular Activities in Educational institutions.

Education and Social Change: Meaning and Definitions of Social Change, Factors responsible for bringing about social change, Role of Education.

Education and National Integration – Concept of National and Emotional Integration, Barriers in way of achieving National Integration, Role of Education in Promoting National Integration.

Idealism: Concept, Salient Features of Idealisms with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher.

Pragmatism: Concept, Salient Features of Pragmatism with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher.

Naturalism: Concept, Salient Features of Naturalism with reference to Aims, Curriculum, Instructional Techniques, Discipline and Role of Teacher.

Concept of Indian Society : Social Justice and Equality, Human Rights, Consumer Rights, Gender Equality, Environmental Degradation, Globalization and Privatization- Role of Education.

Community and Education : Meaning of Community , Role of Education for upliftment of Community, Mass Media as a Social Means of Education.

Education and Culture- Concept of Culture, Features of Indian Culture, Relation between Education and Culture.

Inclusive Education : Meaning, Scope and Role of Inclusive Education.

Psychology and Education : Meaning of : i) Education ii) Psychology iii) Educational Psychology, Relationship between Education and Psychology. Difference between Psychology and Educational Psychology.

Theories of Learning – Thorndike’s Trial and Error Theory – Concept, Experiment, Laws of Learning based on the theory. Educational implications of the theory.

Gestalt Theory of Learning by Wolfgang Kohler, Concept, Experiment, Educational Implications of the theory.

Intelligence : Meaning and Definition of Intelligence.

Two Factor Theory by Charles Spearman, Description of the Theory, Characteristics of ‘g’ factor and ‘s’ factor, Educational Implications of the Theory.

Primary Mental Abilities Theory by LL Thurstone: Description of the Theory, Educational Implications of the Theory.

Intelligence Tests: Concept of Intelligence Tests, Uses of Intelligence Tests.

Concepts of I.Q (Intelligence Quotient) MA (Mental Age) and CA (Choronological Age), Classification of I.Q. given by L.M. Terman.

Memory and Forgetting : Meaning and Definitions of Memory and Forgetting

Components of Memory : Learning, Retention, Recall and Recognition.

Types of Memory, Signs of good Memory, Methods of memorizing, Factors responsible for causing Forgetting.

Measure of Central Tendency : Concepts of Mean, Median and Mode, Computation of Mean, Median and Mode of grouped and ungrouped data. Uses of various Measures of Central Tendency in educational situations.

Methods of Studying Human Behaviour

Introspection- Meaning and definitions, process involved in introspection, merits and limitations of the method.

Observation –Meaning and Definitions, Types: Controlled and Uncontrolled, steps involved during observation, merits and limitations.

Experimental – Meaning and definitions, characteristics, steps involved in experimental method, merits and limitations.

Gifted and Creative Children

Meaning and definitions, difference between gifted and creative children.

Characteristics of gifted children, identification of gifted children, educational provisions for the gifted children.

Mentally Retarded children

Concept of mental retardation, causes of mental retardation, educational provisions for mentally retarded children

Motivation and Adjustment

Concept : Types of motivation (intrinsic and extrinsic) Bases of motivation –needs (physiological and psychological) and drives.

Personality

Concept, Development of Personality, Types of Personality, Assessment of Personality :

Subjective Techniques (Anecdotes, Autobiography, Case Study), Projective Techniques.

Devices of teaching: Meaning, importance, types of devices of teaching:

- a) Teaching devices: Meaning oral communication: exposition, narration, description, explanation, illustration, questioning, chalkboard, home-work, textbook, reference book.
- b) Fixing devices: Meaning and types (drill, review, recapitulation and repetitive practice)

Audio-visual aids: Meaning, objectives, classification, importance, advantages and limitations of:

- (a) Audio aids: Telephone, Radio, Tape-recorder
- (b) Visual Aids: Over-head projector, slide projector, maps, charts, models, flash cards, display boards and diagrams.
- (c) Audio-visual aids: films with sound tracks television, video.

Lesson Planning:

- b) Meaning, Importance, principles of planning, criteria of an effective lesson plan.
- c) Types of lesson: Knowledge, skill and appreciation lesson, significance and steps of each lesson.
- d) Approaches to lesson planning: Herbartian and RCEM approaches.
- e) Preparation of unit/yearly lesson plan.

Method of teaching: Meaning, importance, procedure, advantages and limitations of:

- a) Inductive-Deductive method
- b) Analytical Synthetic method
- c) Project method
- d) Problem solving method
- e) Heuristic Method

Elementary Education : Concept , objectives of elementary education. Concept of Universalization of Elementary Education (UEE), Promotion of UEE through SarvShiksha Abhiyan (SSA)

Secondary Education : Concept, Objectives of secondary education, Organizational Pattern as suggested by Kothari Commission of Education (1964-66) and National Policy on Education 1986, Main problems of secondary education and remedial measures to solve these problems.

Higher Education : Concept, objectives of higher education as per National Policy on Education. Problems being faced in higher education with emphasis on problem of Selective Admission, Autonomy & Examination and their remedial measures.

Women Education: Concept of women education, Need for prioritizing women education, Problems of women education and suggestive remedial measures.

Adult Education: Concept of Adult Education, Functions of adult education. National Adult Education Programme (NAEP)-Meaning and its features, National Literacy Mission (NLM), objectives and importance.

Educational Technology : Concept of Educational Technology , Various approaches to implement educational technology towards Quality Education, Role of ICT in Education.

Teacher Education: Concept of teacher education, objectives of teacher education in India. Problems of teacher education, Role of NCTE in improving the quality of teacher education in India.

Vedic Education : Meaning of Vedas, Aims of Education, Curriculum and Organization, Yoga-Meaning and Importance of Yoga Philosophy.

Buddhist Education : Aims of Education, Curriculum, Women Education, Qualities and Duties of Teachers.

Islamic Education : Salient Features, Aims, Process of Education and Curriculum with Reference to Makhtabs and Madrasas, Islamic Centres of Higher Education at Delhi, Agra, Jaunpur and Bihar. Sargent Report (1944), Radha Krishnan Commission –(1948), Mudaliar Commission-(1952-53), Kothari Commission-(1964-66), National Policy on Education (NPE) 1986 and 1992, CABE- Meaning, Composition and functions, NCERT- Meaning, Composition and Functions.

(M.Lib.I.Sc.) LIBRARY AND INFORMATION SCIENCE

Foundations of Library Science and Society

Different types of Libraries, Library Legislation, Five Laws of Library Science, Copyright Act, Basic of Resource Sharing and Consortia Approach, Professional Associations-ILA, IASLIC, UNESCO

Organization of Documents

Library Classification - Species of Library Classification, Structure and Features of CC, DDC, UDC & Bibliographic Classification, Notation, Library Catalogue - Library Catalogue Codes ALA, AACR2 and CCC, Physical Forms of Catalogue Union Catalogue, Subject Cataloguing-LCSH and Rule of Thesauri, Chain Procedure, MARC.

Reference Service and Sources

Reference Service , Types of Information Sources, Information Literacy- Users Education Evaluation of Print and Online Reference Sources

Management of Libraries and Information Centres

General Principles and Theories of Management, Schools of Thought, Human Resource Management, Collection Development, Book Selection Principles, Financial Management; Budget and Budgeting Techniques, Library Building, Equipment and Space Management.

Documentation and Information Service

Indexing and Abstracting Services –Types

Reprographic Services- Methods,

Current Awareness Service (CAS),

Selective Dissemination of Information (SDI)-Methods and Techniques

Documentation and Information Centres - NISCAIR, NASSDOC, SENDOC.

Computer Application to Libraries

Fundamentals of Computer: Basic model, Input/ Output Units, Computer Memory Storage Devices, Computer Generations and Classification, Basics of Computer and Communication Technology; Network Topologies, LAN, WAN, MAN, Internet, Extranet, Internet Computer Languages: Low Level, High Level, Languages Network: ERNET, NICNET, INFONET. INFLIBNET, DELNET Introduction to Operating Systems: DOS, Windows, UNIX and LINUX Operating Systems, Introduction to MS Office Package: Word, PowerPoint, Excel Features of WINISIS, SOUL and Koha.

M.P.Ed (PHYSICAL EDUCATION)

1. History of Sports
2. Sports Aptitude
3. General Knowledge of Different Games/ Sports

MCA / M.Sc IT / PGDCA

1	Mathematics: Percentage, Interest, Profit & Loss, Time & Work, Height & Distance, Stock & Shares, Ratio & Proportion, Average, Fractions etc. ➤ Trigonometry ➤ Calculus & Analytical Geometry. ➤ Differential Equations. ➤ Statistics & Probability. ➤ Modern Algebra & Matrix Theory ➤ Theory of Equations etc.	40%
2	Fundamentals of Computer Arithmetic: ➤ Series – Numeric & Alphabetic. ➤ Logical Reasoning. ➤ Representation of Characters. ➤ Floating Point Representation of numbers. ➤ Fundamentals of Computers. ➤ Boolean Algebra. ➤ Binary Arithmetic etc.	40%
3	English: ➤ Vocabulary. ➤ Grammar and Usage. ➤ English Comprehension etc.	20%

MATHEMATICS

Partial Differentiation, Euler's Theorem, Double Points, Polar co-ordinate system and its relation with Cartesian co-ordinate system, angle between radius vector and tangent to a curve. Integration and its applications. Calculus of vector-valued functions e.g. gradient, divergence, curl and their properties. De-Moivre's theorem and its application, exact equations, differential Equations of 2nd and 3rd order with constant coefficients.

Sets, relations and functions. Groups, subgroups, cyclic groups, quotient groups, and their properties. Group homomorphism and isomorphism. Lagrange's theorem and its applications. Real number system including least upper bound property. Sequences and their limits. Continuous and discontinuous functions. Equations of Sphere and cone and their elementary properties.

Definition and examples of a ring, ring homomorphism and isomorphism. Vector spaces, subspaces, linearly dependent and linearly independent vectors, basis and dimension of a vector space. Matrix representation of a linear transformation on a vector space and vice-versa. Inverse of a linear Transformation.

Types of matrices, rank of a matrix. Applications of Cayley- Hamilton theorem. Mean, variance and moment generating functions of Binomial, Poisson and normal distributions.

MUSIC

Unit I: Detailed study of Ragas, with its contrast and comparison

- 1) Khamaj 2) Yaman, 3. Kaafi, 4, Alhaya Bhilawal 5, Bhairav, Begeshwari , 7 Bhoopali, 8 Deshkour 9, Bahare, 10, Mian-Malhaar, 11. Malkouns, 12. Bhaievi 13. G

Detailed knowledge of tialas with their single, double and Tigun Payakariss.

- 1, Teental, 2. Jhopheal, 3, Ek.Taal 4, Adachaartoal, 5. Roopak 6. Dhamaar 7. Keharva 8. Dadra, 9. Jhoomra, 10. Deepchandi, 11 Tilwara.

Unit II: Definition of the following terms.

Sangeet,Naada,Shruti,Swar,Saptak,Thata,Alankar, Vadi-Samvadi, Anuvadi, Vivadi Nyaas, Varjitswar, Tala, Laya, Sum,Khali,Avartian, Tarab, Chikari, Meend,Murki,Sadhiprakash Raja, chaturanga, Tarana, Tappa, Avirbhava, Tirodhava, Alpatva, Bohutva, Nibadh,Anibadh, Poorvanga,Utranga, Nayak,Gayak,Vagyakar, Pandit, Rupose-Alap, Raga-alap,Swasthan,Zamzama, Kirtan,Gamak,function of jammu, scale, Melody,Harmony,Gamak, Badakhayal,Chota khayal, Razakharvigalt, Maseetkhani Gatt Gramar, Moorchana,Jati, Aroh, Avroh,pakad

Unit III:Detailed study of the following granthas.

- 1, Natiya Shastra, 2. Sangeet Ratnakar, 3. Sangeet Parijat 4, Raga-vibodh, 5. Brihat-deshi 6,Geet-Gobing 7, Chatur-Dandi-Pirakashika, 8, Raga Tarangini 9 Hirdaykotuk 10,Hirdayparakash 11 Bhatkhandey Sangeetshastra 12 Kramik Pustak Malika (PartI,II,III & IV)

Biographical sketches of following musicians.

- 1 Pt.V.D.Pulaskar, 2.Pt.V.N.Bhatkhandey 3 Tansen 4 Kesar Bhai kelkar 5.Pt.Ravi Shankar 6 Bismillah Khan 7 Ustad Amir Khan 8 Ustad Allah Rakha Khan 9 Pt.Bhimsen Joshi 10 Nikhil Banerjee 11 Girja Devi 12 Shiv Kumar Sharma

Unit IV: History of Indian Music from its evolution to Nineteen century; Classification of Indian instruments.

PG DIPLOMA IN HUMAN RIGHTS AND DUTIES EDUCATION

1. General Knowledge/ Awareness 10 questions.

2. General English 10 questions.

Questions on Idioms & Phrases, Antonyms & Synonyms, Usage of Articles, Prepositions, Verbs, Conjunctions, Tenses, Spellings, Degrees of Comparisons and Vocabulary.

3. Legal Aptitude 20 questions.

General Awareness about Constitutional Law of India

- (i) Preamble
- (ii) Features of Constitution of India
- (iii) Fundamental Rights
- (iv) Directive Principles
- (v) Powers and position of President of India
- (vi) Powers and position of Governor of the State
- (vii) Appointment & Powers of Chief Minister of State

International Law and Human Rights

- (i) **Documents on Human Rights**
 - (a) Universal Declaration of Human Rights
 - (b) International Covenant on Civil and political Right
 - (c) International Covenant on economic, social and Cultural Right
- (ii) **National Human Rights Commission**
 - (a) State Human Rights Commission
 - (b) Non-governmental organization
- (iii) **United Nations organisation & its organs**

POST GRADUATE DIPLOMA IN BUSINESS MANAGEMENT (PGDBM)

The test is to be designed to measure a person's general Aptitude covering the following test areas:-

- a) Language Comprehension
- b) Data Analysis and Sufficiency
- c) Mathematical Ability
- d) Intelligence and Critical Reasoning
- e) General Awareness

The test will be on the pattern of Management Aptitude Test (MAT) conducted by All India Management Association (AIMA).

PHYSICS

Unit Vectors, displacement, area element, volume element, velocity and acceleration in Cartesian and Spherical Polar System, two body system, relationship between displacements, velocities, kinetic energies and angles in lab. And centre of mass systems, inverse square law of force, Kepler's laws. Energy of Simple harmonic Oscillator, compound pendulum, Oscillation of two masses connected by a spring, driven harmonic oscillator, transient and steady state behavior, Galilean transformations and conservation laws, conservation of momentum, and energy, search for ether and Michelson-Morley experiment, Lorentz transformations, length contraction, time dilation, variation of mass with velocity, mass energy equivalence, energy-momentum relation, Doppler effect, Scalar and vector fields, Gradient of a scalar field, line, surface and volume integrals, Divergence of a vector field solenoidal field, Gauss's divergence theorem. Gauss's Law in integral and differential forms, line integral of Electrostatic field, Poisson's and Laplace's equations, Electric quadrupole, Electric field and potential due to a quadrupole, Dielectrics, Polarization of dielectric, Relation $\mathbf{D} = \epsilon_0 \mathbf{E} + \mathbf{P}$, Atomic Polarizability, Electric susceptibility, Equation of continuity, Electrical conductivity, Microscopic form of Ohm's law, Biot-Savart's law, Ampere's circuit law, Relation between \mathbf{B} , \mathbf{H} and \mathbf{M} , wave equations for \mathbf{E} and \mathbf{B} , Electromagnetic waves in dielectric medium, Reflection and transmission at normal and oblique incidence, Derivation of laws of reflection and refraction.

Periodic function, even and odd functions, continuous and discontinuous functions, complex form of Fourier series, Fourier solution of simple function, Applications of Fourier theorem to square wave, rectangular wave, half wave rectifier and full wave rectifier. Legendre differential equation and its series solution, Legendre Polynomial, orthogonality property, Hermite differential equation and its series solution, Hermite polynomial. Laws of Thermodynamics, Entropy, Adiabatic expansion, Joule Thomson expansion, Boyle temperature, Maxwell's general relationships Application to Joule-Thomson cooling and adiabatic cooling, black body radiation, Rayleigh-Jeans law, Planck's law, Wien and Rayleigh-Jeans law. Probability, macro and micro states, Phase space, Boltzmann's distribution law, Bose Einstein statistics, black body radiation and Planck's radiation law, Fermi Dirac statistics. Young's double slit experiment, Fresnel's Biprism, thin films (reflected and transmitted), Newton's rings, Michelson's interferometer, Nicol prism, quarter wave plate and half wave plate. Fresnel's Diffraction, rectilinear propagation of light, zone plate, diffraction at a straight edge, Fraunhofer diffraction, determination of wave length of monochromatic light using tunnel, light emitting, laser diodes, unijunction transistor, field effect transistor (FET), Half and full wave rectifier, ripple factor, L and π type filter circuits, characteristics of a transistor in CB, CE and CC mode, biasing of a transistor, Integrated Circuits (IC) and its classification, operational amplifier, inverter, Boolean identities, De-Morgan's law, logic gates, truth tables of OR, AND, NOT, NOR, NAND, XOR gates. Compton effect, wave particle duality, phase and group velocity, Heisenberg's uncertainty principle, Schrodinger's wave equation (time dependent and independent), operators, expectation values, probability current density, Eigen values and Eigen functions. Bohr's

correspondence principle, space quantization, electron spin, vector atom model, Fine structure of hydrogen atom, Zeeman effect, Paschen back effect, Binding energy, Nuclear forces and their properties, α β and γ decay processes, neutrino hypothesis of Pauli, quarks as the basic constituent of matter their properties, Lattice and basis, unit cell, lattice types, symmetry elements in crystal, Miller Indices reciprocal lattice, Laue's theory of X-ray diffraction, Bragg's law, superconductivity, Meissner Effect, Type I and II superconductors. Dia, para, ferro, antiferro and ferrimagnetism, Ferroelectric crystals and their applications, Defects in solids, Luminescence, Raman Effect, Principle of Holography, recording and properties of hologram. Types of optical fibers, optical fiber sensors, Absorption, spontaneous and stimulated emission. Population inversion, active medium, pumping, metastable stages. Three and four level pumping schemes, conditions for Laser action, Ruby and He-Ne laser.

POLITICAL SCIENCE

INTERNATIONAL POLITICS: Meaning, Nature and Scope, Approaches:-Institutional Approach, Power Approach (H.J. Morgenthau), System Approach (Morton Kaplan)

NATIONAL POWER: Concept, Meaning and Role, National Interest and National Power, Determinants of National Power (Major quantifiable and Non-quantifiable Elements)

PRINCIPAL INSTRUMENTS FOR THE PROMOTION OF NATIONAL INTEREST : Diplomacy-Concept and Meaning: Importance as an Instrument of National Power, Types of Diplomacy-Traditional/Classical Diplomacy, Open/Democratic Diplomacy, Imperialism-Neo-Imperialism-Concept and Meaning: Distinction between the two, Neo-imperialism with special reference to Foreign Aid and Role of Multi-National Corporation

RESTRAINTS ON NATIONAL POWER : Collective Security and Collective Defence: Concept and Distinction, Balance of Power: Meaning, Methods and Evaluation

CHANGING TRENDS IN INTERNATIONAL POLITICS: Concept of Cold War and Détente, End of Bipolarity and Disintegration of Soviet Union: Impact on Third World, Emergence of Unipolar World: Causes and Implications

STATE POLITICS IN INDIA WITH SPECIAL REFERENCE TO JAMMU & KASHMIR ; STATE POLITICS IN INDIA: A FRAME WORK- Indian Federal Structure and Centre-State Relations, Contentious Areas of Centre-State Relations-Article 356 and Section 92 of J&K Constitution, Role of Governor

BACKGROUND TO POLITICS OF J&K : Political Awakening in Kashmir National Conference, Emergence and Political Role till 1947, New Kashmir Manifesto, Instrument of Accession and Article 370 of Constitution of India

CONSTITUTIONAL STRUCTURE : Basic Features of the Constitution of J&K, Citizenship and Rights of Permanent Residents, Directive Principles of State Policy in Constitution of J&K, Panchayati Raj in J&K and State Panchayati Raj Act of 1989

GOVERNMENTAL STRUCTURE : Executive –Chief Minister and Council of Ministers, Legislature, Composition and Powers of Upper House and Lower House, Judiciary-High Court

PARTY POLITICS IN J&K : Nature of Party System in J&K, Ideology and Political Program of Indian National Congress and Bharatiya Janata Party, Ideology and Political Program of National Conference

REPRESENTATIVE POLITICAL THINKERS (WESTERN AND INDIAN) : PLATO (427 B.C. – 347 B.C) : Socratic Influence on Plato, Justice: Different definitions of Justice; Plato's concept of Justice-Theory of three souls and three classes; Platonic Justice, an Evaluation, Concept of Philosopher King: Assumptions, Features and Evaluation, Concept of Education : Features of Platonic system of Education; Curriculum of Education-Elementary and Higher Education; Evaluation, Concept of Platonic Communism : Communism of Spouses and Children and Communism of Property, Ideal State: Features and Evaluation

ARISTOTLE (384 B.C – 322 B.C) : Ideal State: Features and Evaluation, Influence of Plato over Aristotle, Aristotle's Method, Aristotle's criticism of Plato - Plato's conception of the unity of state, Plato's conception of communism of spouses and property, Aristotle's view on Household-

Aristotle on slavery, Private property, Women and Family, Aristotle's view on citizenship, Aristotle's classification of Governments, Aristotle's best Practicable State

MACHIAVELLI(1469-1527 A.D) : Renaissance and its impact on Machiavelli ,Machiavelli's views on Human nature and Motives-Implications and evaluation, Machiavelli's views on relationship between ethics and politics, Machiavelli's views regarding the preservation and extension of state power, Machiavelli's Contribution to Modern Political Thought

KARL MARK(1469-1527 A.D) : Marx's views on Dialectical Materialism , Marx's views on Historical Materialism and Economic Determinism, Surplus value of Marx, concept of Class and Class Struggle and Dictatorship of Proletariat, Marx's theory of Alienation, Marx's Theory of State and Revolution

M.K. GANDHI(1869-1948 A.D) : Concept of Non-violence(Ahimsa), Concept of Satyagraha, Gandhi on Ends and means, Concept of Property and Trusteeship, Contemporary Relevance of Gandhi

ELECTORAL PROCESS- Types of Party system-Meaning, Typology of Party Systems:Bi-Party System and Multi-Party system, Interest Groups-Meanings, Classification and Functions of Interest Groups, Electoral Process-The 'First-past-the-post'system:Proportional Representation, Voting Behaviour-meaning and determinants of Voting Behaviour

THEORIES OF DEMOCRACY AND RELATED CONCEPTS : Elitist Theory of Democracy-Pareto & Mosca, Pluralist Theory of Democracy with special reference to Harold J.Laski, Dependency Theory:Centre-Periphery Model-views of A.G.Frank, Features of Democratic and Authoritarian regimes

EMERGING CHALLENGES BEFORE DEMOCRATIC REGIMES: Globalization-Basic features,Women's Empowerment and Women's Issues, Politics of Environment Issues ,Human Rights-Meaning and Significance

NATURE OF POLITICAL SCIENCE : Nature and Scope of Political Science, Traditional Approaches: Philosophical/Normative, Historical, Legal-Institutional, Behaviouralism and its critique, Systems theory and its critique

CONCEPTS AND THEORIES OF STATE : Meaning and elements of State: Difference between State, Society and Nation, Theories of Origin of State: Divine and Evolutionary Theories, Social Contract Theory of Origin of State, Sovereignty, Austin's Theory of Sovereignty, Pluralistic Theory of Sovereignty

NATURE OF STATE AND OTHER CONCEPTS : Theories of Nature of State: Organic, Liberal and Marxist , Concept of Rights: Liberal and Marxist Perspective, Concept of Liberty: Negative and Positive Liberty, Concepts of Equality and Justice and their dimensions: Social, Economic, Political and Legal

POWER, DEMOCRACY, REVOLUTION : Power: Meaning, Political, Economic and Ideological Dimensions of Power, Authority and Legitimacy, Meaning and Relationship, Democracy: Meaning, Concept of Liberal Democracy ,Concept of Revolution :Meaning and Kinds

LIBERALISM, SOCIALISM, WELFARE STATE : Principles of Liberalism: Classical Liberalism, Modern Liberalism, Distinction between Classical and Modern Liberalism, Marxian Socialism, Concept of Welfare State, Functions

INDIAN GOVERNMENT AND POLITICS : INTRODUCTION TO INDIAN

CONSTITUTION-Philosophy of Indian Constitution: Preamble, Basic features of Indian Constitution, Procedure of Amendment of Indian Constitution

STRUCTURE AND GOVERNMENT : Indian Parliament :Composition, Power, Law-Making, Procedure, The President of India-Formal Powers and Position, The Prime Minister and Council of Ministers, Formal Powers and Position, The Supreme Court of India-Jurisdiction, Judicial Review and Judicial Activism **FEDERATION, CITIZENSHIP AND RIGHTS** : Features of Indian Federalism, Fundamental Rights and Duties, Directive Principles of State Policy

POLITICAL PROCESS- I : Changing Nature of Party System in India: Evolution from One Party Dominant System to Multiparty System, Coalition Politics-Trends and Characteristics **POLITICAL**

PROCESS-II : Communalism and Secularism, Caste and Indian Politics, Regionalism in Indian Politics, Panchayati Raj System with reference to 73rd Constitutional Amendment

PSYCHOLOGY

INTRODUCTION TO PSYCHOLOGY: Psychology: Nature and scope. **Methods:** Introspection, Observation, Experimental. **Schools of Psychology:** Structuralism, Functionalism, Psychoanalysis, Behaviourism and Gestalt. **Emotions:** Nature, Theories – James- Lange, Cannon-Bard and Singer- Schachter. **Motivation:** Nature, Conflict and Motives. Theories: Maslow and Murray. **Learning:** Nature, Laws, Theories - Pavlov, Skinner, Thorndike and Kohler. **Attention:** Nature, Types & Determinants. **Memory:** Process, Stages of memory – Sensory, Short term and Long term, Levels of processing, elaboration, Imagery. **Forgetting:** Nature, Curve of forgetting and Theories of forgetting. **Intelligence:** Nature, Measurement, Theories (Spearman, Thurstone, Thorndike, Guilford, Sternberg), Emotional, Social and Spiritual Intelligence. **Personality:** Meaning, Classification – Sheldon, Kretschmer. Psychodynamic Theories of Personality – Freud, Adler and Carl Jung. Factors affecting Personality. Assessment of personality: Rating scales, Interview, Questionnaire, Projective Techniques. **HUMAN DEVELOPMENT: Nature,** Issues, and scope of studying Human Development. Longitudinal, cross – sectional and sequential designs. **Heredity and Prenatal development,** Basics of Genetics, Genetic disorders, Heredity and Environment, Stages of Prenatal development and factors influencing Prenatal Development. **Theories of Human Development :** Freud, Erickson, Bandura, Piaget, Vygotsky. **Infancy:** Physical changes; Language Development; Social – Emotional Development. **Childhood:** Physical changes; Language Development; Social – Emotional Development. **Adolescence:** Physical changes; Cognitive Development; Social Emotional Development. **Adulthood:** Self concept and identity; Erickson’s view of Young Adulthood; career; Marriage and Parenthood. **ABNORMAL PSYCHOLOGY: Normality and Abnormality;** Classification of Abnormal Behaviour; causal factors in Psychopathological behaviour; Determinants of Abnormal Behaviour: Biological, Psychological and Socio – cultural. **Frustration** – Nature, Sources and Maladaptive consequences. **Psychopathological Disorders:** Phobias, GAD, OCD (symptoms and etiology), Mood Disorders (Unipolar and bipolar), Schizophrenia (symptoms and etiology). **Stress and Coping:** Adjustment Disorder-PTSD. **Mental Retardation:** Nature; Causes; Prevention and Intervention, Families of Mentally retarded children. **Delinquency. Therapies:** Psychoanalytic; Behaviour; Cognitive; Humanistic and Existential. **EXPERIMENTAL PSYCHOLOGY: The Nervous system:** Central Nervous System and Peripheral Nervous system. The **Endocrine system:** Hormones and Behaviour. **Sensation:** Nature of Sensation – Visual sensation, auditory sensation, Cutaneous, Gustatory and Olfactory Sensation. **Perception:** Meaning, Gestalt laws of Perceptual Organization, Depth Perception, Illusion, Delusion and Hallucinations. **Thinking;** Concept Formation: Deductive and Inductive Reasoning. Problem Solving and decision making – steps in Problem Solving. Heuristics and Algorithms. **Psychophysics:** Meaning and Laws; Methods: Limit, Average Error, Constant stimuli, Signal Detection theory. **SOCIAL PSYCHOLOGY: Social Psychology:** Nature, Scope and importance. **Methods:** Interview, Field survey, Questionnaire, and Sociometric. **Groups and Crowd :** Nature, Types & Functions of a group. **Leadership:** Concept, characteristics and Functions, Trait and Behavioural theories of leadership. **Attitudes:** Nature, Formation and Determinants. Measurement: Method of Equal appearing interval, Method of Summated Rating, Social Distance Scale, Semantic Differential. **Public Opinion:** Meaning, Characteristics and Formation. Methods of measuring Public Opinion. **Prejudice:** Nature, Types and Formation. Methods of reducing Prejudice. **Stereotypes:** Nature & Kinds. **Propaganda:** Nature, Kinds, Techniques. **Socialization:** Meaning and Process, Stages of Socialization: Infancy, childhood and Adolescence. Theories of socialization: Cooley, Freud, Behaviouristic Theory. **Social Interaction:** Nature, Types & Process: Communication, Cooperation, Competition, Conformity, Compliance, Social facilitation. **MEASUREMENT AND STATISTICS IN PSYCHOLOGY: Statistics:** Meaning and its role in psychological research. Scores, frequency, continuous and discrete series. Graphical Representation – histogram, frequency polygon and ogives. **Measures of Central tendency** – Mean, Median and Mode. **Measures of Variability** – Range, MD, SD, QD (grouped data). Percentile and Percentile rank. **Correlation:** Meaning, Uses. Product moment & Rank difference method. **Psychological Testing:** Definition, Uses and Criteria of a good test. Reliability

& Validity: Concept & types.. **Concept of Population**, Samples and its Types. Design and control of experiments. Formulation of Hypothesis. Independent and dependent Variables. Control and Experimental groups. **Measurement scales** – Nominal, Ordinal, Interval and Ratio Scales. Sources of error in measurement. **Scaling techniques** – Rating Scales, Method of Paired comparisons. Differential scales (Thurstone), Summated scales (Likert).

PUNJABI

- 11 ਪੰਜਾਬੀ ਸਭਿਅਤਾ (1860 ਤੋਂ 1900 ਤੱਕ)
 ਅ। 19ਵੀਂ ਸਦੀ ਦੇ ਦੂਜੇ ਚੌਥੇ ਦਹਾਕੇ ਦੌਰਾਨ ਸਭਿਅਤਾ-ਉਲੋਚਨਾਤਮਕ ਓਪਿਐਨ .
 ਵਿਸ਼ੇਸ਼ਤਾ ਤੌਰ ਤੇ ਕ੍ਰਿਸਮਾ, ਸਦਾਚਾਰਕ ਕਠਿਵਿ ਤੇ ਸੂਫੀਲ ਕਠਿਵਿ ਦੇ ਪ੍ਰਸੰਗ 'ਚ .
 ਓ। 10ਵੀਂ ਸਦੀ ਦੌਰਾਨ ਦੂਜੇ ਚੌਥੇ ਦਹਾਕੇ ਦੌਰਾਨ ਪੰਜਾਬੀ ਸਭਿਅਤਾ ਲਈ ਜਠਗ੍ਰਿਤੀ ਕਠਿਲ ਕਿਵੇਂ ?
 ਏ। ਵਾਖ ਵਾਖ ਲਹਿਰਢ ਦੌਰਾਨ ਪੰਜਾਬੀ ਸਭਿਅਤਾ ਦੇ ਵਿਕਾਸ ਵਿਚ ਯੋਗਦਾਨ ਓਤੇ ਵਿਸ਼ੇਸ਼ਤਾ ਤੌਰ ਤੇ ਸਿੰਘ ਸਭਾ ਲਹਿਰ ਦੀ ਭੂਮਿਕਾ .
- 21 1901 ਤੋਂ ਹੁਣ ਤੱਕ ਦੌਰਾਨ ਪੰਜਾਬੀ ਸਭਿਅਤਾ
 ਅ। ਪੰਜਾਬੀ ਕਵਿਤਾ, ਨਾਵਲ, ਕਹਾਣੀ ਤੇ ਨਾਟਕ ਦੌਰਾਨ ਇਤਿਹਾਸਕ ਵਿਕਾਸ ਤੇ ਪ੍ਰਵਿਰਤੀਓਢ .
 ਓ। ਪੰਜਾਬੀ ਰੰਗਮੰਚ ਦੌਰਾਨ ਇਤਿਹਾਸਕ ਵਿਕਾਸ .
 ਏ। ਪੰਜਾਬੀ ਵਡਰਤਕ ਦੌਰਾਨ ਇਤਿਹਾਸਕ ਵਿਕਾਸ : ਸਫਲਰਨਾਮਾ ਓਤੇ ਸਵੈਜੀਵਨੀ ਸਭਿਅਤਾ
 ਸ। ਪੰਜਾਬੀ ਦੇ ਪ੍ਰਮੁਖ ਲੇਖਕ- ਭਾਈ ਵੀਰ ਸਿੰਘ, ਓਮ੍ਰਿਤ ਪ੍ਰੀਤਮ, ਜਸਵੰਤ ਸਿੰਘ ਕੰਵਲ, ਬਲਰਠਜ ਸਭਾਨੀ, ਤੇਜ ਸਿੰਘ, ਕੁਲਵੰਤ ਸਿੰਘ ਵਿਰਕ ਓਤੇ ਕਰਤਾਰ ਸਿੰਘ ਦਾਗਲ ਦੀ ਪੰਜਾਬੀ ਸਭਿਅਤਾ ਨੂੰ ਦੇਣ .
- 31 ਪੰਜਾਬੀ ਸਭਿਅਤਾ ਰਿਓਡਸਤੀ ਸਭਿਅਤਾ ਦੇ ਪ੍ਰਸੰਗ ਵਿਚ :
 ਅ। ਰਿਓਡਸਤੀ ਸਭਿਅਤਾ ਦੇ ਮੋਗੀ ਸਹਿਤਕਠਰ ਦੌਰਾਨ ਨਿਰਣਾ .
 ਓ। ਰਿਓਡਸਤੀ ਪੰਜਾਬੀ ਕਵਿਤਾ ਦੌਰਾਨ ਓਡਰੰਭ ਤੇ ਵਿਕਾਸ .
 ਏ। ਰਿਓਡਸਤੀ ਪੰਜਾਬੀ ਨਾਵਲ ਦੌਰਾਨ ਓਡਰੰਭ ਤੇ ਵਿਕਾਸ .
 ਸ। ਰਿਓਡਸਤੀ ਪੰਜਾਬੀ ਨਾਟਕ ਦੌਰਾਨ ਓਡਰੰਭ ਤੇ ਵਿਕਾਸ .
 ਹ। ਰਿਓਡਸਤੀ ਪੰਜਾਬੀ ਸਭਿਅਤਾ ਦੇ ਇਤਿਹਾਸ ਲੇਖਨ ਦੀਓਢ ਸਮਾਸਿਓਡਵਢ .
 ਕ। ਰਿਓਡਸਤੀ ਜੰਮੂ ਕਸਲਮੀਰ ਵਿਚ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੇ ਸਭਿਅਤਾ ਦੀ ਸਥਿਤੀ ਤੇ ਸਮਾਸਿਓਡਵਢ .
- 41 ਪੰਜਾਬੀ ਕਵਿਤਾ, ਕਹਾਣੀ ਓਤੇ ਸਵੈਜੀਵਨੀ:
 ਪਠ ਪੁਸਤਕ: ਖਾਲੇ ਮੈਦਾਨ- ਪ੍ਰੋ। ਪੂਰਨ ਸਿੰਘ:ਪ੍ਰਕਾਸ਼ਕ - ਲਾਹੌਰ ਬੁਕ ਸਲਾਪ, ਲੁਓਓਡਵਢ.
 ਅ। ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਓਡਖਿਓਢ .
 ਓ। ਵਿਸ਼ੇਸ਼ਤਾ / ਥੀਮਕ / ਓਡਲੋਚਨਾਤਮਕ ਓਪਿਐਨ, ਕਠਿਵਿ ਕਲਾ, ਕਠਿਵਿ ਵਿਸ਼ੇਸ਼ਤਾਤਵਢ .
- 51 ਪਠ ਪੁਸਤਕ: ਪ੍ਰਿਤਿਨਾਧ ਪੰਜਾਬੀ ਕਹਾਣੀਓਢ- ਓਮਰੀਕ ਸਿੰਘ (ਸੰਪਾਡ)
 ਪ੍ਰਕਾਸ਼ਕ : ਜੰਮੂ ਕਸਲਮੀਰ ਓਕੇਜਮੀ ਓਡਫਲ ਓਡਰਟ ਕਲਚਰ ਓਜ ਲੈਂਗਵੇਜਿਜਲ .
 ਅ। ਵਿਸ਼ੇਸ਼ਤਾ / ਥੀਮਕ / ਓਡਲੋਚਨਾਤਮਕ ਓਪਿਐਨ, ਪਠਰ ਚਿਤਰਨ, ਕਹਾਣੀਕਲਾ, ਭਾਸ਼ਾ ਤੇ ਸੈਲਲੀ .
 ਓ। ਕਹਾਣੀ ਦੀ ਸਭਿਅਤਾ ਪਾਖਢ / ਤਾਤਢ ਤੇ ਓਡਲੋਚਨਾ .
 ਏ। ਪਠ-ਪੁਸਤਕ ਵਿਚ ਨਿਰਧਰਤ ਕਹਾਣੀਓਢ ਨੂੰ ਓਡਧਰ ਬਣਾ ਕੇ ਰਿਓਡਸਤੀ ਕਹਾਣੀਓਢ ਦੀਓਢ ਪ੍ਰਮੁਖ ਪ੍ਰਵਿਰਤੀਓਢ .
 ਸ। ਓਚਲਿਕਤਾ ਦੌਰਾਨ ਸੰਕਲਪ ਤੇ ਰਿਓਡਸਤੀ ਪੰਜਾਬੀ ਕਹਾਣੀਕਠਰ .
- 61 ਪਠ ਪੁਸਤਕ: ਨੰਗੇ ਪੈਰਢ ਦੌਰਾਨ ਸਫਰ- ਦਲੀਪ ਕੌਰ ਟਿਵਡਵਢ .
 ਪ੍ਰਕਾਸ਼ਕ: ਨਵਯੁਗ ਪਬਲਿਸ਼ਲਰਜ - ਨਵੀਂ ਦਿਲੀ .
 ਅ। ਸਵੈਜੀਵਨੀ ਦੀ ਬਣਤਰ ਓਤੇ, ਤਾਤਢ ਦੌਰਾਨ ਵਿਵੇਚਨ .
 ਓ। 'ਨੰਗੇ ਪੈਰਢ ਦੌਰਾਨ ਸਫਰ' ਨੂੰ ਸਵੈਜੀਵਨੀ ਦੇ ਤਾਤਢ ਦੇ ਓਡਧਰ ਤੇ ਪਰਖੋ .
 ਏ। ਸਵੈਜੀਵਨੀ ਵਿਚਾਲੀਓਢ ਘਟਨਾਵਢ, ਯਢਦਢ ਤੇ ਪ੍ਰਸੰਗਿਕ ਵੇਰਵਿਓਢ ਓਡਿ ਦੌਰਾਨ ਵਰਣਨ ਤੇ ਓਪਿਐਨ .
 ਸ। ਪਠ-ਪੁਸਤਕ ਦੇ ਓਡਧਰ ਤੇ ਦਲੀਪ ਕੌਰ ਟਿਵਡਵਢ ਦੀ ਵਡਰਤਕ ਕਲਾ / ਸਵੈਜੀਵਨੀ ਸਭਿਅਤਾ ਵਿਚ ਸਥਾਨ .

REMOTE SENSING AND GIS

1. General Knowledge and Current Affairs	25 %
2. English Comprehension	25 %
3. Numerical ability	25 %
4. Data Sufficiency	25 %

RURAL DEVELOPMENT

Rural development & five year Plans in India, Experiments in Rural development before independence: Sriniketan, Martandam, Sevagram and Etawah.

Rural social institutions: Family, Marriage, Religion & Caste system. Population and Demographic dynamics of India and J&K.

National Policies and Rural development programmes in India. Indian Constitution and Current Affairs. Growth and Evolution of Panchayati Raj System in India and J&K.

Rural Economy, its characteristics, Causes & problems of rural inequality, Poverty Indicators in India, NGO Management & Development in India, Rural Development & Financial institutions, Rural Banking, PURA.

SANSKRIT

(1) संस्कृत साहित्य का इतिहास

- (प) ऋग्वेद, यजुर्वेद, सामवेद एवं अथर्ववेद के पृथ्वी सूक्त का सामान्य अध्ययन।
 (पप) ऋग्वेद के उषस्, अग्नि, नासदीय तथा संज्ञान सूक्त का अध्ययन।
 (पपप) केन-उपनिषद् का विशेष अध्ययन।
 (पअ) ऐतिहासिक काव्यों का उद्भव एवं विकास, राजतरङ्गिणी एवं विक्रमाङ्कदेवचरित का महत्त्व।
 (अ) कथासाहित्य एवं चम्पू साहित्य का उद्भव एवं विकास।
 (अप) रघुवंश, स्वप्नवासवदत्त एवं नीतिषतक का अध्ययन।
 (अपप) कालिदास, भारवि, भवभूति एवं शुकदेव षास्त्री, इन संस्कृत कवियों का व्यक्तित्व एवं कृतित्व।
 (अपपप) संस्कृत गद्य साहित्य-उत्पत्ति, विकास एवं विशेषताएँ, संस्कृत गद्यकार के रूप में बाणभद्र, सुबन्धु, दण्डी एवं अम्बिकादत्त व्यास का साहित्यिक परिचय।
 (पग) संस्कृत गद्य संकलन - आचार्यानुष्ठासनम्, सुदर्शन तडाकम्, आदर्शगृहिणी, शुकनासोपदेश, शिववीरस्य राष्ट्रचिन्तनम्, वासन्ती, मातङ्गसारिका, परिव्रजानम्, वसन्त ऋतु के सार एवं उनके लेखकों का परिचय।
 (ग) संस्कृत नाट्य साहित्य - नाटक की उत्पत्ति एवं विकास, नाट्यसाहित्य की सामान्य विशेषताएँ एवं नाटककार के रूप में भास, कालिदास, शूद्रक, हर्ष एवं भवभूति का परिचय।

(2) संस्कृत व्याकरण एवं भाषाविज्ञान

- (प) प्रत्याहार विवेचन।
 (पप) संस्कृत-वर्णमाला।
 (पपप) संस्कृत-वर्णोच्चारण-स्थान एवं प्रयत्न।
 (पअ) स्वर, व्यंजन एवं विसर्ग सन्धियों का सामान्य परिचय।
 (अ) शब्द एवं धातु रूपावली का ज्ञान।
 (०) अजन्त शब्द - राम, हरि, गुरु, पितृ, फल, वारि, मधु, लता, पति, नदी, धेनु, मातृ।
 (इ) हलन्त शब्द - राजन्, भवत्, विद्वस्, सरित्, मनस्, गच्छत्।
 (ब) सर्वनाम शब्द - सर्व, तद्, (तीनों लिङ्गों में), युष्मद् एवं अस्मद्।
 (क) धातुरूपावली - पठ्, गम्, स्था, भू, अद्, अस्, कृ, नृत्, दिव, चुर, भक्ष्, दा, धा, के पाँच (लट्, लोट्, लङ्, विधिलिङ्, लृट्,) लकारों का ज्ञान।
 (अप) कारक एवं विभक्तियों का सामान्य परिचय तथा वाच्यपरिवर्तन।

- (अपप) कृत् प्रत्यय-शतृ, शानच्, क्त, क्तवतु, क्त्वा, तुमुन् अनीयर्।
 (अपपप) भाशाविज्ञान का महत्त्व, भाशा की परिभाशा एवं विषेशताएँ, भाशा के विविधरूप, बोली, परिनिश्चित भाशा, साहित्यिक भाशा, राष्ट्रभाशा का सामान्य अध्ययन।
 (पग) प्राचीन एवं मध्यकालीन भारतीय आर्य भाशाओं का वैषिष्ट्य तथा आधुनिक भारतीय भाशाओं का अनुषीलन।
 (ग) संस्कृत अनुवाद
- (3) नाट्यशास्त्रीय एवं अलंकार सम्बन्धी सामान्य अध्ययन
 (प) रूपक-लक्षण, भेद।
 (पप) नायक-लक्षण एवं भेदविवरण तथा रस-स्वरूप एवं विवेचन।
 (पपप) अनुप्रास, उपमा, रूपक, उत्प्रेक्षा, अर्थान्तरन्यास, दृष्टान्त का सामान्य ज्ञान।
- (4) गीता एवं नीति काव्य
 (प) श्रीमद्भगवद्गीता, द्वितीय अध्याय का विषेष-अध्ययन।
 (पप) भर्तृहरिचिंत नीतिषतक का विषेष-अध्ययन।

SERICULTURE

Introduction to Sericulture: Sericulture: Scope of Sericulture, origin and history of Sericulture industry in India, Silk route. World output of silk, other natural fibers, different types of textiles. Silk industry in the world, characteristics of Sericulture Industry. Role of Central Silk Board in research and development of sericulture in different states of India. Introduction to mulberry silkworm and its food plants, silkworm races. Introduction to non-mulberry silkworm and their food plants, Tassar, Muga and Eri silkworm. Cocoon silkworm grading, silk conditioning and Testing. Employment potential of Sericulture industry in India with special reference to J&K state. Role of women in sericulture industry. Introduction to seed organization.

Soil in Sericulture: Definition of soil, soil forming factors, classification properties (physical and chemical) and important soils. Sources of nutrient elements in soil, soil erosion, soil micro-organisms, soil pollution and waste management.

Mulberry and its cultivation practices: Taxonomy of mulberry, mulberry cultivation practices in irrigated and dry land, mulberry growth and nutrition, essential elements. Propagation of mulberry, different methods of cultivation, cropping pattern, establishment of mulberry gardens, Grafting. Biofertilizers and their role. Manures and their applications, chemical fertilizers, Foliar nutrition, pruning and training, methods of pruning, mulberry management and mulberry gardens.

Biology of silkworm: Systematic position of silkworm and salient features of order Lepidoptera, silkworm races and geographical distribution. Life history of *Bombyx mori*, morphology of egg, larva, pupa and adult. Silk gland, silk protein and their synthesis. Moulting, hormonal control, metamorphosis and the role of hormones in insect metamorphosis. Factors influencing silkworm growth and development.

Rearing Technology: Rearing house requirement for ideal rearing house, disinfections, selection of silkworm races, incubation, brushing and its methods, harvesting of leaf. Chowki rearing, its importance environment and conditions. Moulting, late-age rearing. Preparation of mounting. Harvesting of cocoons.

Diseases of silkworm: Introduction and classification of different types of silkworm diseases. Influence of environment and nutrition on the incidence of diseases. Protozoan diseases, Bacterial diseases, Viral diseases and Fungal diseases. Sources and mode of infection of all the diseases.

Diseases of mulberry: Classification and survey of mulberry diseases. Influence of biotic and abiotic factors on the incidence of mulberry diseases. Fungal diseases, Bacterial diseases and viral diseases.

Pests of Silkworm and Mulberry: Introduction and definition of pest, parasitoids and predators. Sampling methods of pests of silkworm, pests of mulberry, borers and defoliators, mode and extent of damage and control measures of different types of pests.

Genetics and breeding of mulberry: Genetic variability of mulberry, popular mulberry varieties, germ plasm conservation and significance. General introduction to plant breeding, objectives of mulberry breeding, pure-line and clones selection. Polyploidy breeding, hybridization, role of tissue culture.

Genetics and breeding of silkworm: Silkworm as laboratory tool for genetics studies. Heredity and environment, genetics of cocoon colour. Inheritance of voltinism, multi-voltinism, sex determination. Mutation, prospects of bio-technology to improve silk production. Origin and distribution of silkworm races, present status of silkworm breeding in India, Inbreeding and outbreeding. Heterosis and combining ability in silkworm.

Seed origination and seed production: Seed organization, maintenance of hygienic conditions during rearing, disinfection in seed production unit, brief account of seed production centers (SPC). Procurement, transportation, processing and preservation of seed cocoon, pairing of moth, potency and reuse of male moths. Mother moth examination, general account of handling and preservation of multivoltine eggs. Grainage management and economics of seed production.

Textiles and post cocoon technology: Introduction to textile fibers, physical and chemical properties of silk and uses of silk. Processing of cocoon. Stifling and sorting of defective cocoons. Various methods of cocoon boiling. Cocoon brushing.

Reeling : Raw silk yarn, size (denier) and its importance. Cocoon feeding, skein formation and finishing, quality of water required for reeling. Cocoon and raw silk testing and grading, international and ISI standard of grading for raw silk.

Silk throwing and weaving: Preparation for twisting, soaking, dressing, drying, winding and doubling. Preparation for silk weaving, wrapping, beaming, drawing and denting., study of power loom and handloom weaving. Fabric defects and grading of silk fibers.

Extension: Definition, meaning, origin and growth of extension of work education. Extension education methods and communications. Sericulture extension organization.

Marketing Management: Sericulture marketing organization, co-operative and credit agencies, Financing agencies, feed-back system.

Non-mulberry Sericulture: History of non-mulberry sericulture, Tassar, Muga and Eri-Culture. Morphology and rearing of non-mulberry silkworm, Seed cocoon, reeling of Tassar, Muga, Eri cocoons. Diseases of non- mulberry silkworm, pests and predators of non-mulberry silkworm, management of extension of non-mulberry sericulture.

SOCIOLOGY

Sociology as a Science: Meaning, Origin and Subject matter of Sociology; Nature of Sociology as a Science; Perspectives in Sociology – Functional, Conflict and Interactionist; Classical Sociological Traditions - Comte, Spencer, Durkheim, Marx, Weber, Parsons, Merton.

Basic Concepts: Society, Community, Association, Institution; Culture & Cultural Change; Social Groups- Primary, Secondary and Reference Groups; Social Structure, Function; Social Stratification-Caste, Class, Power; Social Mobility; Socialization; Status and Role, Role- conflict, Role- set; Norms and values - conformity and deviance. **Types of Society and Institutions:** Society - Tribal, Rural, Industrial and Urban; Institutions - Marriage, Family and Kinship, Religion, Economy and Polity. **Social Research:** Meaning and Objectives; Research Design; Types of Research; Sampling and types; Techniques of data collection; Basic Statistics – Mean, Median, Mode.

Social Change and Development in India: Meaning and Types of Social Change; Theories of Change; Factors of Change; Processes of Change: Sanskritization, Westernization and Modernization; Development of Marginalized Communities: Scheduled Castes, Scheduled Tribes, Backward Classes, Women.

STATISTICS

Definitions, Scope and importance of Statistics, qualitative and quantitative data, discrete and continuous data, Primary and Secondary data, classification and Tabulation, frequency distribution and their graphical and diagrammatic representations, Measures of central tendency Measures of Dispersion, partition values, Moments (raw & central moments) up to order four. Skewness & Kurtosis ,Bivariate data: Scatter Diagram, product moment correlation coefficient and its properties. Spearman's rank correlation coefficient. Intra class correlation coefficient and correlation ratio. Coefficient of determination. Regression lines, regression coefficient and their properties. Principle of least squares. Fitting of a straight line, parabola, logarithmic and exponential curve by the method of least squares. Partial & Multiple correlation coefficient for three variables only (Derivations & simple illustrations).

Probability: Basic terminology, definitions of Probability, simple illustrations for three events, conditional Probability, theorems on Probability of two events and its extension. Independent events. Bayes theorem. Probability mass function and Probability density function, joint marginal and conditional pmf and pdf, Independence of random variables, Discrete & continuous random variables. Mathematical expectation of sum & product of two independent random variables, conditional expectation and conditional variance, moment generating function .Discrete Probability distributions: Uniform distribution, Bernoulli distribution, Binomial distribution, Negative Binomial distribution, Poisson distribution and their moments. Poisson distribution as a limiting case of B.D ,relation of Poisson distribution as a limiting case of negative B.D., recurrence formula for N.B.D. Hypergeometric distribution and its relation with Binomial distribution. Rectangular distribution. Normal distribution, Normal distribution as a limiting case of binomial distribution , Gamma , Beta and exponential distribution.

The concept of sampling distribution, sampling distribute of t & F, properties of these distribution and their inter relations.

Estimation: Point and interval estimation, Unbiasedness, consistency, efficiency & sufficiency. Methods of estimation: Methods of moments and maximum likelihood ,properties of M.L.E's (with proof). Testing of Hypothesis : Statistical Hypothesis, Null & alternative Hypothesis, Simple & Composite Hypothesis, two types of error, Critical region, Power of test, level of significance. Best Critical region, Test of Significance: One tailed and two tailed tests, test of significance for large samples for attributes & variable, proportions and means, single sample, two samples (both paired & independent). Small sample tests based on t, F & χ^2 test , confidence interval for single mean, difference of means & variance (only for normal case), Neyman-Pearson Lemma .

Complete enumeration Vs Sample enumeration; advantages and disadvantages of sample survey, Objectives of sampling and Non sampling errors, types of sampling. Probability, purposive and mixed sampling, random numbers. Simple random sample from finite population mean, sampling variance as an unbiased estimate of population variance, merits & demerits of SRS. Meaning of Stratification, Method of Stratified sampling & its advantages and disadvantages. Mean and variance of Stratified sampling Proportional allocation optimum allocation, Comparison of stratified random sampling with SRS. Systematic Sampling. Ratio & Regression method of estimation under SRS. Cluster sampling (Equal cluster size) mean & Variance. Analysis of variance for one way & two way classification, principles of design of experiment, concept & analysis of completely randomized design, randomized block design.

Demographic Methods;- Source of demographic data-census, register, adhoc survey hospital records, demographic profiles of Indian census, Life table, crude death rates, mortality rate, crude birth rate, general fertility rate, total fertility rate, gross reproduction rate, net reproduction rate.

Index number-its definition, applications of index number, price relative and quantity or volume relative, link and chain relative problem involved in computational of index numbers, use of averages, simple aggregative and weighted average methods, Laspeyre's Paache's and Fisher's Index number, time and factor reversal tests of index number, Consumer price index.

Time Series analysis:- Economic time series, its different components, additive and multiplicative models, determination of trend, growth curves, analysis of seasonal fluctuations, construction of seasonal indices..

General theory of Control charts, control limits, X and R-charts, P-charts and C Chart.Principle of acceptance sampling;- Problem of lot tolerance, stipulation of good and bad lots, producers and consumer risks, single and double sampling plans their OC functions, Concept of AQL, LTPD, AOQL, average amount of inspection and ASN function. Computational techniques: Difference tables and methods of interpolation, Newton and Lagrange's methods of interpolation, Divided differences, numerical differentiation and integration, Trapezoidal rule, Simpson 1/3 formula, interactive solution of non-linear equations.

Definition of General LPP, Formulation problem of LPP, graphical and simplex method of solving an LPP, duality of LPP.

Urdu

- ۱۔ نزل کی تعریف، اردو نزل کا آغاز و ارتقاء، نزل پر شعرا کی، غالب، میر، آتش، داغ، اعلیٰ، بشیر، عظیم آبادی، امین، گوٹہ، وفی، غازی، دیوبلی، حسرت موہانی، یاسر، گیلانی، گلگیزی، نراقی، گورکھپوری، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۲۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۳۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۴۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۵۔ نظم کا فن، نظم کا آغاز و ارتقاء، چننا، انیسائے کائنات اور نقاد
- ۶۔ مندرجہ ذیل کی تعریف، رہائی، قطعہ، مسدس، نظم، حمد
- ۷۔ قصیدہ کا فن، قصیدے کا آغاز و ارتقاء
- ۸۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۹۔ مرثیہ کی تعریف اور خصوصیات
- ۱۰۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۱۱۔ ڈرامے کا فن، اردو ڈرامے کا آغاز و ارتقاء
- ۱۲۔ پرویز شمس، ڈرامہ نگاری
- ۱۳۔ عشق کی تعریف، عشق کی تعریف اور نقاد
- ۱۴۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۱۵۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۱۶۔ انیسائے کائنات اور خصوصیات
- ۱۷۔ چننا، انیسائے کائنات، اردو انیسائے کائنات اور نقاد
- ۱۸۔ ناول کا فن، ناول کا آغاز و ارتقاء
- ۱۹۔ کرشن چندر کی ناول نگاری، انیسائے کائنات اور نقاد
- ۲۰۔ تنقید کی تعریف، تنقید کی اہمیت، انیسائے کائنات اور نقاد
- ۲۱۔ ادب کا یہ ہے، انیسائے کائنات اور نقاد
- ۲۲۔ ادب بڑے ادب
- ۲۳۔ نئی نئی تحریک
- ۲۴۔ ادب بڑے ادب
- ۲۵۔ رومانی تحریک
- ۲۶۔ اردو زبان کا آغاز و ارتقاء
- ۲۷۔ فورٹ ولیم کالج
- ۲۸۔ ڈاکٹر جان گلکراؤسٹ کی خدمات
- ۲۹۔ میرامن دیوبلی کی خدمات
- ۳۰۔ شیر علی افسوس کی خدمات
- ۳۱۔ عقی نقوی کی خدمات
- ۳۲۔ سر سید احمد خان کی خدمات
- ۳۳۔ سر سید کے دور، سال، شیلی، نڈرا، میرامن
- ۳۴۔ اردو میں نثر نگاری
- ۳۵۔ اردو میں صحافت نگاری
- ۳۶۔ اردو میں ادب نگاری
- ۳۷۔ اردو میں طنز و مزاح کی روایت

ZOOLOGY

Life and Diversity of Invertebrates:

Salient features and classification upto class level from Protozoa to Echinodermata.

Life and Diversity of Chordates:

Salient features and classification upto class level from Hemichordata to Mammals.

Cell biology and Genetics:

Cytoplasmic organelles; Cell division; Chromosome structure and function; Structural and numerical changes in chromosomes.

Evolution:

Origin of life; concepts of evidences of organic evolution; Neo-Darwinism and modern concepts of Evolution; speciation.

Comparative Physiology in Animals:

Nutrition, feeding and digestion; Respiration; Excretion and Osmoregulation; Circulation; Endocrinology and Reproductive Biology.

Ecology:

Ecosystem concepts and Energetics; Human activity and animal resources.

Parasitology:

Structure of virus with special reference to bacteriophage; AIDS, Rabies, Tuberculosis, Bacillary dysentery; GIT as Habitat for parasites; Host-parasite specificity.

Economic Zoology:

Aquaculture with reference to pearl culture; induce breeding; Bee Venom; Uses of honey; enemies of honey bee; life-cycle of silk worm moth; Breeding and diseases of poultry and cattle; Poisonous snakes and venom; Insect pests and stored grains; In-vitro fertilization; Application and biotechnology with reference to Biofertilizers, Bioinsecticides and Antibiotics.

B.A. LL.B (5 Year)

The Entrance Test shall consist of the following components:

1. General Knowledge/Awareness - 10 questions
2. General English - 10 questions
Questions on Idioms and Phrases, Antonyms and Synonyms, usage of Articles, Prepositions, verbs, conjunctions, tenses, spellings, degrees of Comparison and Vocabulary.
3. Legal Aptitude - 20 questions

BBA (HOTEL MANAGEMENT)

The Entrance Test shall be to check the following of the candidate:

1. General Awareness
2. Logical Reasoning
3. General English
4. Mathematics

B.Com (Honours)**Unit I: Accounting**

GAAP: Business Entity, Going Concern, Full Disclosure, Materiality, Cost, Objectivity, Accrual, Consistency, Dual Aspects & Accounting Period; Rules of Book Keeping; Various Subsidiary Books; Trial Balance; Final Accounts; Depreciation; Straight Line Method & Diminishing Balance Method; Accounting for Non-Profitable Organisation; Partnership; Admission & Retirement; Issue; Allotment, Forfeiture of Shares and Debentures; Ratio Analysis, Liquidity and Activity.

Unit II: Business Studies

Commerce: Trade & Auxiliaries; Business Risks; Nature & Causes; Forms of Business Organisation; Meaning and Features of Sole Proprietorship, Partnership, HUF & Companies; Business Services; Meaning and Functions of Banking and Insurance; Functions and Levels of Management; Meaning of Marketing and Marketing Mix.

Unit III: Business Economics

Meaning, Nature and Scope of Economics; Law of Demand; Elasticity of Demand; Law of Supply; Meaning and Features of Perfect & Imperfect Markets; Concept of GDP, NDP, NNP; GNP; Meaning, Objective and Tools of Monetary and Fiscal Policy; Meaning and Uses of Statistics & Measures of Central Tendency.

Unit IV: Contemporary Issues in Trade & Commerce

A Brief Introduction of WTO, TRIMS, TRIPS, FDI, Merits and Demerits of Liberalisation, Globalisation and Privatisation; Inflation and Deflation.

B. A ENGLISH (Honours)

Section I: 20 questions Literary component of class XII syllabus of English. (J&K Board School Education and CBSE).

Questions from the literary text of CBSE class XII and from literary text of J&K Board Class XII.

Section II: 20 questions from language skills.

Questions comprising of Idioms and Phrases, Antonyms and Synonyms, usage of Articles, Prepositions, Verbs, conjunctions, tenses, spellings, degrees of comparison and vocabulary.