UNIVERSITY ENTRANCE EXAMINATION [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

PROGRAMME -

- 1. <u>MBA</u>
- 2. <u>MBA (FINANCIAL MANAGEMENT)</u>
- 3. <u>MBA (INTERNATIONAL BUSINESS)</u>
- 4. <u>MBA (HUMAN RESOURCE DEVELOPMENT)</u>
- 5. <u>MBA TOURISM AND TRAVEL MANAGEMENT</u>
- 6. <u>PG DIPLOMA IN TOURISM & HOTELERING</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

The paper will have 100 questions and each question carries one mark The questions are to be asked from following areas

Section 1: Language Comprehension 20 questions

Section 2: Mathematical skills :20 questions

Section 3: Data Analysis and Sufficiency : 20 questions

Section 4: Intelligence and Critical reasoning: 20 questions

Section 5: Business Environment: 20 questions.

UNIVERSITY ENTRANCE EXAMINATION [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

<u>SUBJECT –</u>

- 1. <u>M.SC. (MEDICINAL AND</u> <u>AROMATIC PLANTS</u>
- 2. <u>PG DIPLOMA (PGDESDMAP)</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

High Altitude Plant Physiology Research Centre (HAPPRC) M.Sc. Medicinal & Aromatic Plants and Post Graduate Diploma in Entrepreneurship and Skill Development in Medicinal and Aromatic Plants (PGDESDMAP) - Syllabus for Entrance Examination

Introduction to Medicinal and Aromatic plants

MAPs: definition, history, importance and future prospects. Medicinal Plants – past and presentstatus in world and India. MAPs as industrial crops - constraints and remedial measures. Medicinal plant diversity & local healthcare. Medicinal plant conservation – issues and approaches. Medicinal plant conservation areas (MPCA), Non-timber forest products (NTFP), Good Agriculture Practices (GAP). Indian Himalayan region (IHR).

Promotion of medicinal plant sector at national level: National Medicinal Plant Board and StateMedicinal Plant Boards - objectives and functions. Other organizational initiatives for promotion of MAPs at National and International levels. Demand and supply of medicinal plants. Herbal industries.

Important medicinal plants of India with their systematics, geographical distribution and uses. *Acorus calamus, Adhatoda vasica, Abrus precatorius* Aloe vera, Phyllanthus amarus, Stevia rebaudiana, Belladona and Cinchona.

Important aromatic plants of India with their systematics, geographical distribution and uses. Introduction and historical background of aromatic plants. Aromatic and cosmetic products. Raw material for perfumes etc. Cosmetic Industries. Major, minor and less known aromatic plants of India. Taxonomic descriptions and uses of important aromatic plants – citronella, davana, damask rose, geranium, khus grass, large cardamom, lavender, lemon grass, mentha, holy basil, patchouli, rosemary Palmarosa, vetiver, artemisia, eucalyptus, thyme, marjoram and oreganum. Aromatic spices - clove, cinnamon, nutmeg, ajwain, dill, celery, tamarind, garcinia, curryleaf and saffron.

Traditional System of Medicine & Intellectual Property Rights

Traditional System of Medicine (TSM) in India. Introduction, Concept and Principles of Ayurveda, Siddha, Unani and, Homeopathy; Importance of TSM; Concept and Principles of Naturopathy and Tibetan Medicine; Concept of herbalism and its significance. Introduction to phyto-medicines and herbal raw materials. Local health traditions, ethanomedicines.

Intellectual property rights including patents, copyrights, trademarks, geographical indicators and trade secrets etc. Indian Patent Act, conditions for patenting, provisional and complete specifications, International and national laws with special reference to patents. IPRs in relation traditional knowledge and culture; Bio-piracy.

Growth and Development

Growth and development of MAP crops; Phases of growth; Factors affecting growth and development; Juvenile and reproductive phases; Physiology of flowering; Photoperiodism; Vernalisation; Maturation and ripening; respiratory climacteric and non-climacteric; physiology and biochemistry of ripening. Senescence; Tuberization, formation of bulbs, rhizomes, corms etc.

Plant propagation; Different methods of propagation; Sexual and Asexual modes of propagation; Seed production; Seed germination and dormancy; Vegetative propagation-Cutting, budding, grafting and layering. Micro-propagation.

Systems of cultivation; High density cultivation; Different cropping systems in MAPs; Production and training in MAPs.

Biofertilizers, vermicompost and organic farming; Role of plant growth regulators with special reference to MAPs; Integrated nutrient management; Weed management; Irrigation systems.

MAPs production-I

Aconites: origin and distribution, compositions and uses, species and cultivars. Propagation and planting of Aconites. Soil, climate, irrigation and nutrition requirement of Aconites. Maturity and harvesting. Pests and diseases of Aconites.

Rhubarb: origin, sex expression, propagation and planting. Cultivation techniques including soil and climatic requirements, manures and fertilizers, irrigation, harvesting and post harvest handling, extraction.

Origin and distribution of Sarpgandha, flowering and fruiting. Cultivation practices including climate & soil, propagation, manures & fertilizers, irrigation, maturity and harvesting, post-harvest handling.

Origin, distribution and importance of *Asparagus*. flowering and fruiting. Cultivation practices including climate & soil, propagation and planting, nutrition and irrigation requirement, maturity and harvesting of *Asparagus*.

Dioscorea: Origin, importance, Cultivation including soil & climate, propagation, flowering, maturity, ripening, harvesting and storage.

Gloriosa superba: origin, distribution and importance. Soil & climate, propagation & planting, irrigation, flowering, maturity and harvest. =0Origin, importance, ecological races

of *Catharanthus roseus*. Cultivation including soil & climate, propagation, flowering, maturity, ripening and storage.

Ashwagandha: origin and importance. Cultivation practices including climate, soil, nutrition and water requirements; propagation and rootstocks, maturity and harvesting.

Andrographis paniculata: Origin, uses, important cultivars. Cultivation practices including climate, soil, irrigation and nutritional requirements; propagation and planting; maturity and harvesting.

Piper: origin and distribution, important cultivars, propagation. Cultivation requirements including climate and soil, manuring and irrigation, maturity, harvesting and yield. Important diseases and pests of piper.

Pattharchoor: Origin, uses, important cultivars. Cultivation practices including climate, soil, irrigation and nutritional requirements; propagation and planting; maturity and harvesting.

Ocimum: origin, sex expression, propagation and planting. Cultivation techniques including soil and climatic requirements, manures and fertilizers, irrigation, harvesting and post harvest handling.

Plant Systematics and Conservation

Concept of taxonomy, keys and classification based on botanical features and official parts. Study of plant parts (microscopic and macroscopic) based on morphological features. Modern concept of taxonomy-Chemotaxonomy and Molecular taxonomy-applications.

Botanical description of selected types (microscopic and macroscopic characteristics). Botanical and economical classification of medicinal & aromatic plants. Preparation of herbaria and useful herbarium notes concerning individual plant species. Study of herbaria in relation to MAPs. Famous Indian and World herbaria.

Natural status of the species, habitat fragmentation, speciation, population concept, mapping of the populations, morphological and genetic diversity. Conservation genetics. Conservation methods- *ex situ* and *in situ*. genebanks, botanical gardens, global concerns for conservation of MAPs, Biodiversity hot spots-India.

MAP Production-II

Detailed study of origin and distribution, economic importance, classification, varieties, climate and soil requirements, propagation and nursery techniques. Maintenance of nursery, methods of planting, cultural practices, nutrition and water requirements, plant protection and management, harvesting and yield of garlic, jamboo etc.

Origin and distribution, economic importance, classification, varieties, climate and soil requirements, propagation and nursery techniques, maintenance of nursery, methods of

planting, cultural practices, nutrition and water requirements, plant protection and management, harvesting and yield; Processing, quality evaluation and grading of *Picrorhiza kurrooa*.

Pseudogenseng: origin, sex expression, propagation and planting. Cultivation techniques including soil and climatic requirements, manures and fertilizers, irrigation, harvesting and post harvest handling.

Origin and distribution, economic importance, classification, varieties, climate and soil requirements, propagation and nursery techniques, maintenance of nursery, methods of planting, cultural practices, nutrition and water requirements, plant protection and management, processing of *Chlorophytum*.

Importance, origin and distribution, classification, varieties, climate and soil requirements, propagation and nursery techniques, maintenance of nursery, methods of planting, cultural practices, nutrition and water requirements, plant protection and management, harvest indices and harvesting; processing of ginger, turmeric, cardamom and vanilla.

Economic importance, classification, improved varieties, climate and soil requirements, propagation and nursery techniques, sowing, seed rate, time of sowing, methods of planting, cultural practices, nutrition and water requirements, plant protection and management, harvesting, yield and processing of coriander, fenugreek, fennel, cumin and *Carum carvi*.

Quality control and Phytochemical methods

Drug examination; Macroscopic and Microscopic evaluation; Moisture content; Microbial nfestation; Contaminations and Aflatoxins; Development of standard parameters; Solvent extractive values; Ash values; Crude fiber; Bitter value, Foaming index, Swelling index, Heavy metals.

Adulteration and deterioration- Quality Control, Quality Assurance and Stability testing, Physical quality assurance, Good Manufacturing Practices; Good Laboratory Practices, Validation; Marker compound evaluation.

Methods of isolation; Extraction methods; Thin layer chromatography; HPTLC; Column Chromatography; HPLC; Gas Chromatography; Methods of characterization; Spectroscopic methods, UV, Visible, IR, NMR, Mass Spectrometry, Atomic absorption/ ICP/ICP-MS, GC-MS, LC-MS.

Macroscopical and microscopical evaluation including quantitative microscopy. Physical, Chemical and Biological evaluation in quality control of crude drugs. Estimation of plant phytoconstituents using modern methods like UV and HPTLC, HPLC etc.

Introductory Herbal Biochemistry

Outline study of major metabolic pathways –cellular localization of secondary metabolites, modern techniques to study secondary metabolites, metabolomics and metabolic control.

Plant acids-sources and functions, sugar alcohols, sugar acids-aldonic acid, uronic acid, aldaric acid, sugar amines-Glucosamine and Galactosamine-sources and functions, sources and function of medicinal polysaccharides : dextrins, inulin, gums and mucilages, Peptides and lectins of medicinal importance, glycosides-sources and functions, anthraquinones, saponins.

Plant defence, molecules involved in defence mechanisms. Major plant secondary metabolites and outline study of: Alkaloids-nature, classification, distribution, biosynthesis and functions, Phenolics-nature, classification, distribution, biosynthesis and functions, Terpenoids-nature, classification, distribution, biosynthesis and functions. Factors influencing production of secondary metabolites.

Pharmacognosy

History, definition and scope and future of Pharmacognosy. Traditional and alternative systems of medicine. Classification and pharmacognostic studies of crude drugs.

Analytical Pharmacognosy-drug adulteration, methods of drug evaluation, biological testing of herbal drugs, phytochemical investigations, Antimicrobial activity of plant extract.

Ayurvedic Pharmacy, drugs of mineral origin, natural pesticides its classification, factor influencing the development of natural pesticide, antibiotics and its mechanism of action and allergenic extracts. Drugs containing glycosides, tannins, terpenoids, Enzyme and protein drugs, Alkaloidal drugs. Phytopharmaceuticals, neutraceuticals and cosmeceuticals.

Introduction to different dosage forms and methods of preparation of Homeopathy and Unani medicines. Study of information retrieval methods of natural plants and herbal data base. Phytochemical and Pharmacological literature review of *Gymnema sylvestre, Azadirahcta indica, Adhatoda vasica, Asparagus racemosus, Commiphora mukul, Podophyllum hexandrum, Ocimum sanctum, Shankapushpi and Tylophora asthamatica.*

Post-Harvest Technology

Scope and importance of post harvest technology. Post-harvest handling of wild and plantation crops of MAPs. Maturity indices, harvesting practices for specific market requirements, influence of pre-harvest practices, enzymatic and textural changes. Post harvest losses.

Treatments prior to shipment, viz., chlorination, waxing, chemicals, biocontrol agents and natural plant products. Methods of storage ventilated, refrigerated, MAS, CA storage. Precooling, sorting & grading, packaging, transportation and marketing. Cool chain. Preservation-principles and practices for MAPs. Semi processing, adulteration, packaging and labeling.

Harvesting, grading and storage of medicinal plants. Post harvest handling of aromatic plants. Different methods of essential oil extraction and their drying and storage. Active content dynamics vis-a vis plant growth and post-harvest processing for evaluation of chemical constituents.Influence of post harvesting practices on active principles of MAPs.

Drying: introduction, drying and dehydration, osmotic drying, vacuum drying and freeze drying. Dried and dehydrated products. Enzymatic browning. Irradiation for control of spoilage during storage and transit. Value addition and Value added products. Safety standards.

Introductory Herbal Biotechnology

Biotechnical advances in medicinal plants; Basic tools andtechnology for Molecular Herbal Biotechnology; basic concepts of genetic engineering, gene bank and gene pool; concepts and basic techniques in plant tissue culture.Genetic transformation and secondary metabolite production.

In vitro evaluation methods for herbal drug action using molecular biotechnological tools; *In vitro* culturing of medicinal plants and production of herbal drugs. Hairy root cultures and bioreactors.

Application of molecular biology tools for the improvement, production, characterization, purification and identification of therapeutically useful phyto-constituents; influence of bioregulators, effect of differentiation, techniques of elicitation for production of secondary metabolites.

Integrated Plant Protection

Classification of pests, Introduction to principles of integrated plant disease management in MAPs. Economic threshold. Relationship of environmental factors with disease development.

Plant quarantine, eradication, protection, and disease resistant strategies against important diseases. Biological and biotechnological approaches in disease management., Genetically modified crops.

Scope and importance of integrated pest management (IPM). Tools of pest management, their description and usage in IPM programmes. Insect pests of important medicinal and aromatic crops, their biology, nature, extent of damage and their management.

Weeds – types and classification; invasive species; weed control, common weeds of important medicinal plants.

Research Methodology and Introductory Biostatistics

Introduction and role of statistics in MAPs research. Sampling theory and experimental designs, screening designs, evaluation and choice of experimental designs. Replication, randomization and complete randomized design. Genetic designs, Latin square and split plot.

Classification and summarization of data. Diagrams and graphs. Measurement of central tendency and measures of dispersion. Testing of hypothesis including mean, variance and proportion. Test based on x^2 distribution including ANOVA. Non-parametric tests. Correlation and regression analysis.

Introduction and history of computer and computer network. Concepts of operating system, control structures, function and subroutines. Concepts of files; program files and data files etc. Computer applications in plant sciences.

Medicinal plants case studies.

Origin, distribution, phenology, cultivation prospects including climate & soil requirement, propagation, manures & fertilizers, irrigation, maturity, harvesting, yield and post-harvest handling.

A) Alpine species: Aconitum balfourii, A. heterophyllum, Picrorrhiza kurrooa, Nardostachys jatamansi, Rheum emodi, Podophyllum hexandrum, Coptis teeta and Panax species.

OR

B) Temperate species: Valeriana wallichii, Zanthoxylum armatum, Allium stracheyi, Asparagus racemosus, Hedychium spicatum, Saussurea costus, Valeriana wallichi and Swertia chirayita and Paris polyphylla.

OR

C) Tropical species:*Withania somnifera, Rauvolfia serpentina, Catharanthus roseus, Azadirahcta indica, Chlorophytum borivilianum, Tinospora cordifolia,Dioscorea deltoidea,Coleus barbatus, Emblica officinalis and Piper longum.*

Organic and Protected Cultivation

Organic Cultivation – definition, synonyms and misnomers, principles, methods, merits and demerits. Organic farming systems, components of organic farming systems, different organic inputs and their role in organic production, role of biofertilizers, biodynamics and the recent developments.

Effective Microorganisms (EM) technology and its impact in organic cultivation, indigenous practices of organic farming, FYM, composting, mulching, sustainable soil fertility management, weed management practices in organic farming, biological/natural control of pests and diseases, organic cultivation in quality improvement. Good Agriculture Practices (GAP) - Principles and management. Constraints in certification, organic production and export, IFOAM and global scenario of organic movement, post-harvest management of organic produce.

Importance and scope of protected cultivation of MAPs; principles used in protected cultivation, energy management, low cost structures; training methods; engineering aspects.Greenhouse – World scenario, Indian situation: present and future, Environmental factors and their effects on plant growth.Polyhouse, Shade-net house, Polytunnel and Polypit.

Method of preparation of compost, vermicomposting, biocomposting, biofertilizers, soil solarization, bio pesticides, green manuring, mycorrhizae and their application in organic crop production. Weed management in organic cultivation. Visit to organic fields and marketing centers.

Introductory Pharmacology

Definitions, scope and general principles of pharmacology. Nature and sources of drugs, drug nomenclature, essential drug (medicine) concept. Detail discussion, merits and demerits of various routes of drug administration. Pharmacology of chemotherapeutic and antimicrobial agents.

Physiochemical factors and processes in transfer of drug across the biological membranes. Drug absorption, Bio-availability, factors affecting drug absorption and bio-availability. Adverse drug reactions and drug interactions.

Bioassays: General methods and bioassays of different drugs. Basic concept of toxicity, different tests, teratogenicity and carcinogenicity, itrogenic diseases, tolerance, habituation and addiction.

MAP Bioresource Management

Importance of resource management: Genetic biodiversity of medicinal plants, Conservation networks, Global initiatives on medicinal plants conservation and development, World history on usage of medicinal plants, Preference to natural products, Advanced research in biomedicines, Nutraceuticals and natural drugs.

MAPS: Identification, Inventory, Mapping, Population assessment, Sustainable collection, Conservation, Cultivation, Regeneration, Intercropping, Crop rotation, Indigenous knowledge of farming systems, Yield, Trade, Products, Certification, Documentation.Quantification: frequency, relative frequency, abundance, density, relative density and yield.

Threats: RET (Rare, Endangered and Threatened) medicinal and aromatic plants of Indian Himalaya. Present status and future prospects, species, economic parts and their uses in different diseases. IUCN, Convention on Biological Diversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora, World Health Organization, Legal and Ethical requirements (Laws, regulations and administrative requirements), Benefit Sharing, Financial viability, Traceability.

Herbal Chemistry

Biosynthesis of carbohydrates, lipids, volatile oils and resins. Types and classification of carbohydrates and lipids and their uses as phytopharmaceuticals.

Basic pathways of synthesis of secondary metabolites and production of phytopharmaceuticals such as glycosides, alkaloids and isoprenoid compounds. Biogenesis of medicinally important glycosides and alkaloids - Anthraquinone glycosidal drugs, saponin glycosidal drugs, cyanogenetic glycosidal drugs,coumarins and furanocoumarin glycosidal drugs. Isoquinoline alkaloidal, tropane steroidal and terpenoid alkaloidal drugs etc.

The physiological roles of secondary metabolites in relation to Plant-vertebrate interaction; Plant-insect interaction; Plant – plant interaction; plant-microorganisms interaction. Turn over and degradation of secondary metabolites - The concept of turn over of secondary metabolites.

Accumulation of secondary products and the differentiation of storage spaces. Secondary metabolites and plant systematic- The relationship of chemical and botanical data. Introduction to amino acids, enzymes, terpenoids (volatile oils and resins) and plant hormones.

Propagation & Nursery Management

Propagation: Need and potentialities for plant multiplication, sexual and asexual methods of propagation, apomixes – mono-embryony, polyembryony, chimera & bud sport. Seed dormancy (scarification & stratification) internal and external factors, nursery techniques.

Propagation Structures including mist chamber, humidifiers, greenhouses, glasshouses, cold frames, hot beds, poly-houses, nursery (tools and implements) and growing media.

Propagation methods: Use of growth regulators in seed and vegetative propagation, methods and techniques of cutting, layering, grafting and budding physiological & bio chemical basis of rooting, factors influencing rooting of cuttings and layering, graft incompatibility. Micrografting.

Techniques for *in vitro* propagation, factor affecting tissue culture, culture room, hardening, hardening of plants in nurseries, approaches in micro propagation of banana, strawberry, papaya.

Propagation methods of some commercially important medicinal plants i.e. Neem, Sarpgandha, Harar, Bahera, Amla Asparagus, Zanthoxylum and Tejpat.

Bioresources Management

Biogeographical zones of India, major biomes of the world, Vegetation mapping and monitoring of biodiversity. Status and strategies for bioresource management, Sustainable exploitation and development.

Resources management including forest, grassland, cropland, Wetlands and estuary bioresource management, Microbial resource management, Wildlife management. Energy Conservation- efficiency in production, transportation and utilization of energy. Future sources of energy with major emphasis on biodiesel.

Important legislations in relation to Plant resources: Wildlife Protection Act 1972, Forest Conservation Act 1981. Etc. Environmental impact statement (EIS), Environmental management plan (EMP) and Environmental clearance for establishing industry.

Principles of conservation, extinction and threat assessment, environmental status of plants based on International Strategies for conservation including organizations viz., WWF, IUCN and conventions i.e. CBD, GSPC ; Biodiversity Bill India, 2002.

Processing Technology of Aromatic Plants

Post Harvest Technology of aromatic plants: Harvesting, Drying, Storage and Size Reduction. Case studies-post-harvest technology of selected aromatic plants.

Sources of natural essential oils. Methods of producing essential oils. Types of volatile extracts-Concretes, Absolutes, Resinoids and Pomades. Extraction Techniques: Extraction

with hydrocarbon solvents, Extraction with Non-Volatile Solvents; Maceration and Enfluarage. Modern extraction techniques-Supercritical fluid extraction (SFE), Microwave-Assisted Hydrodistillation (MAHD), Ultrasound-assisted extraction (UAE), Solvent-free microwave extraction (SFME), Microwave hydro diffusion and gravity (MHG).

Distillation Techniques with special reference to Conventional Rural Distillation; Designing of Distillation Unit viz., Furnace, Distillation Tank and its Advantages; Distillation with Cohobation-advantages, Boiler, Condenser and Oil Separator.

Hydrodistillation: Water distillation, Water and Steam distillation, Steam distillation and Hydrodiffusion; Volatility and Solubility of Essential oil; Disadvantages of Hydrodistillation and its safety measures. CIMAP Model-Details and specific advantages.

Factors effecting yield and quality of Essential oil(s). Different essential oils and their chemical constituents along with commercial uses - Citronella oil, Geranium oil, Lemon grass oil, Ajowain oil, Davana oil, Mentha oil and Citrus oil; Value Addition of Aromatic Plant(s) and their Bioprospects.

Ethno-botany

Ethno-botany: Introduction, concept, scope and objectives; Ethno-botany as an interdisciplinary science. The relevance of ethno-botany in the present context; .Ethnic groups and Ethnobotany: Major and minor ethnic groups or Tribals of India, and their life styles. Forest Vs. ethnic groups; Plants in Tribal life with reference to Magico-religious rituals (Shamanistic) and social customs. Sacred groves. Challenges and future prospects of ethnoflora, ethnic groups or tribes in current changing scenario.

World centers of primary diversity of domesticated plants: Vavilov's centres of origin; The Indo- Burmese centre; plant introductions and secondary centers. Origin, evolution, botany, cultivation and uses of (i) Food, forage and fodder crops, (ii) fibre crops, (iii) medicinal and aromatic plants, and (iv) vegetable oil-yielding crops.

Methodology of Ethno-botanical studies: a) Field work b) Herbarium c) Ancient Literature d) Archaeological findings e) temples and sacred places) Protocols; Plants Vs. Tribal Life: a) Food plants and Food cycles b) Intoxicants and Beverages c) Ropes and Bindings materials d) Resins and oils. ; Important fire wood, timber yielding and non-wood forest products (NWFPs) such as bamboos and rattan, gums, tannins and dyes and fruits with reference to NE, India and Mizoram. Statistical methods in ethnobotany, i.e. Sampling methods, questionnaires, statistical analysis of ethnobotanical data including ethnobotanyR package.

Plants and tribal medicines with reference to Uttarakhand: Significance of the some important plants of the region viz., *Aconitum, Podophyllum, Picrorhiza, Valeriana, Cinnamomum* etc in Tribal medical practices (along with a brief note on their habitat and morphology); .Role of ethno-botany in modern Medicine with some examples. Different aspects of ethnobotany in Uttarakhand i.e. Ethnoecology, ethnozoology, ethnomedicine etc.

Medico-ethno-botanical sources in India with special reference to Uttarakhand; Role of ethnic groups on surrounding environment. Crop Genetic sources. Endangered taxa and forest management (participatory forest management). Ethno-botany and legal aspects. Ethno-botany as a tool to protect interests of ethnic groups.

Production Technology of Aromatic Plants

Scope of aromatic plants in global trade, Global Scenario of aromatic plants production. Area under aromatic pants and production problems in India- Patent rights, nursery management, media for nursery, special nursery practices.

Growing environment, open cultivation, protected cultivation, soil requirements, soil decontamination techniques, planting methods, influence of environmental parameters, light, temperature, moisture, humidity and CO2 on growth of aromatic plants. Soil and climate requirements, field preparation for important aromatic plants.

Aromatic plants production – water and nutrient management, weed management, rationing, training and pruning, pinching and disbudding, special horticultural practices, use of growth regulators, physiological disorders and remedies.

Aromatic plants standards and grades, harvest indices, harvesting techniques, post-harvest handling, Pre-cooling, pulsing, packing, Storage & transportation, marketing, export potential, institutional support, Agri Export Zones.

Cultivation & Trade of MAPs

History, present status and future prospects of MAPs cultivation in India. Development of agro-techniques of MAPs – including domestication, improved varieties, cultivation packages and economical viability. Selection of elite germplasm for domestication. Appropriate harvesting techniques and season.

Methods of propagation. Sexual methods - Seed physiology including seed dormancy, types of seeds, seed storage, viability, germination and seed vigor. Asexual propagation- including apomixes, vivipary & vegetative propagation methods for MAPs. Factors affecting MAPs cultivation including topography, climatic conditions, soil and soil fertility and practices of cultivation.

Cultivation practices for temperate medicinal plants – Aconites, Andrographis paniculata, Asperagus racemosus, Coleus barbatus, Chlorophytum tuberosum, Gloriosa superva, Catheranthus roseus, Dioscorea Nardostachys jatamansi, Picrorhiza kurrooa, Podophyllum hexandrum, Pseudogenseg, Rheum Rauwolfia serpentina and Withania somnifera.

Cultivation packages for important aromatic plants – *Carum carvi*, Citronella, Lemongrass, Mentha, Ocimum, Patchauli, Khus grass, Geranium, Large cardamom, Davana, Lavander and Rosemerry.

Crop Improvement and Seed Production

History of plant breeding. Mode of reproduction, floral biology and pollination mechanism. Qualitative and quantitative characters. Domestication, plant introduction and acclimatization. Importance of polyploidy and self incompatibility in plant breeding.

Methods of crop improvement such as selection, acclimatization and hybridization. Mutation breeding. Heterosis and hybrid vigor. Methods for cross pollinated crops. Methods for self pollinated crops. Crop improvement methods for clonal crops.

Release of new varieties. Quality seed, classes, production practices and maintenance. Seed testing, ISTA rules, different types of seeds. Classes of quality seed - breeder, foundation, registered and certified seeds. Requirements of certified seeds. Genetic, physical purity, germination and other requirements. Operations essential to a seed industry. Seed production, seed processing, seed certification. Maintenance of improved seed.

Breeding for resistance to biotic stresses – insect resistance, disease resistance, abiotic stresses- heat and cold resistance, mineral stresses, drought resistance.

Besides to above, questions may be covered from all the aspects of Plant sciences in general and Botany, Agriculture, Forestry, Horticulture, Pharmacy, Ayurveda and Indian System of Medicine in particular.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – MICROBIOLOGY</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Microbiology

Microbiology

- History and scope of Microbiology
- Position and diversity of microorganisms in the living world
- Structure and organization of a bacterial cell
- Bacterio phages, <u>Viruses, viroid'sviroids</u>, and prions
- Biogeochemical cycles: Carbon, Nitrogen, Phosphorous and Sulfur
- General accounts of microbes in diverse environments
- Cultivation of microbes and Microbial growth curve
- Mechanisms of gene transfer
- Basic concepts of gene regulation
- Fermented foods and food-borne diseases
- Types of fermentations and fermenters
- Biofertilizers and bio pesticides
- Microbial interactions
- Emerging infectious diseases

Cytology and Genetics

- Ultrastructure of plant and animal cell
- Cell cycle
- Mendel's laws and cytoplasmic inheritance
- Interaction of genes
- Linkage and crossing over
- Sex determination in plants and animals
- Modern concept of gene structure
- Mutations and mutagens

Biochemistry

- Proteins
- Enzymes
- Carbohydrates
- Lipids
- Nucleic acids and Genetic code

Physiology

- Water relations
- Cell Membrane
- Oxygenic and Anoxygenic Photosynthesis

• Respiration: Aerobic, anaerobic and fermentation Hormones

Biotechnology

- Vectors: Plasmid, lambda phage based, M13 based, Cosmids, BAC, YAC, expression vectors, Agrobacterium-based
- Tools and Techniques in biotechnology: Restriction enzymes, ligases, DNA
- polymerases, PCR, Sangers method of sequencing, Southern blotting, Northern Blotting, DNA micro array, genomic and cDNA libraries, genegun
- RDT based products

Biotechniques

- Chromatography
- Electrophoresis: Agarosegel, SDSPAGE, IEF and 2D
- Microscopy
- Centrifugation Spectrophotometry

Immunology

- Cells and organs of immune system
- Innate and adaptive immune response
- Antigen and antibody
- Complement system
- MHC
- Immunological techniques

Ecology

- Adaptations
- Population ecology
- Community Ecology
- Ecosystem function
- Ecological succession
- Environmental pollution

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – MUSIC



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

MUSIC

Hindustani Music (Vocal-Instrumental)

Unit 1- Detailed Knowledge Of The Salient Features Of Ragas & Comparative Study

Prescribed Ragas: Bilawal, Alhaiya Bilawal, Bhairav, Kafi, Yaman, Khamaj, Asawari, Bhupali, Deshkar, Brindabani Sarang, Malkauns, Bihag, Bhimpalasi, Bageshri, Des, Jaijaiwanti, Ramkali, Hameer, Kedar, Kamod, Chayanat, Todi, Multani, Gaud Sarang, Patdeep, Puriy Dhanashri, Shuddha Sarang.

Unit 2- Detailed Knowledge Of The Salient Features Of Talas And Comparative Study

Prescribed Talas: Dadra, Keharwa, Rupak, Teevra, Jhaptala, Sultala, Ektala, Chautala, Teentala, Tilwada, Dhamar, Jhumra, Ada Chutala

Unit 3- Undestanding Of Musical Terms:

Nad, Shruti, Swara, Thaat, Vadi, Samvadi, Anuvadi, Vivadi, Jati, Varna, Alankar, Sthaya, Tana, Gamak, Meend, Kan, Krintan, Soot, Zamzama, Ghaseet, Kaku, Avirbav, Tirobhav,

Unit 4- Physics Of Sound:

Pitch, Intensity, Timbre, Vibration, Forced Vibration, Free Vibration, Just Intonation, Equally Tempered Scale, Harmony, Melody, Polyphony

Unit 5- Musical Forms:

Gram, Murcchana, Gandharva, Gan, Nibhaddha-Anibaddha, Jati Gayan, Prabandha, Dhrupad, Dhamar, Khayal, Tarana, Tappa, Chaturang, Maseet Khani Gat, Razakani Gat, Alap, Bol-Alap, Jod- Alap, Vilambit Gat, Drut Gat, Jhala

Unit 6- Laya And Tala:

Laya- Meaning, Vilambit, Madhya, Drut

Layakari – Dungun, Tigun Changun, Panchgun, Chegun, Ada, Kuad Biad. Tala – Meaning, Avartan, Matra, Tali, Khali, Sam, Vibhag. Das Pranas Of Tala.

Unit-7 Study Of Following Texts:

Natya Shastra, Brihaddheshi ,Sangeet Makarand, Sangeet Ratnakar, Swarm Mel Kala Nidhi, Raga, Vibodh, Raga Tarangini, Sangeet Parijat, Chaturdandi Prakashika,

Unit-8 Contribution Of Musician/Scholars:

Tansen, Amir Khusru, Jaidev, Sadarang, Adarang, Mansingh Tomar, V.N. Bhatkhande, V.D Paluskar. S.N Ratanjankar, Omkar Nath Thakur, Haddu-Hassu Khan, Bade Gulam Ali Khan, Abdul karimKhan, Vilayat Hussain Khan, Allaudin Khan,Mushtaq Ali Khan.

Unit-9 Study Of Musical Concepts:

A. Classification Of Musical Instruments: Tatta, Avnadha, Ghan, Shushir, Knowledge, Construction And Tuning Of The Prominent Instruments And Playing Techniques Of Sitar Guitar, Violon, Santoor, Tanpura.

B. Classification Of Ragas:

a. Raga-Ragini Classification

b. Thaat-Raga Classification

c. Ragang Classification

d. Time Theory Of Ragas At Present Time

Unit-10 Knowledge Of Notation System:

a. Detailed Knowledge Of V.N. Bhatkhande Notation System

b. Detailed Knowledge Of V.D Paluskar Notation System

c. Basic Knowledge Of Staff Notation System.

Unit-11 Gharana And Their Significant Features:

a. Gharana- Meaning And Importance

b. Dhrupad- Vanis, Dagar, Darbhanga, Betia Styles

c. Vocal- Gwailor, Agra, Delhi, Kirana, Jaipur, Patiala.

d. Instrumental Music And Their Prominent Styles At Present.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – PHARMACEUTICAL CHEMISTRY



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND Atomic Structure: Review of: Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Heisenberg Uncertainty principle. Hydrogen atom spectra. Need of a new approach to Atomic structure.

Chemical Bonding and Molecular Structure Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability. Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character.

Covalent bonding: VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Concept of resonance and resonating structures in various inorganic and organic compounds.

Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values.

Aromaticity: Benzenoids and Hückel's rule.

Stereochemistry, Conformations with respect to ethane, butane and cyclohexane. Interconversion of Wedge Formula, Newmann, Sawhorse and Fischer representations. Concept of chirality (upto two carbon atoms).

Configuration: Geometrical and Optical isomerism; Enantiomerism, Diastereomerism and Meso compounds). Threo and erythro; D and L; cis - trans nomenclature; CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E / Z Nomenclature (for upto two C=C systems).

Aliphatic Hydrocarbons Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. Alkanes: (Upto 5 Carbons). Preparation: Catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis, from Grignard reagent. Reactions: Free radical Substitution: Halogenation.

Alkenes: (Upto 5 Carbons) Preparation: Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). Reactions: cis-addition (alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.

Alkynes: (Upto 5 Carbons) Preparation: Acetylene from CaC2 and conversion into higher alkynes; by dehalogenation of tetra halides and dehydrohalogenation of vicinal-dihalides.

Reactions: formation of metal acetylides, addition of bromine and alkaline KMnO4, ozonolysis and oxidation with hot alk. KMnO4.

Aromatic hydrocarbons, Preparation (Case benzene): from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid. Reactions: (Case benzene): Electrophilic substitution: nitration, halogenation and sulphonation. FriedelCraft's reaction (alkylation and acylation) (upto 4 carbons on benzene). Side chain oxidation of alkyl benzenes (upto 4 carbons on benzene).

Alkyl and Aryl Halides Alkyl Halides (Upto 5 Carbons) Types of Nucleophilic Substitution (SN1, SN2 and SNi) reactions. Preparation: from alkenes and alcohols. Reactions: hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation. Williamson's ether synthesis: Elimination vs substitution. Aryl Halides Preparation: (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions. Reactions (Chlorobenzene): Aromatic nucleophilic substitution (replacement by –OH group) and effect of nitro substituent. Benzyne Mechanism: KNH2/NH3 (or NaNH2/NH3). Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.

Alcohols, Phenols and Ethers (Upto 5 Carbons) Alcohols: Preparation: Preparation of 10, 20 and 30 alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters. Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. KMnO4, acidic dichromate, conc. HNO3). Oppeneauer oxidation Diols: (Upto 6 Carbons) oxidation of diols. PinacolPinacolone rearrangement. Phenols: (Phenol case) Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Gattermann-Koch Reaction, Houben–Hoesch Condensation, Schotten – Baumann Reaction. Ethers (aliphatic and aromatic): Cleavage of ethers with HI. Aldehydes and ketones (aliphatic and aromatic): (Formaldehye, acetaldehyde, acetone and benzaldehyde) Preparation: from acid chlorides and from nitriles. Reactions – Reaction with HCN, ROH, NaHSO3, NH2 -G derivatives. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation. Clemensen reduction and Wolff Kishner reduction. Meerwein-Pondorff Verley reduction

Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. Carboxylic acids and their derivatives Carboxylic acids (aliphatic and aromatic) Preparation: Acidic and Alkaline hydrolysis of esters. Reactions: Hell – Vohlard - Zelinsky Reaction. Carboxylic acid derivatives (aliphatic): (Upto 5 carbons) Preparation: Acid chlorides, Anhydrides, Esters and Amides from acids and their interconversion. Reactions: Comparative study of nucleophilicity of acyl derivatives. Reformatsky Reaction, Perkin condensation.

Amines and Diazonium Salts Amines (Aliphatic and Aromatic): (Upto 5 carbons) Preparation: from alkyl halides, Gabriel's Phthalimid

Preparation: from alkyl halides, Gabriel's Phthalimide synthesis, Hofmann Bromamide reaction. Reactions: Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, with HNO2, Schotten – Baumann Reaction. Electrophilic substitution (case aniline): nitration, bromination, sulphonation. Diazonium salts: Preparation: from aromatic amines. Reactions: conversion to benzene, phenol, dyes.

Amino Acids, Peptides and Proteins: Preparation of Amino Acids: Strecker synthesis using Gabriel's phthalimide synthesis. Zwitterion, Isoelectric point and Electrophoresis. Reactions of Amino acids: ester of –COOH group, acetylation of –NH2 group, complexation with Cu2+ ions, ninhydrin test.

Carbohydrates: Classification, and General Properties, Glucose and Fructose (open chain and cyclicstructure), Determination of configuration of monosaccharides, absolute configuration of Glucose and Fructose, Mutarotation, ascending and descending in monosaccharides. Structure of disacharrides (sucrose, maltose, lactose) and polysacharrides.

Chromatography: Definition, general introduction on principles of chromatography, paper chromatography, TLC, Column, ion-exchange chromatography

Qualitative and quantitative aspects of chromatographic methods of analysis: IC, GLC, GPC, TLC and HPLC.

Mass spectroscopy: Making the gaseous molecule into an ion (electron impact, chemical ionization)

UV-Visible Spectrometry: Basic principles of instrumentation (choice of source, monochromator and detector) for single and double beam instrument

Infrared Spectrometry: Basic principles of instrumentation (choice of source, monochromator & detector) for single and double beam instrument; sampling techniques.

NMR spectroscopy: Principle, Instrumentation, Factors affecting chemical shift, Spincoupling, Applications. UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – PHILOSOPHY</u>



HEMVATINANDANBAHUGUNAGARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Philosophy

Section: I

Metaphysics

- 1. Proofs for Existence of God
- 2. Free Will and Determinism
- 3. Self and None-self
- 4. Consciousness
- 5. Personal Identity
- 6. Substance and Qualities
- 7. Being and Becoming
- 8. Actuality and Potentiality
- 9. Appearance and Reality
- 10. Mind and Body Problem
- 11. Universal
- 12. Realism and Idealism
- 13. Essence and existence

Section: II

Epistemology

- 1. Theories of Truth
- 2. Theories of Error
- 3. Definitions of Knowledge
- 4. Knowledge by acquaintance and Knowledge by Description
- 5. Sources of Knowledge
- 6. Skepticism
- 7. Justification of Knowledge: Foundationalism, Anti-foundationalism, and Coherentism
- 8. Knowledge that and knowledge How
- 9. Problem of Induction
- 10. A-priori Knowledge

Section:III Ethics

Questions will be from both Indian and Western philosophical perspective.

- 1. Theories of Normative Ethics: Utilitarianism, Kantian Deontology, Virtue ethics, Social contract theory, care ethics.
- 2. Theories of Meta-ethics: Relativism, Non-naturalism, Emotivism, Universal Prescriptivism,
- 3. Themes of Applied Ethics: Abortion, Euthanasia, Surrogacy, Capital punishment, Animal and
- 4. Environment ethics
- 5. Thoughts of Indian ethical tradition: Nature of Dharma, Moksa, Purusharthas, Rina, and themes from Buddhist and Jain ethics

Section: IV

Symbolic Logic

- 1. Inductive Logic
- 2. Analogical Reasoning
- 3. Causal Reasoning
- 4. Probability

Deductive Logic

- 1. Categorical proposition
- 2. Categorical syllogisms
- 3. Symbolic Logic
- 4. Methods of Deduction
- 5. Quantification Logic
- 6. Informal Fallacies: Indian and Western
- 7. Types of Arguments

Section: V

Social and Political Philosophy

- 1. Theories of Justice
- 2. Liberty and Equality
- 3. Democracy
- 4. Freedom and Responsibility
- 5. Rights and Duties
- 6. Feminism
- 7. Global justice
- 8. Marginalization and Discrimination
- 9. Gandhi: Non-violence, Satyagraha, Swaraj, Nationalism, State
- 10. Ambedkar: Genesis of Caste and Annihilation of Castes
- 11. Tagore: Nationalism, Education and Religion of Man

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – POLITICAL SCIENCE



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Political Science

Western Political Philosophy:

- Plato
- Aristotle
- Machiavelli
- Hobbes
- Locke
- Rousseau
- J.S. Mill
- Karl Marx
- John Rawls

Indian Political Thought:

- Ram Mohan Roy
- Gandhi
- Ambedkar
- Savarkar
- Kautilya

Political theory:

- Concepts of liberty
- Equality
- Justice
- Sovereignty
- Citizenship and Gender
- Democracy human Rights, State
- Contemporary Issues
- Feminism Ideology

International Relations:

- Realism & Liberalism
- Cold War politics
- NAM, SAARC, UNO, ASEAN, EU
- India's foreign policy particularly with China
- Pakistan and USA.

Indian Government and Politics:

- Preamble
- Making of the Constituent Assembly
- Constitutional Provisions
- Parliament
- Cabinet
- Prime Minister
- President
- Fundamental Rights
- Fundamental Duties
- Directive Principles of State Policy
- Amendments
- Governor
- State Government

- Federalism ٠
- Political Parties (National and Regional) •
- Elections •
- Local Government •
- Judiciary •
- Governance ٠

Comparative Government and Politics

- Political Culture •
- **Political Parties**
- **Electoral Systems** •
- Approaches/ Models
 Types of Regimes
 Public Policies in India

- Models •
- Process
- ٠ Types

General issues of contemporary relevance.Global Justice

- Nationalism •
- Climate Change •

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – REMOTE SENSING &</u> <u>GIS APPLICATIONS</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

SYLLABUS FOR ENTRANCE TEST-2024

M.Sc. Remote Sensing and GIS Applications H.N.B. GARHWAL UNIVERSITY Srinagar Garhwal, Uttarakhand-246 174

The Test will consist of 2 sections (section A and B) of 100 questions which are to be answered in 2 hours time. Each question will be of one mark. All the questions will be objective type with multiple choices out of which only one is correct. A candidate must choose only the correct answer to score full marks. If a question has not been attempted no credit will be given.

SECTION A:

a) Mathematical Ability & General Awareness: (20 questions – objective type) HCF and LCM of numbers, decimal fractions, simplification, square root and cube root, percentages, ratio and proportion, chain rule, time and work, time and distance, profit and loss, simple interest and compound interest, area of plane figures, volume and area of solid figures, clocks, stocks and shares, true discount, bankers discount, odd man out and series, problems on ages. Differentiation, Integration, Differential Equation, Matrices and Determinants. Topics related to current affairs.

b) Logical Reasoning: (15 questions – objective type) Questions to test ability for logical reasoning, quantitative reasoning, and graphical reasoning.

c) English Language and Comprehension: (15questions – objective type) Questions to test command over the English language.

SECTION B: (50 questions – objective type, 05 questions in each category)

a) Agriculture & Soil: Factors determining agro ecological zones and geographic distribution of crop plants, intercropping and mixed cropping. Origin and types of soils. Land degradation, erosion, land reclamation.

b) Atmospheric Sciences: The Earth and the Solar System, Earth Materials, Greenhouse gases and global warming. Cloud formation and precipitation processes, General weather systems of India, Monsoon system, distribution of precipitation over India, ozone depletion.

c) Computer Applications: Basic computer awareness and uses. Programming instructions, simple algorithms and computational methods.

d) Disaster Management: Natural disasters and technical disasters, agriculture drought, floods, forest fires and diseases.

e) Environmental Sciences: Man and Environment, Physico-chemical and Biological factors in the Environment, Geographical classification and zones, Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere.

f) Forestry & Ecology: Forest Classification, Forest management. Habitat and niche, Population ecology, Community ecology, Ecological succession, Ecosystem, Biogeography, Conservation biology.

g) Geosciences: Modern theories on the origin of the Earth and other planetary bodies. Earth's orbital parameters, Kepler's laws of planetary motion, Geological Time Scale, Age of the Earth, Basic principles of stratigraphy, Theories about the origin of life.

h) Resources & their Utilization: Allocation of natural resources and measuring resource scarcity Resources classification systems, natural and cultural resources, renewable and non-renewable resources. Resource Conservation - resource monitoring and management, Sustainable development of natural resources.

i) Wildlife Management: Methods of estimating population density of animals and plants, ranging patterns through direct, indirect and remote observations, habitat characterization.

j) Water Resources: Sources of irrigation (rain, canals, tanks, rivers, wells, tube wells), soil moisture content and weather parameters, Water requirement of crops, Methods of irrigation and drainage, watershed management.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – RURAL TECHNOLOGY</u>



HEMVATINANDANBAHUGUNAGARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND
Rural Technology

Basic Biology: Spontaneous generation theory, prokaryotes vs eukaryotes, functional anatomy, structure and organization of bacteria, fungi and algae – economic importance, methods of sterilization, rhizosphere microorganisms and importance, plant-microbe interactions in soil, microbial transformation of nutrients in soil. Carbohydrates, lipids, proteins and amino acids – occurrence and classification, carbohydrate and lipid metabolism, glycolysis, TCA cycle, pentose phosphate pathway, ETC and oxidative phosphorylation, secondary metabolites – occurrence, classification, functions and applications.

Ecology: Physical environment; biotic environment; biotic and abiotic interactions. Concept of habitatand niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement. Characteristics of a population; population growth curves; population regulation; life history strategies; concept of metapopulation - demes and dispersal, intergenic extinctions, age structured populations. Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis. Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones. Types; mechanisms; changes involved in succession; concept of climax. Structure and function; energy flow and mineral cycling; primary production and decomposition; structure and function of some Indian ecosystems: terrestrial and aquatic. Major terrestrial biomes; theory of island biogeography; biogeographical zones of India.

Plant Biology: Photosynthesis: Light harvesting complexes; mechanisms of electron transport; photo protective mechanisms; CO2 fixation-C3, C4 and CAM pathways. Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photo respiratory pathway. Nitrate and ammonium assimilation; amino acid biosynthesis. Plant hormones: Biosynthesis, storage, breakdown and transport; physiological effects and mechanisms of action. Structure, function and mechanisms of action of phytochromes, cryptochromes and phytotropins; stomatal movement; photoperiodism and biological clocks. Solute transport and photo assimilate translocation: Uptake, transport and translocation of water, ions, solutes and macromolecules from soil, through cells, across membranes, through xylem and phloem; transpiration; mechanisms of loading and unloading of photo assimilates. Secondary metabolites - Biosynthesis of terpenes, phenols and nitrogenous compounds and their roles.

Responses of plants to biotic and abiotic stresses; mechanisms of resistance to biotic stress and tolerance to abiotic stress.

Agriculture and Horticulture:

Agronomy and its scope, seeds and sowing, tillage and tilth, crop density and geometry, Crop nutrition, manures and fertilizers, nutrient use efficiency, water resources, soilplantwater relationship, crop water requirement, water use efficiency, irrigationscheduling criteria and methods, quality of irrigation water. Scope and importance; global scenario of horticultural crops, classification of horticultural crops (potato, tomato, cauliflower, onion, okra, bottle guard and bitter guard etc.) – nutritive value of horticultural crops, horticulture zones of India. Flower and fruits - flowering mechanism – modes of pollination – asexual/vegetative reproduction – floral biology – fertilization and fruit set, Principles involved in nomenclature Importance and scope of gardening, gardens in India - concepts of landscape gardening - styles and types of gardens - Hindu, Mughal, English, Italian, Persian and Japanese gardens, ornamental landscaping in environmental protection. Classification of nursery, types of nursery structure and propagation methods, Introduction to apiculture, Origin and classification of honey bees, Medicinal and aromatic plants, Nutritional and medicinal value of medicinal and aromatic plants, Soil formation, types of weathering and development of soil profile, Types of edible mushroom species, Fundamental and concepts of remote sensing, Importance and scope and of post-harvest technology in fruit and vegetables. Organic farming, principles and its scope in India; Initiatives taken by Government (central/state), NGOs and other organizations for promotion of organic agricultureDefinition, size, concept, characteristics, objectives of watershed, effect of watershed on the community, selection of watershed, watershed management plan, monitoring and evaluation in watersheds, Soil and Water Conservation. Meaning and scope of agricultural meteorology; Earth atmosphere, Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze;

Introduction to Forestry

Introduction - definitions of basic terms related to forestry, objectives of silviculture, forest classification, and salient features of Indian Forest Policies. Forest regeneration, Natural regeneration, artificial regeneration. Crown classification. Tending operations, Forest mensuration Agroforestry - definitions, importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country,

Rural Development and Extension Education

Sociology and Rural sociology: Definition and scope, its significance in agriculture extension, Social Ecology, Rural society, Social Groups, Social Stratification, Culture

concept, Social Institution, Social Change & Development. Rural Leadership: concept and definition, types of leaders in rural context. . Principles, objectives and role in development; Historical and emerging perspective of Agricultural Extension in India; Integrated functioning of teaching, research and extension in ICAR and SAUs systems; Extension System in India and its linkage with National Agricultural Research Systems. Gender issues in rural development & its implications to Extension Education. Entrepreneurship Development.Extension systems in India: extension efforts in preindependence era (Sriniketan, Marthandam, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various, extension/ agriculture development programmes launched by ICAR/ Govt. of India (IADP, IAAP, HYVP, KVK, IVLP, ORP, ND,NATP, NAIP, etc.). New trends in agriculture extension: privatization extension, cyber extension/ eextension, market-led extension, farmer-led extension, expert systems, etc. विश्वविद्यालय प्रवेश परीक्षा (यूईटी) (पी०जी० 2025-26)

विश्वविद्यालय पी.जी. प्रवेश परीक्षा पाठ्यक्रम





हेमवती नन्दन बहुगुणा भढ़वाल विश्वविद्यालय

(केन्द्रीय विश्वविद्यालय)

श्रीनगर (शढ़वाल)

उत्तराखण्ड

संस्कृत-विभाग

हेमवती नन्दन बहुगुणा गढ़वाल विश्वविद्यालय, श्रीनगर, गढ़वाल

स्नातकोत्तर (एम. ए.) संस्कृत प्रवेश परीक्षा-पाठ्यक्रम

एम. ए. संस्कृत विषय में प्रवेशार्थ होने वाली परीक्षा बी. ए. संस्कृत (प्रथम से षष्ठ सत्र) में पढ़ाए जाने वाले NEP-पाठ्यक्रम के अनुसार निम्नलिखित पाठ्यक्रम पर आधारित होगी-

Unit-1 : वेद –

(क) वैदिक साहित्य का इतिहास- संहिता, ब्राह्मण, आरण्यक, उपनिषद्, वेदाङ्ग।

(ख) सूक्त- ऋग्वेद- अग्नि १.१, अक्ष १०.३४, विष्णु- १.१५४, संज्ञान १०.१९१

यजुर्वेद- शिवसंकल्प सूक्त, अथर्ववेद- पृथिवी सूक्त।

(ग) कठोपनिषद्- प्रथम अध्याय।

Unit-2 : व्याकरण –

(क) शब्दरूप- राम, हरि, पितृ, लता, नदी, वधू, वारि, गुरु, फल, आत्मन्, सर्व, इदम्, भवत्, अस्मद्, युष्मद्।
(ख) धातुरूप- पठ्, कृ, हन्, भू, गम् (लट्, लोट्, लङ्, विधिलिङ्, लृट् लकार)।
(ग) संज्ञा, सन्धि एवं कृदन्त प्रत्यय लघुसिद्धान्तकौमुदी के अनुसार।

Unit-3 : साहित्य –

(क) **संस्कृत साहित्य का इतिहास**- वाल्मीकि, व्यास, भास, कालिदास, माघ, भारवी, श्रीहर्ष, जयदेव, भवभूति, शूट्रक, विशाखदत्त, भर्तृहरि, बाण, सुबन्धु, दण्डी, पण्डितराज जगन्नाथ, अम्बिकादत्त व्यास।

(ख) अभिज्ञानशाकुन्तल (सम्पूर्ण) नीतिशतक (सम्पूर्ण), हितोपदेश (मित्रलाभ), शिवराजविजय (प्रथम निःश्वास), कुमारसम्भव (पञ्चम), किरातार्जुनीय (प्रथम सर्ग), कादम्बरी (शुकनासोपदेश)।

(ग) **नाटकीय पारिभाषिक शब्द**- नान्दी, प्रस्तावना, सूत्रधार, विदूषक, नेपथ्य, स्वगत, जनान्तिक, आकाशभाषित, भरतवाक्य।

(घ) अलङ्कार- अनुप्रास, श्लेष, यमक, उपमा, रूपक, उत्प्रेक्षा, अपह्रुति, व्यतिरेक, विभावना, विशेषोक्ति, अतिशयोक्ति, निदर्शना, तुल्ययोगिता।

(ङ) छन्द- अनुष्टुप्, आर्या, इन्द्रवज्रा, उपेन्द्रवज्रा, वंशस्थ, बसन्ततिलका, शिखरिणी, शार्दूलविक्रीडित, मालिनी, भुजङ्गप्रयात।

Unit-4 : भारतीय संस्कृति एवं दर्शन –

(क) भारतीय संस्कृति की विशेषताएँ, पञ्चमहायज्ञ, आश्रमव्यवस्था, वर्णव्यवस्था, संस्कार, पुरुषार्थ।

(ख) श्रीमद्भगवद्गीता (द्वितीय अध्याय)।

(ग) भारतीय दर्शन- तर्कसंग्रह (सम्पूर्ण), पातञ्जलयोगसूत्र (समाधिपाद 1-29 सूत्र)।

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – SOCIAL WORK</u>



Social Work

Unit – I

Social concepts:

Family, marriage, neighborhood, community, organization, culture, caste, clan, values, culture, traditions, practices, norms, lifestyle, health, socialization, needs.

Unit – II

Economic concepts:

Economy, market, production, distribution, demand, supply, labor, income, expenditure, globalization, privatization, liberalization, industrialization.

Unit – III

Political concepts:

Politics, democracy, decentralization, panchayat, legislature, executive, judiciary, human rights, social justice, freedom, liberty, fundamental rights & duties.

Unit – IV

Psychological concepts:

Individual, self, behavior, mental functions, attitude, emotions, beliefs, selfesteem,intelligence.

Unit – V

Environmental concepts:

Environment, atmosphere, pollution-air, water, sound; natural resources - air, water, soil, forest; disaster

Unit-VI

Legal concepts:

Constitution, law, petition, litigation, First-hand information report (FIR),

Unit –VII

Social reform, Social movement, Social work:

Concepts: Social reform, social movement, revolution, Satyagraha, non-violence, truth, justice, peace, social work, social development;

Bhakti movement -

Guru Nanak, Kabir, Basaveshwar

Social reformers -

Raja Ram Mohan Roy, Swami Vivekananda, Dhondo Singh Karve

Freedom movement -

Gandhi, Subhash Chandra Bose

Dalit & Social movement -

Ambedkar, Medha Patkar, Anna Hazare, Aruna Roy

Non-government organizations, Corporate.

Unit – VIII

Social change and Social transformation:

Concepts:

Social change, social transformation,

Unit – IX

Sustainable technologies:

Forms of sustainable technologies: solar, wind, bio-gas, bio-mass, bio-diesel; Pollution control through technologies.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – SOCIOLOGÝ</u>



SOCIOLOGY SYLLABUS FOR PG ENTRANCE EXAM 2025

BASIC SOCIOLOGICAL CONCEPTS

UNIT – I Sociology: Definition, Origin, Nature and Subject Matter of Sociology. Relationship with History, Economics, Political Science, Anthropology and Psychology
UNIT – II Basic Concepts: Society, Community, Association, Institution, Status & Role, Norms
Values and Culture.
UNIT – III Social Groups: Definition, Nature and Types of Groups- Primary Secondary &

Reference Group; Social Processes: Associative- Co-operation, Accommodation, Assimilation. Dissociative- Conflict, Competition.

UNIT - IV Social Institutions: Marriage, Family, Kinship and Religion, Caste, Class and Religion

SOCIAL CHANGE AND SOCIAL CONTROL

UNIT – I Social Change: Concept, Features, Patterns – Linear and Cyclical, Factors of Social Change: Demographic, Technological, Economic and Cultural.

UNIT - II Evolution, Progress and Development; Social Movements and Revolution

UNIT – III Sanskritization, Modernization, Westernisation, Urbanisation, Industrialization, Globalization and Secularization

UNIT – IV Social Control: Meaning and Definition, Formal and Informal Social Controle, Means of Social Controle.

INDIAN SOCIETY

UNIT – I Unity and Diversity: Concepts of Unity and Diversity; Racial, religious, ethnic and linguistic composition of India.

UNIT – II Family; Extended, Nuclear; Matrilineal, Patrilineal, Matriarchal and Patriarchal families; Joint Family, Characteristics, Functions and Disintegration; Changes in the Indian family

UNIT – III Caste system in India: Conceptual analysis, Features of caste system, Origin of caste in India; Changes in system

UNIT -- IV Village in India: Features of Village, Village Economy, Village Panchayat,

Tribes in India: Concept of tribe, Features; Problems of the tribal people.

SOCIOLOGICAL THOUGHTS

UNIT – I Auguste Comte: Positivism, Law of three stages, Social Statistics and Social Dynamics.

UNIT - II Emile Durkheim: Social Fact, Types of Solidarity, Suicide

UNIT – III Max Weber: Theory of Social Action, Protestant ethics and spirit of capitalism, Power and Authority

UNIT – IV Karl Marx: Materialistic Conception of History, Class and Class Struggle, Capitalism.

SOCIAL RESEARCH

UNIT - I Social Research, Definition, Features and Types of Social Research,

Social survey-Types of Social Survey, Steps of Social Survey.

UNIT – II Research Design -Descriptive, Exploratory and Experimental.

UNIT – III Techniques of data collection: Interview schedule, questionnaire, observation and Case study.

UNIT – IV Presentation of Data: Tabular, Graphic, Bar Diagram and Pie Chart. Descriptive Statistics – Measures of Central Tendency

SOCIAL PROBLEMS IN INDIA

UNIT – I Social Problems: Concept, Nature and Types of Social Problems, Approaches to the study of social Problems

UNIT – II Disorganization-Individual Disorganization, Family Disorganization and Social Disorganization,

UNIT – III Problems of Population Growth, Poverty, Unemployment & Child labour, Alcoholism and Drug Addiction,

UNIT - IV Social Inequality-Caste, Class and Gender, Domestic violence and Dowry.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT - M.A. / M.SC. STATISTICS



Statistics

- 1. Sequences and Series: Convergence of sequences of real numbers, Comparison, root andratio tests for convergence of series of real numbers.
- 2. Differential Calculus: Limits, continuity and differentiability of functions of one and two variables. Rolle's Theorem, mean value theorems, Taylor's theorem, indeterminate forms, maxima and minima of functions of one and two variables.
- Integral Calculus: Fundamental theorems of integral calculus. Double and triple integrals, applications of definite integrals, arc lengths, areas and volumes.
- Matrices: Rank, inverse of a matrix. Systems of linear equations. Linear transformations, eigenvalues and eigenvectors. Cayley-Hamilton theorem, symmetric, skew-symmetric and orthogonal matrices.
- Differential Equations: Ordinary differential equations of the first order of the form y' = f(x,y). Linear differential equations of the second order with constant coefficients.
- 6. Descriptive Statistics and Probability: Measure of Central tendency, Measure of dispersion, skewness and Kurtosis, Elementary analysis of data. Axiomatic definition of probability and properties, conditional probability, multiplication rule. Theorem of total probability. Bayes' theorem and independence of events.
- Random Variables: Probability mass function, probability density function and cumulative distribution functions, distribution of a function of a random variable. Mathematical expectation, moments and moment generating function. Chebyshev'sinequality.
- Standard Distributions: Binomial, negative binomial, geometric, Poisson, hyper- geometric, uniform, exponential, gamma, beta and normal distributions. Poisson and normal approximations of a binomial distribution. Chi-square distribution, t-distribution and F- distribution.

- 9. Joint Distributions: Joint, marginal and conditional distributions. Distribution of functions f random variables. Product moments, correlation, simple linear regression. Independence of 10. random variables Limit Theorems: Weak law of large numbers. Central limit theorem (i.i.d. with finite variance case only).
- 11. Estimation: Unbiasedness, consistency and efficiency of estimators, method of momentsand method of maximum likelihood. Sufficiency, factorization theorem. Completeness, Rao- Blackwell and Lehmann-Scheffe theorems, uniformly minimum variance unbiased estimators. Rao-Cramer inequality. Confidence intervals for the parameters of univariate normal, two independent normal, and one parameter exponential distributions.
- 12. Testing of Hypotheses: Basic concepts, applications of Neyman-Pearson Lemma fortesting simple and composite hypotheses. Likelihood ratio tests.
- Sampling and Designs of Experiments: Simple random sampling, stratified sampling and Cluster sampling, One-way, two-way analysis of variance. CRD, RBD, LSD and 2² and 2³ factorial experiments.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – THEATRE (FOLK AND</u> <u>PERFORMING ARTS)</u>



THEATRE (FOLK AND PERFORMING ARTS)

- ✤ Dramatic literature of East and West.
- ✤ Modern plays and playwright.
- Acting techniques.
- ✤ Major Directors of India and abroad.
- Current trends in Performing Arts.
- Performing Arts Institutions.
- ✤ Famous Films and Directors.
- ✤ Theatre Design like: Light, Costume, Set design etc.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

SUBJECT -

1.<u>M.A. YOGIC SCIENCE</u>

2. M.SC. YOGIC SCIENCE

3. PG DIPLOMA IN YOGIC SCIENCE



Syllabus OF M.A./M.Sc. AND P.G.DIPLOMA IN YOGIC SCIENCE for Entrance Examination

Session 2025-26

- History and development of Yoga, Etymology and definitions of Yoga in different texts, Misconceptions of Yoga, Aim and objectives of Yoga, types and principles of Yoga.
- General knowledge and aptitude test- Indian History and culture, Indian Geography, Indian Polity, Indian Economy and Current affairs

• <u>Syllabus OF M.SC. IN YOGIC SCIENCE for Entrance Examination</u> <u>Session 2025-26</u>

- Introduction to Yoga: Meaning, Definitions and Historical Development of Yoga, Relevance of Yoga in the Modern age, Philosophical foundation of Yoga, Kinds of Yoga: Jnana Yoga, Karma Yoga, Bhakti Yoga, and Raj Yoga,
- Anatomy, Physiology and Yoga: General Introduction of anatomical structure of human organs and physiological functions of the Digestive system, Respiratory system, Nervous system, and the Effect of yoga practices on them.,
- HATH YOGA: Time, Place, Season, and diet for Yogic practices, Benefit and methods of Shatkarma, Asana, Pranayama, Mudra and Bandha according to Hatha Pradipika and Gherand Samhita,
- Yoga Therapy: Meaning and concept, Management of common diseases through yoga-Obesity, Asthma, Heart Disease, Diabetes, Stress &Anxiety.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – ZOOLOGY</u>



ZOOLOGY

Animal Diversity:

Non-chordates: General characters, salient features and classification of Protozoa, Porifera, Coelenterate, Platyhelminthes, Nematoda, Annelida, Arthropoda, Mollusca & Echinodermata. Locomotion & nutrition in Protozoa. Canal system & skeletal elements in Porifera. Polymorphism in coelenterates. Morphology, reproduction (life cycle) and parasitic adaptation in *Taenia*, Ascaris Nereis and Hirudinaria. Zoological importance of Peripatus, Study of Palaemon, Pila, unio with reference to morphology, respiration and reproduction. Water vascular system in Echinodermata.

Chordates: General characters and outline classification of chordates. General characters and classification of protochordates, Pisces, amphibians, reptiles, aves and mammals up to order level. Retrogressive metamorphosis in urochordates. Scales and fins of fishes. Parental care in amphibians. General features of poisonous and non- poisonous snakes. Arial adaptations in birds. Adaptive radiation in mammals.

Cell Biology:

Comparison of a generalized Pro- & Eukaryote cell. Structure & function of plasma membrane, Cell organelles constituting endo-membrane system (Endoplasmic reticulum, Golgi complex, Lysosome, Peroxisome); Nucleus & Nucleolus; Ribosome; Mitochondria; Introduction to cytoskeleton. Basic features of Cell cycle; Mitosis & Meiosis.

Molecular Biology:

Structure and types of DNA; Replication of DNA in prokaryotes and eukaryotes: DNA polymerases; primosome, replisome, Rolling circle replication, Eukaryotic chromosome replication DNA damage and repair: Causes and types of DNA damage, mechanism of DNA repair: Structure and types of RNA: Transcription in prokaryotes and eukaryotes. Regulation of gene expression and translation in prokaryotes. Operon concept, Genetic code and its characteristics.

Animal Physiology:

Structure and types of neurons. Ultra-structure of skeletal muscle; Physiology of muscle contraction. Physiology of gastrointestinal tract and its associated glands. Mechanical & chemical digestion. Absorption of food; Mechanism of respiration, Transport of respiratory gases; Osmoregulation. Mechanism of urine formation; Thermoregulation, Aestivation & Hibernation; Physiology of blood circulation; Heart structure, Origin and conduction of cardiac impulse, cardiac cycle; Physiology of blood; Composition of Blood and lymph; blood coagulation.

Biochemistry:

Structure, types and function of Biomolecules- Carbohydrates, Proteins, Lipids. Mechanism of enzyme action- Kinetics, inhibition and regulation; Metabolism of Carbohydrate, Protein and Lipids: Glycolysis, Kreb's cycle, pentose phosphate pathway, glycogen metabolism, electron transport chain, transamination, deamination, urea cycle, β - oxidation in fatty acids.

Applied Zoology:

Host-parasite Relationship, Parasitism, Symbiosis, Commensalism, Zoonosis; Transmission, Prevention and control of Tuberculosis, Typhoid, Covid-19; Life history and pathogenicity of

Entamoeba, Plasmodium, Leishmania, Trypanosoma; Schistosoma and Wuchereria; Biology, Control and damage caused by *Helicoverpa, Pyrilla, Papilio, Sitophilus* and *Tribolium*; Safe storage of stored grains; Life cycle, medical importance and control of *Pediculus, Anopheles, Culex and Aedes;* Domestic animals of economic importance; Preservation and artificial insemination in cattle. Poultry Farming, Indian poultry breed, Management of Poultry Farm. Apiculture- Honey bee species, Economic importance of Honey bee, Harvesting, processing and preservation of Honey. Sericulture, Aquaculture- types of farming system, Fish ponds, their types and management. Genetic improvements in aquaculture industry; Induced breeding and transportation of fish seed.

Ecology:

Biotic & abiotic components. Ecosystems types: terrestrial & aquatic. Energy flow & mineral cycling (CNP). Ecological laws (Shelford's & Liebig' laws); food chain, food web, & ecological pyramids. Attributes of population: natality, mortality, immigration, emigration, life tables & survivorship curves. Population growth, Community characteristics: dominance, diversity, species richness, abundance, stratification. Biotic interactions: intra-specific & inter-specific. Ecological succession: types & mechanisms: concept of climax community. Ecology niche: concept, types and examples

Wild life Conservation:

Values, ethics and importance of wild life conservation; Causes of depletion; Wild life conservation strategies; Pug marks and census method; Wildlife Protection Act - 1972, its amendments and implementation; IUCN Red Data Book; Management planning of wild life in protected areas; Estimation of carrying capacity; Concept of climax persistence; Zoogeographic areas of Indian Subcontinent; Protected Areas: National Parks/ Sanctuaries/Biosphere Reserves of Indian subcontinent; Important features of protected areas in India; Tiger conservation - Tiger reserves in India; Management challenges in Tiger reserve.

Genetics:

Mendel's law; Exceptions to Mendel's law; Chromosomal theory of Inheritance; Sex-linked inheritance & genetic disorders; Linkage & Crossing Over; Chromosome structure; Euchromatin; Heterochromatin; Polytene and lamp brush chromosomes. Chromosome banding, Karyotyping; Pedigree analysis; Fine structure of gene; Gene interactions: complementary and supplementary genes; Sex determination and Sex Linkage; Cytoplasmic Inheritance, Polygenic Inheritance, Mutation, population and evolution genetics, Hardy- Weinberg Principle.

Evolution

Theories of organic evolution -Lamarckism; Darwinism (Neo- Darwinism); Modern synthetic theory. Evidences in favour of evolution from Comparative anatomy, Comparative Embryology, Palaeontology, Biochemistry & Genetics; Isolating Mechanisms; Natural selection (Example: Industrial melanism); Types of natural selection: Biological species concept; Allopatric and Sympatric speciation; Fossils and fossilization Dating and Significance of fossil record; Geological distribution of animals; Causes of mass extinction, Role of extinction in evolution; Evolution of Horse

Animal Behaviour:

Proximate and ultimate causes of behaviour. Instinct & Learning Behaviour; Biological rhythms; Biological Clock. Circadian rhythms and their synchronisation. Photoperiodism; Communication

behaviour- Visual, olfactory, acoustic (bird songs, amphibian calls); echolocation in bats, electrolocation in fish; Chemoreception- Chemicals (pheromones) as signals in insects, fish and mammals. Role of olfaction in communication behaviour (territorial, sex recognition, feeding etc) in fish and mammals. Neural and hormonal control of behaviour.

Endocrinology:

Endocrine messengers- hormones, neurohormones, hormone like substances (neuronal peptides, autocoids, pheromones, neurosecretion). Hormones and Physiological actions of the endocrine glands in mammals- Pituitary, Thyroid, Parathyroid, Pancreas, Gastro-intestinal tract, Adrenal cortex and Medulla, Thymus and Pineal. Hormone biosynthesis of Protein, peptide hormones (gonadotropins, thyrotropin, corticotropin,) steroids and catecholamines. Mechanism of action of Protein and Steroid hormones; membrane bound receptors, G-protein and control of adynelate cyclase, Cyclic nucleotide cascade. Organisation & physiological actions of the Testis: Androgen binding protein (ABP), Inhibin. Neuro-endocrine control of testicular functions. Organization & physiological actions of the Ovary- Folliculogensis, Ovulation, Luteinization, Ovarian cycles; Seasonal reproductive cycles; sexual dysfunctions in man.

Developmental Biology:

Gametogenesis: Events in spermatogenesis. Morphology of mature mammalian spermatozoon; Events in Oogenesis, Significance of oogenesis. Vitellogenesis in birds; Comparison between Spermatogenesis & Oogenesis; Mechanism of fertilization; Capacitation; parthenogenesis. Types of eggs and cleavage. Role of yolk during cleavage; Products of cleavage (Morula and Blastula). Fate map: fate map of early blastula of Frog, Types of morphogenetic movements. Gastrulation in sea urchin, frog, chick and mammal. Extra Embryonic Foetal Membranes (Chick). Development of chick embryo up to 72 hours. Types, formation and function of Placenta in mammals. Metamorphic events in frog life cycle and its hormonal regulation. Elementary concept of primary organizer; Induction-nature and its mechanism of action; Development of eye and limbs; Totipotency; Teratogenesis.

Biotechniques:

Microscopy: Light, phase contrast and Electron microscopy (TEM & SEM); Micrometry- Measuring microscopic organism and cell size in permanent slide preparation. Colorimeter. Centrifugation, various types of centrifuges and rotors, various modes of chromatography (paper, thin layer, column), preparative and analytical applications, Electrophoresis- PAGE, SDS-PAGE. Museum preparation- Preserving macroscopic organisms (invertebrate and vertebrate specimen). Permanent slide preparation: basic histological and histochemical techniques. Laboratory safety, storage of chemicals and glassware. Maintenance of Laboratory equipment (microscopes, centrifuge, incubators, analytical and electronic balances, electrophoretic units, pH meter, turbidity meter etc.); Animal Cloning, Transgenesis, Genetic manipulation at cellular and molecular level, transfection technologies, Cell fusion and hybridoma techniques.

UNIVERSITY ENTRANCE EXAMINATION [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT -

 <u>ANCIENT INDIAN HISTORY,</u> <u>CULTURE & ARCHITECTURE</u>
 HISTORY



Ancient Indian History, Culture & Architecture

• Political History of India from circa 600 B.C. to 1200 A.D.

Political History of India (circa 600 AD to 300 AD) Political History of India (circa 300 AD to 750AD) Political History of North India (circa 750 AD to 1200 AD) Political History of South India(circa 750 AD to 1200 AD)

- Prehistory and Proto History of India
- Ancient Indian Social and Economic Life Institution
- Religion and Philosophy of Ancient India

Vedic and Pure Religions Jainism and

Buddhist

• Early Indian Art and Architecture

From Beginning to Gupta Period

Early Medieval India

- Ancient Indian Paleography and Epigraphy
- Ancient Indian Numismatics
- Ancient Civilization

India's Cultural Contacts with South East Asia

- History Writing and Historiography of Ancient India
- History of Science & Technology in India and its application in archaeology
- Archaeology, meaning-definition, relationship with other subjects and application
- Museums in archaeology
- Archaeological conservation and preservation and heritage conservation

UNIVERSITY ENTRANCE EXAMINATION (UET) [2025]

SYLLABUS FOR B.ED. ENTRANCE EXAMINATION SESSION 2025

SUBJECT – B.ED.



B.Ed. Syllabus 2025

As per Information Brochure 2025-26-

1. प्रश्न पत्र में तीन भाग होंगे। भाग– 1 में सामान्य ज्ञान तथा सामान्य बुद्धि, भाग–2 में भाषा– सामान्य हिन्दी/सामान्य अंग्रेजी तथा भाग– 3 में विशिष्ट अभियोग्यता परीक्षण–कला/विज्ञान/वाणिज्य के प्रश्न होंगे। अभ्यर्थी को भाषा– सामान्य हिन्दी एवं सामान्य अंग्रेजी के प्रश्न पत्र में से किसी एक भाग का चयन करना होगा एवं भाग– 3 में विशिष्ट अभियोग्यता परीक्षण–कला विज्ञान तथा वाणिज्य में से चयनित वर्ग का ही चयन करना होगा।

2. विशिष्ट अभियोग्यता परीक्षण तीन प्रकार का होगा

- (1) विशिष्ट अभियोग्यता परीक्षण–कला (2) विशिष्ट अभियोग्यता परीक्षण–विज्ञान
- (3) विशिष्ट अभियोग्यता परीक्षण–वाणिज्य।
- 3. प्रत्येक विशिष्ट अभियोग्यता परीक्षण के प्रश्न–पत्र स्नातक स्तर के तीन वर्गों (कला / विज्ञान / वाणिज्य) के अनुसार होंगे। अभ्यर्थी को तीनों में से एक जिसमें उसने स्नातक परीक्षा उत्तीर्ण की है उसका चयन करना होगा। विशिष्ट अभियोग्यता परीक्षण में कुल 50 प्रश्न होंगे तथा प्रत्येक प्रश्न 1 अंक का होगा।
 - विशिष्ट अभियोग्यता परीक्षण–कला में 50 प्रश्न, कला संकाय के विषयों इतिहास, भूगोल, राजनीति शास्त्र, अर्थशास्त्र, समाजशास्त्र आदि से सम्बन्धित बुनियादी ज्ञान एवं अभिरुचि पर आधारित होंगे।
 - 2. विशिष्ट अभियोग्यता परीक्षण— विज्ञान में 50 प्रश्न, विज्ञान संकाय के विषयों—भौतिक शास्त्र, रसायन शास्त्र, वनस्पति विज्ञान, जीव विज्ञान, गणित आदि से सम्बन्धित बुनियादी ज्ञान एवं अभिरुचि पर आधारित होंगे।
 - विशिष्ट अभियोग्यता परीक्षण–वाणिज्य में 50 प्रश्न, वाणिज्य संकाय के विषयों से सम्बन्धित बुनियादी ज्ञान एवं अभिरुचि पर आधारित होंगे।
- 4. सभी विषय कला, विज्ञान तथा वाणिज्य की पाठ्यवस्तु हेमवती नन्दन बहुगुणा गढ़वाल विश्वविद्यालय द्वारा अनुमोदित स्नातक स्तरीय पाठ्यक्रम पर आधारित होगें।

UNIVERSITY ENTRANCE EXAMINATION (UET) [2025-26]

SYLLABUS FOR ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – B.P.ED.



Subject- B.P.Ed.

Name of Course	Area of Questions
<u>B.P.Ed.</u>	 a) Sports Terms. b) History of Sports. c) Sports Performance. d) Sports persons and Games. e) Sports Awards and their winners. f) Trophies and Games to which they are associated and winners of these Trophies. g) Allied Sports and Rules & Regulations of various Games played in India
]	h) Current Affairs.

UNIVERSITY ENTRANCE EXAMINATION [PG- 2025-26]

SYLLABUS FOR PG ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – BIOCHEMISTRY



BIOCHEMISTRY

1. Fundamentals of Biochemistry

- Scope and significance of biochemistry.
- Chemical foundations: atomic structure, chemical bonding, acids, bases, and buffers.
- Properties of water and its role as a universal solvent.
- Concepts of pH, pKa, molarity, and molality.

2. Biomolecules

- Carbohydrates: classification, structure, and functions.
- Proteins: amino acids, peptide bonds, protein structure levels, and functions.
- Lipids: types, structure, and biological roles.
- Nucleic Acids: DNA and RNA structures, nucleotides, and base pairing.

3. Enzymology

- Nature and classification of enzymes.
- Mechanism of enzyme action and factors affecting activity.
- Enzyme kinetics: Michaelis-Menten equation and Lineweaver-Burk plot.
- Enzyme inhibition: competitive, non-competitive, and uncompetitive.

4. Metabolism and Bioenergetics

- Overview of metabolic pathways and their regulation.
- Carbohydrate metabolism: glycolysis, gluconeogenesis, TCA cycle, and pentose phosphate pathway.
- Lipid metabolism: β-oxidation and fatty acid synthesis.
- Amino acid metabolism and urea cycle.
- ATP synthesis and energy currency of the cell.

5. Molecular Biology

- Structure and replication of DNA.
- Transcription and translation processes.
- Gene expression and regulation.
- Mutations and DNA repair mechanisms.
- Genetic Code

6. Cell Biology

- Structure and function of prokaryotic and eukaryotic cells.
- Organelles and their roles.
- Cell cycle, mitosis, and meiosis.
- Cell signalling and communication.
- Apoptosis and Necrosis

7. Immunology

- Components of the immune system: innate and adaptive immunity.
- Antigens, antibodies, and antigen-antibody interactions.
- Major histocompatibility complex (MHC) and immune response.
- Vaccines and immunological memory.

8. Techniques in Biochemistry

- Spectroscopy: UV-Vis, IR, and fluorescence spectroscopy principles and applications.
- Chromatography: paper, thin-layer, and column chromatography techniques.
- Electrophoresis: principles and types, including SDS-PAGE.
- Centrifugation: basic principles and applications.

9. Clinical Biochemistry

- Composition and analysis of blood and urine.
- Biochemical markers in liver and kidney function tests.
- Lipid profiles and cardiovascular risk assessment.
- Enzymes as diagnostic tools.

10. Nutrition and Health

- Balanced diet and nutritional requirements.
- Vitamins and minerals: sources, functions, and deficiencies.
- Role of macronutrients and micronutrients in health.
- Nutritional disorders and their biochemical basis.

12. Biotechnology

- Recombinant DNA technology: restriction enzymes, cloning vectors, plasmids.
- PCR, blotting techniques (Southern, Western), DNA fingerprinting.
- Genetically modified organisms (GMOs), transgenic plants and animals.
- Applications of biotechnology in medicine, agriculture, and environment.
- Introduction to genomics, proteomics, and bioinformatics.

13. Microbiology

- History and contributions: Pasteur, Koch, Jenner.
- Classification of microorganisms: bacteria, viruses, fungi, protozoa.
- Microbial growth, staining techniques, culture media.
- Antibiotics: mechanism of action and resistance.
- Human microbiome and its role in health and disease.

UNIVERSITY ENTRANCE EXAMINATION [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – BOTANÝ</u>



Botany

- 1. Phycology and Microbiology
- 2. Biomolecules and Cell Biology
- 3. Mycology and Phytopathology
- 4. Archegoniate
- 5. Anatomy and Angiosperms
- 6. Economic Botany
- 7. Genetics
- 8. Molecular Biology
- 9. Plant Ecology
- 10. Plant Taxonomy and Diversity of Flowering Plants
- 11. Reproductive Biology of Angiosperms
- 12. Plant Physiology and Biochemistry
- 13. Plant Metabolism
- 14. Plant Biotechnology

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26] U

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – CHEMISTRÝ</u>



Chemistry

PHYSICAL CHEMISTRY

Gaseous State

Behavior of real gases: Deviations from ideal behavior, compressibility factor, and its variation with pressure for different gases. Causes of deviation from ideal behavior. van der Waals equation of state, its derivation and application in explaining real gas behaviour; van der Waals equation expressed in virial form, Boyle temperature. Isotherms of real gases and their comparison with van der Waals isotherms, continuity of states, critical state, critical constants and van der Waals constants, law of corresponding states.

Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation; collision frequency; collision diameter; mean free path and viscosity of gases, including their temperature and pressure dependence, relation between mean free path. Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable) and average kinetic energy, law of equipartition of energy, degrees of freedom and molecular basis of heat capacities.

Liquid State

Structure and physical properties of liquids; vapour pressure, surface tension, viscosity, and their dependence on temperature, Effect of addition of solutes on surface tension, cleansing action of detergents.

Ionic Equilibria

Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, protic acids. Salt hydrolysis, hydrolysis constants, degree of hydrolysis, Buffer solutions; Henderson equation, buffer capacity, buffer range, buffer action, applications of buffers in analytical chemistry, common ion effect; dissociation constants of mono-, di- and tri-protic acids, Solubility and solubility product. Brönsted-Lowry concept of acid-base reactions, solvated proton, relative strength of acids, types of acid-base reactions, levelling solvents, Lewis concept of acids and bases, Hard and Soft Acids and Bases (HSAB) Application of HSAB principle, Theory of indicators; selection and limitations of indicators.

Solid State

Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, simple rotating crystal method and powder pattern method forX- ray diffraction, Analysis of powder diffraction patterns of NaCl, CsCl and KCl. Various types of defects in crystals, Glasses and idea of liquid cryastals .

Thermodynamics

Intensive and extensive variables; state function and path function properties isolated, closed and open systems;. First law: Concept of heat, q, work, w, internal energy, U, and statement of first law; enthalpy, H, relation between heat capacities cp and cv, calculations of q, w, U and H for reversible and irreversible systems. free expansion of gases (ideal and van der Waals) under isothermal and adiabatic conditions.

Concept of entropy; thermodynamic scale of temperature, statement of the second law of thermodynamics; molecular and statistical interpretation of entropy. Calculation of entropy change for reversible and irreversible processes.

Gibbs and Helmholtz energy; variation of S, G, A with T, V, P; Free energy change and spontaneity. Relation between Joule-Thomson coefficient and other thermodynamic parameters; inversion temperature; Gibbs-Helmholtz equation.

Thermochemistry:

Heats of reactions: standard states; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, effect of temperature (Kirchhoff's equations), pressure on enthalpy of reaction

Partial molar quantities

Partial molar quantities, dependence of thermodynamic parameters on composition; Gibbs Duhem equation, chemical potential of ideal mixtures, change in thermodynamic functions in mixing of ideal gases.

Dilute solutions or Colligative Properties

Dilute solutions; lowering of vapour pressure, Raoult's and Henry's Laws and their applications. Excess thermodynamic functions. Thermodynamic derivation using chemical potential to derive relations between the four colligative properties: [(i) relative lowering of vapour pressure, (ii) elevation of boiling point, (iii) Depression of freezing point, (iv) osmotic pressure] and amount of solute. Applications in calculation of molar masses of normal, dissociated and associated solutes in solution.

Molecular Spectroscopy & Photochemistry

Unit-I Interaction of electromagnetic radiation with molecules and various types of spectra; Born Oppenheimer approximation. Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.
Vibrational spectroscopy: Classical equation of vibration, computation of force constant, amplitude of diatomic molecular vibrations, anharmonicity, Morse potential, dissociation energies, fundamental frequencies, overtones, hot bands, degrees of freedom for polyatomic molecules, modes of vibration, concept of group frequencies. Vibration-rotation spectroscopy: diatomic vibrating rotator, P, Q, R branches.

Unit-II Raman spectroscopy: Qualitative treatment of Rotational Raman effect; Effect of nuclear spin, Vibrational Raman spectra, Stokes and anti-Stokes lines; their intensity difference, rule of mutual exclusion. Electronic spectroscopy: Franck-Condon principle, electronic transitions, singlet and triplet states, fluorescence and phosphorescence, dissociation and predissociation.

Unit-III Photophysical and photochemical processes: laws of photochemistry, quantum yield. Jablonski diagrams: Franck-Condon principle, Law of photochemical equivalence, quantum efficiency, low and high quantum efficiency. kinetics of photochemical reactions (H2 + Br2 \rightleftharpoons HBr, 2HI \rightleftharpoons H2 + I2), energy transfer in photochemical reactions (photosensitization and quenching), fluorescence, phosphorescence, chemiluminescence, Discussion of Electronic spectra and photochemistry (Lambert-Beer law and its applications).

Chemical Kinetics

Order and molecularity of a reaction, rate laws in terms of the advancement of a reaction, differential and integrated rate laws for first, second and fractional order reactions, pseudo unimolecular reactions, determination of the order, kinetics of complex reactions (limited to first order): (i) Opposing reactions(ii) parallel reactions and (iii) consecutive reactions and their differential rate equations (steady-state approximation in reaction mechanisms) (iv) chain reactions. Temperature dependence of reaction rates; Arrhenius equation; activation energy. Collision theory of reaction rates.

Catalysis

Types of catalyst, specificity and selectivity, mechanisms of catalyzed reactions at solid surfaces; effect of particle size and efficiency of nanoparticles as catalysts. Enzyme catalysis, MichaelisMenten mechanism, acid-base catalysis.

Surface chemistry

Physical adsorption, chemisorption, adsorption isotherms (Freundlich, Temkin, Derivation of Langumuir adsorption isotherms, surface area determination), BET theory of multilayer adsorption (no derivation), Adsorption in solution

Phase Equilibria

Concept of phases, components and degrees of freedom, derivation of Gibbs Phase Rule for nonreactive and reactive systems; Clausius-Clapeyron equation and its applications to solid liquid, liquid-vapour and solid-vapour equilibria, phase diagram for one component systems, with applications. Phase diagrams for systems of solidliquid equilibria involving eutectic, congruent and incongruent melting points, solid solutions. Three component systems, water -chloroform-acetic acid system, triangular plots. Binary solutions: Gibbs-Duhem-Margules equation, its derivation and applications to fractional distillation of binary miscible liquids (ideal and nonideal), azeotropes, lever rule, partial miscibility of liquids, Critical solution temperature, miscible pairs, steam distillation for the separation of imiscible liquids .

Introduction to Quantum Chemistry:

Unit-I Introduction to black-body radiation and distribution of energy, photo-electic effect, concept of quantization, wave particle duality (de-Broglie's hypothesis), The uncertainty principle, The wave function: wave function and its interpretation, conditions of normalization and Orthogonality and its significance. Basic idea about operators, eigen function and values, Schrodinger equation and application to free-particle and particle in a box, boundary conditions, wave functions and energies, degeneracy, hydrogen atom, Schrodinger equation in polar coordinates, radial and angular parts of the hydrogenic orbitals, degeneracies, spherical harmonics, representations of hydrogenic orbitals.

Unit-II Quantitative treatment of simple harmonic osciallator model, setting up of Schodinger equation and discussion of solution of wave functions. Rigid rotator model and discussion of application of Schrodinger equation. idea about transformation to spherical polar coordinate, discussion on solution.

Unit-III Qualitative treatment of hydrogen atom and hydrogen-like ions: setting up of Schrödinger equation in spherical polar coordinates, radial part, quantization of energy (only final energy expression). Average and most probable distances of electron from nucleus. Valence bond and molecular orbital approaches, LCAO-MO treatment of H2, H2 + ; bonding and anti-bonding orbitals, Comparison of LCAO-MO and VB treatments of H2 (only wavefunctions, detailed solution not required) and their limitations.

Conductance

Arrhenius theory of electrolytic dissociation. Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes. Molar conductivity at infinite dilution.

Kohlrausch law of independent migration of ions. Debye-Hückel-Onsager equation, Wien effect, Debye- Falkenhagen effect, Walden's rules. Ionic velocities, mobilities and their determinations, transference numbers and their relation to ionic mobilities, determination of transference numbers using Hittorf and Moving Boundary methods. Applications of conductance measurement: (i) degree of dissociation of weak electrolytes, (ii) ionic product of water (iii) solubility and solubility product of sparingly soluble salts, (iv) conductometric titrations, and (v) hydrolysis constants of salts.

Electrochemistry

Quantitative aspects of Faraday's laws of electrolysis, rules of oxidation/reduction of ions based on half- cell potentials, applications of electrolysis in metallurgy and industry. Chemical cells, reversible and irreversible cells with examples. Electromotive force of a cell and its measurement, Nernst equation; Standard electrode (reduction) potential and its application to different kinds of half-cells. Application of EMF measurements in determining (i) free energy, enthalpy and entropy of a cell reaction, (ii) equilibrium constants, and (iii) pH values, using hydrogen, quinone-hydroquinone, glass electrodes. Concentration cells with and without transference, liquid junction potential; determination of activity coefficients and transference numbers. Qualitative discussion of potentiometric titrations (acid-base, redox, precipitation).

INORGANIC CHEMISTRY

Atomic Structure

Bohr's theory, its limitations and atomic spectrum of hydrogen atom. Wave mechanics: de' Broglie equation, Heisenberg's Uncertainty Principle and its significance, Schrödinger's wave equation, significance of ψ and ψ 2. Quantum numbers and their significance. Normalized and orthogonal wave functions. Sign of wave functions. Radial and angular wave functions for hydrogen atom. Radial and angular distribution curves. Shapes of s, p, d and f orbitals. Contour boundary and probability diagrams. Pauli's Exclusion Principle, Hund's rule of maximum multiplicity, Aufbau's principle and its limitations, Variation of orbital energy with atomic number.

Periodicity of Elements

s, p, d, f block elements, the long form of periodic table. Detailed discussion of the following properties of the elements, with reference to s and p-block. (a) Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. (b) Atomic radii (van'der Waals) (c) Ionic and crystal radii. (d) Covalent radii (octahedral and tetrahedral) (e) Ionization enthalpy, Successive ionization enthalpies and factors affecting ionization energy. Applications of ionization enthalpy. (f) Electron gain enthalpy, trends of electron gain enthalpy. (g)Electronegativity, Pauling, Mullikan, Allred Rachow scales, electronegativity , bond order, partial charge, hybridization, group electronegativity. Sanderson electron density ratio.

Chemical Bonding

Ionic bond: General characteristics, types of ions, size effects, radius ratio rule and its limitations. Packing of ions in crystals. Born-Landé equation with derivation,

expression for lattice energy. Madelung constant, Born-Haber cycle and its application, Solvation energy.

Covalent bond: Lewis structure, Valence Shell Electron Pair Repulsion Theory (VSEPR), Shapes of simple molecules and ions containing lone-and bond-pairs of electrons multiple bonding, sigma and pi- bond approach, Valence Bond theory, (Heitler-London approach). Hybridization containing s, p and s, p, d atomic orbitals, shapes of hybrid orbitals, Bents rule, Resonance and resonance energy, Molecular orbital theory. Molecular orbital diagrams of simple homonuclear and heteronuclear diatomic molecules, MO diagrams of simple tri and tetra-atomic molecules, e.g., N2, O2, C2, F2, CO, NO, and their ions; HCl, BeF2, CO2, HCHO, (idea of s-p mixing and orbital interaction to be given). Covalent character in ionic compounds, polarizing power and polarizability. Fajan rules, polarization. Ionic character in covalent and electronegativities.

Metallic bonding and Weak chemical forces

Metallic Bond: Qualitative idea of free electron model, Semiconductors, Insulators.Weak Chemical Forces: van'der Waals, ion-dipole, dipole-dipole, induced dipole -dipoleinduced dipole interactions, Lenard-Jones 6-12 formula, hydrogen bond, effects of hydrogen bonding on melting and boiling points, solubility and dissolution.

Oxidation-Reduction and general principle of metallurgy

Redox equations, Standard Electrode Potential and its application to inorganic reactions. Occurrence of metals based on standard electrode potentials. Ellingham diagrams for reduction of metal oxides using carbon or carbon monoxide as reducing agent. Electrolytic Reduction, Hydrometallurgy. Methods of purification of metals: Electrolytic Kroll process, Parting process, van Arkel- de Boer process and Mond's process, Zone refining.

Chemistry of s and p Block Elements

Inert pair effect, Relative stability of different oxidation states, diagonal relationship and anomalous behavior of first member of each group. Allotropy and catenation. Complex formation tendency of s and p block elements. Hydrides and their classification ionic, covalent and interstitial. Basic beryllium acetate and nitrate.

Structure, bonding, preparation, properties and uses. Boric acid and borates, boron nitrides, borohydrides (diborane) carboranes and graphitic compounds, silanes, Oxides and oxoacids of nitrogen, Phosphorus and chlorine. Per-oxo acids of Sulphur interhalogen compounds, polyhalide ions, pseudo-halogens, properties of halogens. **Noble Gases**

Occurrence and uses, rationalization of inertness of noble gases, Clathrates; preparation and properties of XeF2, XeF4 and XeF6; Bonding in noble gas

compounds (Valence bond and MO treatment for XeF2), Shapes of noble gas compounds (VSEPR theory).

Inorganic Polymers

Types of inorganic polymers, comparison with organic polymers, synthesis, structural aspects and applications of silicones and siloxanes. Borazines, silicates and phosphazenes, and polysulphates.

Coordination Chemistry

Werner's theory, EAN rule, piano-stool compounds, valence bond theory (inner and outer orbital complexes), Crystal field theory, d-orbital splitting, weak and strong fields, pairing energies, factors affecting the magnitude of (Δ). Octahedral vs. tetrahedral coordination, tetragonal distortions from octahedral geometry Jahn-Teller theorem, square planar complexes, d orbital splitting in trigonal bipyramidal, square pyramidal and cubic ligand field environments, CFSE, Variation of lattice energies, enthalpies of hydration and crystal radii variations in halides of first and second row transition metal series, Qualitative aspect of Ligand field theory, MO diagrams of representative coronation complexes, IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. Stereochemistry of complexes with the coordination number 4 and 6, Chelate effect,

Transition Elements

General group trends with special reference to electronic configuration, colour, variable valency, magnetic and catalytic properties, and ability to form complexes. Stability of various oxidation states and e.m.f. (Latimer & Bsworth diagrams). Difference between the first, second and third transition series. Chemistry of Ti, V, Cr Mn, Fe and Co in various oxidation states (excluding their metallurgy)

Lanthanoids and Actinides

Electronic configuration, oxidation states, color, spectra and magnetic behavior, lanthanide contraction, separation of lanthanides (ion-exchange method only).

Bioinorganic Chemistry

Metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on distribution of metals. Sodium / K-pump, carbonic anhydrase and carboxypeptidase. Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), toxicity, chelating agents in medicine. Iron and its application in biosystems, Haemoglobin; Storage and transfer of iron.

Organometallic Compounds

Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18 electron rule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series. General methods of preparation (direct combination, reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3d series. Structures of mononuclear and binuclear carbonyls of Cr, Mn, Fe, Co and Ni using VBT. pi-acceptor behaviour of CO (MO diagram of CO to be discussed), synergic effect and use of IR data to explain extent of back bonding.

ORGANIC CHEMISTRY

1. Basics of Organic Chemistry

Organic Compounds: Classification, and Nomenclature, Hybridization, Shapes of molecules, Influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment; Organic acids and bases; their relative strength. Homolytic and Heterolytic fission with suitable examples. Curly arrow rules,

formal charges; Electrophiles and Nucleophiles; Nucleophilicity and basicity; Types, shape and relative stabilities of reaction intermediates (Carbocations, Carbanions, Free radicals and Carbenes). Organic reactions and their mechanism: Addition, Elimination and Substitution reactions.

2. Stereochemistry

Concept of asymmetry, Fischer Projection, Newmann and Sawhorse projection formulae and their interconversions; Geometrical isomerism: cis–trans and, syn-anti isomerism E/Z notations with C.I.P rules. Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Distereoisomers, meso structures, Racemic mixtures, Relative and absolute configuration: D/L and R/S designations.

3. Chemistry of Aliphatic Hydrocarbons Carbon-Carbon sigma bonds

Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz- Fittig Reactions, Free radical substitutions: Halogenation - relative reactivity and selectivity.

Carbon-Carbon pi-bonds.

Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations. Reactions of alkenes: Electrophilic additions their mechanisms (Markownikoff/ Anti Markownikoff addition), mechanism of oxymercuration demercuration, hydroboration- oxidation, ozonolysis, reduction (catalytic and chemical), syn and anti-hydroxylation (oxidation). 1, 2- and 1, 4- addition reactions in conjugated dienes and, DielsAlder reaction; Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene. Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions.

Cycloalkanes and Conformational Analysis

Cycloalkanes and stability, Baeyer strain theory, Conformation analysis, Energy diagrams of cyclohexane: Chair, Boat and Twist boat forms.

Aromatic Hydrocarbons

Aromaticity: Huckel's rule, aromatic character of arenes, cyclic carbocations/carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directing effects of substituent groups.

Chemistry of Halogenated Hydrocarbons

Alkyl halides: Methods of preparation, nucleophilic substitution reactions – SN1, SN2 and SNi mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination.

Aryl halides: Preparation, including preparation from diazonium salts. nucleophilic aromatic substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

Organometallic compounds of Mg and Li and their use in synthesis.

Alcohols, Phenols, Ethers and Epoxides

Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvaelt-Blanc Reduction; Preparation and properties of glycols: Oxidation by periodic acid and lead tetraacetate, Pinacol- Pinacolone rearrangement.

Phenols: Preparation and properties; Acidity and factors effecting it, Ring substitution reactions, Reimer– Tiemann and Kolbe's–Schmidt Reactions, Fries and Claisen rearrangements with mechanism.

Ethers and Epoxides: Preparation and reactions with acids. Reactions of epoxides with alcohols, ammonia derivatives and LiAlH4

Carbonyl Compounds

Structure, reactivity and preparation; Nucleophilic additions, Nucleophilic additionelimination reactions with ammonia derivatives with mechanism; Mechanisms of Aldol and Benzoin condensation, Knoevenagel condensation, Claisen-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann and Benzil-Benzilic acid rearrangements, haloform reaction and Baeyer Villiger oxidation, α -substitution reactions, oxidations and reductions (Clemmensen, WolffKishner, LiAlH4, NaBH4, MPV, PDC and PGC); Addition reactions of unsaturated carbonyl compounds: Michael addition.

Active methylene compounds: Keto-enol tautomerism. Preparation and synthetic applications of diethyl malonate and ethyl acetoacetate.

Carboxylic Acids and their Derivatives

Preparation, physical properties and reactions of monocarboxylic acids: Typical reactions of dicarboxylic acids, hydroxy acids and unsaturated acids: succinic/phthalic, lactic, malic, tartaric, citric, maleic and fumaric acids; Preparation and reactions of acid chlorides, anhydrides, esters and amides; Comparative study of

nucleophilic substitution at acyl group -Mechanism of acidic and alkaline hydrolysis of esters, Claisen condensation, Dieckmann and Reformatsky reactions, Hofmann bromamide degradation and Curtius rearrangement.

Sulphur containing compounds

Preparation and reactions of thiols, thioethers and sulphonic acids

Nitrogen Containing Functional Groups

Preparation and important reactions of nitro and compounds, nitriles and isonitriles Amines: Effect of substituent and solvent on basicity; Preparation and properties: Gabriel phthalimide synthesis, Carbylamine reaction, Mannich reaction, Hoffmann's exhaustive methylation, Hofmann-elimination reaction; Distinction between 1° , 2° and 3° amines with Hinsberg reagent and nitrous acid. Diazonium salts: Preparation and synthetic applications.

Polynuclear Hydrocarbons

Reactions of naphthalene phenanthrene and anthracene Structure, Preparation and structure elucidation and important derivatives of naphthalene and anthracene; Polynuclear hydrocarbons.

Heterocyclic Compounds

Classification and nomenclature, Structure, aromaticity in 5-numbered and 6membered rings containing one heteroatom; Synthesis, reactions and mechanism of substitution reactions of Furan, Pyrrole (Paal- Knorr synthesis, Knorr pyrrole synthesis, Hantzsch synthesis), Thiophene, Pyridine (Hantzsch synthesis), Pyrimidine, Structure elucidation of indole, Fischer indole synthesis and Madelung synthesis), Structure elucidation of quinoline and isoquinoline, Skraup synthesis, Friedlander's synthesis, Knorr quinoline synthesis, Doebner-Miller synthesis, Bischler-Napieralski reaction, Pictet-Spengler reaction, Derivatives of furan: Furfural and furoic acid.

Organic Spectroscopy

Basic Principles of UV Spectroscopy:

Application of Woodward-Fiser rule in interpretation of Organic compounds: Application of visible, ultraviolet and infrared spectroscopy in organic molecules. Electromagnetic radiation, electronic transitions, $\lambda \max$ & \max , chromophore, auxochrome, bathochromic and hypsochromic shifts.

Application of electronic spectroscopy and Woodward rules for calculating λmax of conjugated dienes and α,β – unsaturated compounds.

Basic principles of IR Spectroscopy:

Identification of Functional groups of various classes of organic compounds: Infrared radiation and types of molecular vibrations, functional group and fingerprint region.

IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).

Chromatography Types of chromatography and basic principle of Chromatography , retension factor , resolution , selectivity , idea of HPLC and GCMS

NMR (1 H and 13C NMR):

Application of Chemical Shifts, Splitting of signals, Spin coupling and Over Houser effect in interpretation of NMR spectra, Isotopic exchange.

Basic principles Mass Spectrometry:

Application of fragmentation rule in characterization of organic compounds. Problems on structure elucidation of organic compounds based on spectral data.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – COMMERCE



Micro Economics

- 1. Definition Nature and Scope of Economics, Marshall & Robins Views. Utility of Economics, Micro vs. Macromedia of Economics Study, Economic Theory and Business Decisions.
- 2. Utility Analysis, Consumer Behavior, Consumer's Equilibrium. Traditional Approach and Indifference Curve and Analysis: Price Income and Substitution Effects. Some Application of Indifference Curve Techniques, Elasticity of Demand.
- 3. Production Equal Product Curves, Scale of Production: Input-Output Relationship, Cost Curves; Variable Cost Conditions and Law of Variable Proportions, Producers' Equilibrium. Product Pricing

– Market Format, Perfect Competition, Monopoly and Imperfect Completion.

4. Pricing of Factors of Production, Concept of Marginal Productivity, Theories of Rent, Wages, Theories of Interest and Profit.

Currency and Banking

- 1. Functions Significance of Money, Various Forms of Money, Causes, Remedies and Effects of Inflation, Deflation and Reflation Indian Money Market, Principles Methods of Note Issues, Monetary Standard – Gold Standard, Bimetallize and Managed Currency Standard.
- 2. Meaning and Significance of Credit. Factors Influencing the Volume of Credit in Country, Credit Creations of Bank, Credit Control by RBI.
- 3. Functions of Commercial Bank, Types of Banks, Unit and Branch Banking System, Concept of Mix Banking, Central Bank and its Functions, Reserve Bank of India, State Bank of India, Regional Rural Banks, Progress of Nationalized Banks in India
- 4. Concept of Foreign Exchange and Exchange Rate, Factors Causing Fluctuation in Exchange Control Meaning, Objective and Methods.

Essential of Management

- 1. Nature, Scope and Functions of Management, Evolution of Management Thought, Various Approaches to Management, Functions of a Manager, Introduction to Corporate Social Responsibility.
- 2. Planning: Objective, Nature and Process of Planning, SWOT Analysis, Formulation of Plans, Decision Making Process. Organizing: Objectives, Nature and Process of Organizing Formal and Informal Organization, Authority and Responsibility, Delegation and Empowerment, Centralization and Decentralization, Concept of Departmentation, Organization Chart, Line, Staffand Functional Relationships.
- 3. Staffing: Concept, Manpower Planning, Recruitment, Selection, Training and Development, Performance Appraisal. Directing: Concept and Techniques of Motivation and Leadership. Process and Barriers to Communication.
- 4. Controlling: Concept, Need and Techniques. Controlling: Concept, Process and Techniques and Control, Management by Objectives (MBO) Management by Exception (MBE), Essentials of Effective Control, Managerial Effectiveness.

Accounting

- 1. Accounting an Introduction: Accounting Standard National and International, Partnership Accounts – Admission, Retirement & Death and Dissolution of Partnership Firm.
- 2. Absorption, Amalgamation and Reconstruction of Companies, Liquidation of Companies and Preparation of a Liquidator's Final Statement of Account.
- 3. Hire Purchase and Instalment Accounts, Royalties Accounts, Insolvency Accounts.
- 4. Branch Account: Voyage Accounts, Accounts of Empties and Packages; Insurance Claim for Loss of Stock and Loss of Profit.

Business Organization

- Definition, Nature and Scope of Business, Business and Society, Social Responsibility of Business, Factors Determining the Size of Business Unit. Forms of Business Organization – A Comparative Study.
- 2. Monopolistic Combination, Production Management, Rationalization & Methods of Remunerating Labor.
- 3. Organization Process Importance, Principles, Various Aspects of Organization, Organization Structure, Departmentation, Line and Staff Relationships, Span of Control, Delegation of Authority, Decentralization.
- 4. Produce and Stock Exchange: Its Organization and Economic Functions.

Business Statistics

- 1. General The Nature and Scope of Statistics: Definition of Statistics. Law of Statistical Regularity: Law of Inertia of Large Numbers. Probability and Sampling. Limitations of Statistics.
- 2. Methods of Statistical Enquiry Types and Characteristics of Units. Methods of Collection of Data; Questionnaire and Schedule; Proximations and Accuracy, Errors and their Effects.
- 3. Classification and Tabulation Objects, General- Rules for the Construction of Tables; Statistical Series.
- 4. Measure of Central Tendency Mean Mode, Median, Quartile Harmonic and Geometric Mean.
- 5. Measurement of Dispersion and Skewness Range, Quartile Deviation, Mean Deviation, Standard Deviation and their Coefficients; Measures of Skewness.
- 6. Correlation Analysis Graphic Method, Scatter Diagram, Karl Pearson's Coefficient of Correlation, Spearman's Ranking Method, Lag and Lead, Probable and Standard Error.

Business Law

Main Principles of Indian Law Relating to:

- 1. Contract
- 2. Agency, Sale of Goods
- 3. Partnership, Negotiable Instruments and Hundis and Consumer Protection Act 1986

Cost Accounting

- 1. Definition, Nature, Scope and Significance, Cost Unit, Cost Centre, Elements of Costs, System of Ascertainment of Cost, Control and Ascertainment of Materials, Labor and Overhead Costs, Allocation, Apportionment and Absorption of Overheads.
- 2. Single Output or Unit Costing, Contract and Job Costing, Calculation of Tender, Quotation, Estimated Price, Process and Operating Costing.
- 3. Marginal Costing its use in Management Standard Costing, Variance Analysis.
- 4. Integrated Accounts.
- 5. Reconciliation of Cost and Financial Accounts, Cost Accounting/ Cost Control Accounts, Interfirm Comparison.

Company law

- 1. Company: Definition, Classification, Incorporation, Memorandum of Association, Articles of Association. Doctrine of Constructive Notice, Doctrine of Indoor Management, Commencementof Business. Company Management: Appointment, Rights and Obligations of Directors, Managers and Secretary.
- 2. Steps before Issue of Prospects, Definition and Contents of Prospectus, Liability for Untrue Statements. Shares: Definition, Share Vs Stock, Classes of Shares, Voting Rights, Issue of Shares at Per, Premium and Discount, ESOP, Bonus, Rights, Buyback, Public Shares at Par, Premium and Discount, ESOP, Bonus, Rights, Buyback, Public Issue, Calls, Forfeiture, Lean and Surrender, Transfer and Transmission, Statutory Restriction on Transfer, Borrowing Power, Mortgages and Changes, Debentures.

Insurance Introduction to Insurance: Purpose and Need of Insurance, Insurance as a Social Security Tool; Insurance and Economic Development, Fundamentals/ Principles of Insurance. Contract of Insurance.

- 1. Life Insurance Principles and Practice of Life Assurance. Life Assurance Contract, their Nature and Characteristics, Parties to the Contract and their Rights and Duties. Conditions and terms of Policy. Nominations and Assignment Practice in Connection with Collection of Premium, Revivals, Loans, Surrenders, Claims, Bonuses and Annuity Payments, Mortality Table.
- 2. Fire Insurance The Basic Principles of Fire Insurance Contracts. Fire Policy, Conditions, Assignment of Policy, Claims. Marine Insurance – General Principles – Insurable Interest and Value Disclosure Marine Policy and their Conditions, Premium Double Insurance: Assignment of Policy Warranties the Voyage, Loss and Abandonment: Partial Losses and Particular Charges; Salvage; Total Losses and measures of indemnity, Subrogation equation of payments, types of annuities; Present Value and Amount of an Annuity, Including the Case of Continuous Compounding; Analysis of Annuity; Valuation of Simple Loans and Debentures; Problems Relating to Sinking Funds.

Income Tax Law and Accounts

- 1. Basic Concepts: Income, Agricultural Income, Casual Income, Assessment Year Previous Year, Gross Total Income, Total Income Person. Tax Evasion, Avoidance and Tax Planning. Basic of Charge; Scope of Total Income, Residence and Tax Liability, Income which does not form Part of Total Income. Deduction from Gross Total Income.
- 2. Head of the Income: Salaries; Income from House Property; Profit and Gains to Business or Profession. Capital Gains; Income from Other Sources.
- 3. Computations of Total Income of an Individual, H.U.F and Firm.
- 4. Deemed Income: Aggregation of Income, Set-off and Carry Forward of Losses; Tax Authorities; Assessment Procedures.

Contemporary Audit

- 1. Introduction: Meaning and objectives of Auditing: Types of Audits; Internal Audit. Audit Process: Audit Programmed; Audit and Books; Working Papers and Evidences; Consideration for Commencing an Audit; Routine Checking and Test Checking. Internal Check System: Internal Control.
- 2. Audit Procedure: Vouching; Verification of Assets and Liabilities. Audit of Limited Companies: Company Auditor- Appointment, Powers, Duties, and Liabilities.
- 3. Auditing Standards Appointment, Power, Duties and Liability of Auditor. Broad Outlines of Company Audit and Auditor's Report. Special Audit – Banking Companies, Educational Institutions, Insurance Companies. Investigation, Audit of Non-profit Organization, Divisible Profit & Dividend.
- 4. Recent Trends in Auditing Nature and Significance of Cost Audit; Tax Audit, Management Audit, Computerized Audit.

Indian Economic Structure

- 1. Nature of Indian Economy, Features of a Developing Economy. Characteristics and Problems of Indian Economy. Objectives of Economics Planning in India. India's Five-Year Plans – Achievements and Failures. Indian Agriculture – Its Features and Problems. Agricultural Development in Planned Era. Green Revaluation, Agricultural Marketing, Rural Poverty and Indebtedness. Rural Industrialization. Rural Development Programmed, Cooperative Movement.
- 2. Population Growth and Population Explosion. Population Policy and Programmed. Problem of Unemployment. Forms of Unemployment. Employment Programmed and Poverty Alleviation.
- 3. Large Scale, Small Scale and Cottage Industries. Industrial Development during Five Year Plans. Public Sectors and Private Sector, Industrial Relations, Industrial Policy. Industrial Sickness, Industrial Finance. Money Market and Capital Market Structure. Capital Formation, Indian Money Market and Fiscal Policies, Deficit Financing and its Implications.
- 4. Problems of Economic Development in Uttarakhand: Migration, Unemployment, Poverty, Poor Infrastructure, Poor industrial development, Backwardness and Regional Disparity in Uttarakhand; Remedies to overcome the problems of Economic Development.

5. Growth Opportunities under Various Sectors in Uttarakhand: Role of Agriculture, Manufacturing & Service Sector in the Economic Development of Uttarakhand: Agro-based and Food Processing Industries, Floriculture and Horticulture, Pharmaceuticals and Biotechnology, Hydropower, Information Technology, Tourism etc.

Marketing, Practice

- 1. Introduction: Nature and Scope of Marketing: Importance of Marketing as a Business Functionand in the Economy; Marketing Concepts- Traditional and Modern; Selling Vs. Marketing; Marketing mix; Marketing Environment.
- 2. Consumer Behavior and Market Segmentation; Nature, Scope and Significance of Consumer Behavior; Market Segmentation Concept and Importance; Basis for Market Segmentation.
- Promotion; Methods of promotion; Optimum promotion mix; Advertising Media

 their Relative Merits and Limitations; Characteristics of an Effective Advertisement; Personal Selling; Selling asa Career; Classification of a Successful Sales Person; Functions of Salesman.
- 4. Product: Concept of Product, Consumer and Industrial Goods; Product Planning and Development; Packaging – Role and Functions; Brand name and Trade Mark; after SalesService; Product Life Cycle Concept. Price: Importance of Price in the Marketing mix; Factors Affecting Price of a Product / Service; Discounts and Rebates.
- 5. Distribution Channels Concept and Role; Types of Distribution Channels; Factors Affecting Choice of a Distribution Channel; Retailer and Wholesale; Physical Distribution of Goods; Transportation; Warehousing; Inventory Control; Order Processing.

Macro- Economics

- Concept Definition and Scope of Macro-Economics, Statics and Dynamics, The Circular Flow of Income. The Analysis and Measurement of Economic Activity – National Income Accounting – Concept and Definitions of National Income. Various Component of National Income, Methods of Measurement of National Income and Welfare.
- 2. The consumption function The Keynesian Consumption Function, Relative Income Hypothesis, Permanent Income Hypothesis Multiplier and the Process of Income – Propagation. The Investment Function – Autonomous and Induced Investment. Government and the Theory of Income Determination – Government Purchases and Income, Taxes and Equilibrium Level of Income, Tax Multiplier Determination of the Equilibrium Level of Income – The SimpleKeynesian Model.
- 3. Marginal Efficiency of Capital, Relation between MEC and MEI. The Derivation and Shift in IS and LM Curves, the Interaction between IS and LM Curves. The Acceleration Principle. Theories of Employment – Say's Law of Market and Classical Theory of Employment, Saving Investment Analysis. An Outline of Keynesian Theory of Employment.

4. Theory of Inflation – Concepts of Inflation, Inflationary Gaps Demand Pull and Cost Push Inflation. The Philips Curve, Effects of Inflation, Anti-Inflation Policies – Mentary and Fiscal Policies. Fluctuation and Growth – Hawtrey, Hayek, Schumpeter, Samuelson, Hicks. Theories of Population -Malthusian Theory and Theory of Optimum Population.

Law and Practice of Banking

- 1. The Ordinary, Practice of Bankers with Regard to the Opening and Conduct of Banking Accounts, Closing of Accounts. Banker and Customer General and Special Relations.
- 2. Law Relating to Cheques, Bill of Exchange and other Negotiable Instruments. Discounting of Bill of Exchange, the Practice relating to Cheques Bills of Exchange and Other Negotiable Instruments.
- 3. Banker's Credit, Advance and Overdrafts Traveler Cheque, Letter of Credit, Confirmed Bankers Credit, Unconfirmed Bankers Credit, Acceptance Credits and Documentary Credit.
- 4. Revolving Credit, Banker's Advance against Marketable Securities, Goods & Produce, Debentures and Life Insurance Policies. Unsecured Advances Guarantees, Precautions/ Duties of Banker.

Development Banking

- 1. Meaning, Determinant and Obstacles of Economic Development, Sources and Problems of Rural and Industrial Finance.
- 2. Meaning Objective, Characteristics and Functioning of Development Banks, Difference between Commercial and Development Banks.
- 3. Role of Commercial Banks in Agricultural and Industrial Finance. Terms Lending Operations of Land Development Banks.
- 4. National Bank for Agricultural and Rural Development (NABARD) Objectives Organisation and Functions.
- 5. Structure of Development Banks in India, Progress of these Banks (terms lending institutions) and Deficiencies in their Working.
- 6. National Level Financial Corporation IFCI, IDBI, ICICI & IRBI their Objectives Functions and Evaluations of Performance.
- 7. State level Financial Corporation SFCs and SIDCs their Objectives Organizations, Functions and Evaluations of Performance.
- 8. Capital Market in India & Industrial Growth Structure, Present Position, Problems and Steps taken by the Government to Active and Capital Market.

Basics of computer

1. Introduction: Basic computer concepts; Meaning of computers; Types of computers; Essential components of a computer: Hardware and Software; Characteristics and uses of computer; Input Devices and Output Devices; Central Processing Unit (CPU); Memory Unit; Storage Devices; Computer Hardware setup: Setting up a Laptop Computer and Setting up a Desktop Computer.

- <u>Computer Networks</u>: Meaning of computer network; objectives/ needs for networking; Applications of networking; Basic Network Terminologies; Types of Networks; Network Topologies; Distributed Computing: Client Server Computing, Peer- to- peer Computing; Wireless Networking; Securing Networks: firewall.
- 3. <u>Operating Systems and Applications</u>: Basic terminologies; Relationship between Hardware and Software; System Software; Operating System: Functions and difference types of Operating Systems; Commonly used Operating Systems; Installing and Starting Windows; Working with Windows; Security feature in Windows; User Account Control; Payment Gateway.
- 4. <u>Computer's Interface</u>: Concept of computing, Data and information; Types of Computer's Interfaces: Graphical User Interface (GUI), Command Line Interface (CLI), Touch Interface, Natural Language Interface (NLI); data processing.
- 5. <u>Basic Internet Terminologies</u>: I.P. Address, Modem, Bandwidth, Routers, Gateways, Internet Service Provider (ISP), World Wide Web (www), Browsers, Search Engines, Proxy Server, Intranet and Extranet; Basic Internet Services; Internet Protocols: TCP/IP, FTP, HTTP(s), Uses of Internet to Society; Cyber Security: Cryptography, digital signature.

Management accounting

- 1. <u>Introduction to Management Accounting</u>: Meaning, objectives, nature and scope of management accounting; Difference between different forms of accounting: Cost, Financial and Management accounting; Cost control and Cost reduction.
- 2. Budgetary Control and Standard Costing Systems:
 - (a) Budgeting and Budgetary Control: Concept, objectives, merits and limitations of budget, budgeting and budgetary control; Functional Budgets; Fixed and Flexible budgeting; An overview of different approaches to budgeting: Zero base budgeting, Performance budgeting and Programme budgeting.
 - (b) Standard Costing and Variance Analysis: Meaning, advantages, limitations and applications of standard cost and standard costing; Variance Analysis: material, labour, overheads and sales variances; Control ratios.
- 3. <u>Marginal Costing</u>: Concept of marginal cost and marginal costing; Absorption versus Marginal Costing: Distinctive features and income determination; Cost-volume-profit analysis; Break-even Analysis: mathematical and graphical approaches; Profit-volume ratio, angle of incidence, margin of safety, key factor, determination of cost indifference point.
- 4. <u>Decision Making</u>: Steps in Decision making process; Concept of relevant costs; solving various short -term decision making problems using marginal costing and differential costing techniques: Profitable product mix, Acceptance or rejection of special/ export offers, Make or buy, Addition or elimination of a product line, sell or process further, operate or shut down and Pricing decisions
- 5. <u>Responsibility Accounting and Ratio Analysis:</u> Responsibility Accounting: Concept, Significance; Different Responsibility Centres; Divisional

Performance Measurement: Financial and Non-Financial measures; Analysis of Financial Statement through Ratio Analysis: Computation of various ratios relating to liquidity, solvency, profitability, activity and ratios for investors.

Goods & services tax (GST)

- <u>Structure, Registration and Exemptions</u>: Constitutional framework of indirect taxes before GST; Rationale for GST; Structure of GST: SGST, CGST, UTGST & IGST; GST Council; GST Network; State compensation mechanism; Registration; Exemptions from GST.
- 2. <u>Levy and Collection of GST</u>: Scope of 'Supply'; Nature of supply: Inter-State, Intra-State; Classification of goods and services; Composite and Mixed supplies; Composition levy scheme; Place of supply; Time of supply; Value of supply.
- 3. <u>Input Tax Credit and Reverse Charge Mechanism</u>: Eligible and ineligible input tax credit; Apportionments of credit and blocked credits; Tax credit in respect of capital goods; Availability of tax credit in special circumstances; Reverse Charge Mechanism.
- 4. <u>Tax Invoice and Payment of Tax</u>: Tax Invoice, Credit and debit notes, and e-Way bills; Payment of taxes; Taxability of e-Commerce.
- 5. <u>GST Audit, Assessment and Returns</u>: Audit in GST; Assessment: Types of Assessment, Summary and Scrutiny, Payment of Taxes, Maintenance of Records; Various Returns of GST; Submission of Return.

Entrepreneurship

- 1. <u>Introduction:</u> Intrapreneurs and professional manager; Entrepreneurship: concept, factors responsible for emergence of entrepreneurship; Emergence of entrepreneurial class; Relevance of entrepreneurship in career growth; Theories of entrepreneurship (Hawley, Knight and Schumpeter), Psychological theories-Maslow's and Mc Clelland's Motivation Theories; Problems in the growth of entrepreneurship; Misconceptions and myths about entrepreneurship. Dimensions of entrepreneurship: intrapreneurship, technopreneurship, cultural entrepreneurship, international entrepreneurship, netpreneurship, ecopreneurship, and social entrepreneurship..
- 2. <u>Entrepreneurship in India</u>: Concept of business houses and role of business houses and family business in India; The contemporary role models in Indian business: their values, business philosophy and Behavioural orientations; Conflict in family business and its resolution; Initiatives of Government of India to promote entrepreneurship: Entrepreneurial Development Programme (EDP); Start Up India, Stand Up India, Make in India, etc.
- 3. <u>Entrepreneurship Ecosystem</u>: Requirement, availability and access to finance, marketing assistance, technology, and industrial accommodation as regard to entrepreneurship; Role of government, Institutions, industries/entrepreneur's associations and self-help groups in promoting entrepreneurship; Concept, role and functions of business incubators, angel investors, venture capital, start-up finance and private equity fund.
- 4. <u>Sources of Business Ideas and Tests of Feasibility</u>: Significance of writing the business plan/ project proposal, including feasibility analysis and tests of feasibility; Contents of business plan/ project proposal; Designing business

processes, location, layout, operation, planning & control; preparation of project report: various aspects of the project report, such as size of investment, nature of product, sourcing of material, market potential, may be covered; Project submission/ presentation and appraisal thereof by external agencies, such as financial/non-financial institutions.

5. <u>Regional Economy and Entrepreneurship in Uttarakhand</u>: Economy of Uttarakhand: An overview, present status of micro, small and medium scale enterprises; role of government and other promotional agencies in entrepreneurship development; Women Entrepreneurship: sources of finance, policies governing entrepreneurship and problems of entrepreneurship in the state.

E-commerce

- 1. <u>Introduction</u>: Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online; types of e- Commerce; e-commerce business models: introduction, key elements of a business model and categorizing major e-commerce business models; forces behind e-commerce.
- 2. <u>Technology used in e-commerce</u>: The dynamics of world wide web and internet: meaning, evolution and features; Designing, building and launching e-commerce website: A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs in-house development of a website.
- 3. <u>Security and Encryption</u>: The e-commerce security environment: Dimension, definition and scope of e-security; security threats in the e-commerce environment: security intrusions and breaches, attacking methods, like hacking, sniffing, cyber-vandalism etc.; technology solutions: Encryption, security channels of communication, protecting networks and protecting servers and clients; Cyber Crime and offences; Laws relating to cyber-crime: IT Act 2000: Definitions, Main Provisions, Penalties and adjudication, Appellate Tribunal.
- 4. <u>e-payment System</u>: e-payment Methods: debit card, credit card, smart cards, e-Wallets; payment gateways; Electronic Fund Transfer; Emerging modes and systems of e-payment: M-Paisa, PayPal and other digital currency, UPI Apps, Aadhar-Enabled Payment Systems, BHIM App; Digital signatures: procedure, working and legal position; online banking: meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting; risks involved in e-payments.
- 5. <u>On-line Business Transactions</u>: Meaning, purpose, advantages and disadvantages of transacting online; e-commerce applications in various industries, like banking, insurance; payment of utility bills; online marketing; e-tailing: popularity, benefits, problems and features; online services: financial, travel and career, auctions, online portal, online learning, publishing and entertainment; Online shopping: amazon, snapdeal, alibaba, flipkart, etc.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

SUBJECT -

M.SC./M.A. DEFENCE STUDIES



P.G. Entrance Syllabus Examination 2025-26

Unit I:-CONCEPTUAL ASPECTS OF WAR

- MeaninganddefinitionofDefenceandStrategic Studies, relevance, significance.
- War-Historical Evolution, Features and Causes, Principles of War.
- Conventionaland Unconventionalwars–Civil War,ColdWar, Guerrilla War, Hybrid War, Total War, Psychological War, Economic War & Information War.

Unit-II:-TERRORISM

- DefinitionandmeaningofTerrorism.
- Causes, Types, Levels
- Terrorism and India

Unit III:-Warfare in Ancient India.

- Types of war during the Vedic period. Battle of Hydaspas
- Military organizations of the Maurayas, Guptas, Rajputs, Mughals, Marathas, and Sikhs.

Unit IV:-Fundamentals of India's National Security

- Definition, Scope, Features of National Security
- National Power, Threat Perception,
- Defence Policy, Foreign Policy
- India's Strategic Environment

Unit V:-Economic Aspects of National Security

- Definition of Economics, kinds, Features, Merits, & Demerits
- Role of D.R.D.O, OFB, DPSUs in Defense Production.
- Defence Planning, Defence Budget in India
- Economic Warfare

Unit VI:-Defence Mechanismof India

- Organization of the Army, Air Force, Navy
- Role and function of Chief of Defence Staff (CDS)
- Second line defence (introduction of BSF,CRPF, CISF, ITBP, SSB, etc)

Unit VII:- INDIA'S MARITIME SECURITY

• Geo-political and geo-strategic significance of the Indian Ocean

- Regional conflicts in the Indian Ocean Region.
- India's maritime/naval capabilities.

Unit VIII:-MODERN WARFARE

- Nature, Definition, Techniques, and Relevance in Present Times.
- KashmirOperations1947-48
- ChineseAggression1962
- Indo-PakConflict1965
- BangladeshLiberation War 1971
- KargilOperations1999

Unit IX:-CHALLENGES TO INDIA'S INTERNAL SECURITY

- Concept Of State/Nation State
- Kashmir Issue
- Naxalite Problems

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – DRAWING & PAINTING



SYLLABUS FOR PG ENTRANCE TEST Drawing and Painting

Fundamentals of Visual Art	 Meaning and Definition of Art, Classification ofArt, TypesofPainting. Line, shape and Form, Colour, Tone and Value, ,Space ,Texture Introduction of Composition Proportion,Movement & Rhythm, Dominance, Harmony,Unity,Contrast,Balance,Perspective. Introduction of major principles of painting, Unity and verity, Balance, Emphasis, Contrast, Rhythm, Scale & Proportion
Methods & Materials of Painting	 Introductiontomedia andtechniques: MonochromaticDrawing media &tech.: pencil, charcoal, ink, coloured chalk etc. Painting media& tech.:watercolour, tempera, gouache, oil colour, acrylic, batik, tie and die. Brief introduction of Print Making &tech.: Relief Prints, Intaglioprints, planographic prints. Mural, video art, computer art, mix media, collage,documented art.
History of Indian Painting	 Pre-historic cave painting, Indus Valley art, Wall Painting tradition :Jogimara, Ajanta, Bagh, Sittanvasal, Badami, Elephanta and Ellora. Manuscript and Pat Painting tradition: Pal School, Apbhransha/Jain School. Miniature painting tradition : Rajasthani School, Mughal School, PahariSchool. Patna/Company School, Indigenous schools : Kalighat Painting, Orissa, Nathdwara, Tanjore painting. Raja Ravi Verma. Bengal School/Renaissance period, Six Limbs of Indian painting. A Brief Introduction New Trends in Modern Indian paintings. Some important painters and artist groups: JaminiRoy, Rabindranath Tagore, Gagandranath Tagore, Amrita Shregil, Calcultta Group, PAG ,Delhi Shilpa Chakra. Contemporary Indian Painters: Satish Gujral, M.F.Husain, K.S.Kulkarni, K.K.Habbar, N.S. Bendre, Ram Kumar, Arprna Cour, Anjolilla Menon, Anupam Sood, Nalani Malani, Arpita Singh, Gogi Sarojpal, Tayb Mehta, A.Ramchandran.
History of European Painting	Primitive cave painting. Greek painting. Roman painting. Early Christian Art.Byzantine Art. Romanesque painting. Gothic painting. Renaissance painting. Brief introduction of early 19 th century painting, (Neo-classicism,Romanticism,Realism.Pre-Raphaelites)Impressionism. Post-Impressionism, Symbolism,Fauvism. Cubism, Expressionism, Surrealism, Abstract Art.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – ECONOMICS</u>



Economics

Micro Economics:

- Consumer Theory or Behavior: Demand, Utility, Indifference Curve, Revealed Preference Theory, Consumer Surplus
- Production Theory: Production Function, Law of Variable Proportions, Returns to Scale, Cost Function, types and concepts
- Price and Output determination in Market: Perfect and Imperfect Competition (Monopoly, Price Discrimination, Monopolistic, Duopoly and Oligopoly models) General Equilibrium, Efficiency and Welfare: Equilibrium and efficiency under pure exchange and production; overall efficiency and welfare economics, externality

Macro Economics:

- National Income Accounting
- Income and Output Determination: Aggregate Demand and Aggregate Supply, Effective Demand Principle, Classical and Keynesian Theory

Money and Inflation:

- Demand and Supply of Money, Money Multiplier and High-Powered Money, Credit Creation, Role of Reserve Bank of India and Commercial Banks, Quantitative Theories of Money, Philip's Curve
- Monetary and Fiscal Policy of India and its role.

Consumption and Investment Function:

- Permanent, Relative and Life Cycle Hypothesis, determinants of business fixedinvestment; residential investment and inventory investment, Multiplier and Accelerator
- Open Economy Models: Mundell and Fleming Model (IS, LM and BP curve), Balance ofPayments, exchange rate determination, Purchasing Power Parity
- Economic Growth: Harrod-Domra Model, Solow Model

Statistical Methods in Economics:

- Mean, Mode, Median, Dispersion, Skewness, Quartile Deviation, Average Deviation, Standard Deviation
- Correlation
- Simple Regression Model Probability Distribution Sampling

Mathematical Methods in Economics:

- Sets and Vector
- Functions of one and several real variables Single and Multi-variable optimization
- Integration of functions
- Difference equations
- Determinants Matrix
- Linear Programming Probability
- Differential Equations

Indian Economy:

Overview of colonial economy:

- Macro Trends: National Income; population; occupational structure.
- Agriculture: Agrarian structure and land relations; agricultural markets and institutions credit, commerce and technology; trends in performance and productivity; famines. Railways and Industry: Railways; the de-industrialization debate; evolution of entrepreneurial and industrial structure; nature of industrialization in the interwar period; constraints to industrial breakthrough; labor relations.
- Economy and State in the Imperial Context
- The imperial priorities and the Indian economy; drain of wealth; international trade, capital.
- Flows and the colonial economy changes and continuities; government and fiscal policy.
- New Economic Policy:
- Public Economics: Public and Private Goods, Externalities, Budget, Deficits, Public Debt, Fiscal Federalism in India,
- Taxation: its economic effects; dead weight loss and distortion, efficiency and equity considerations, tax incidence, optimal taxation.
- International Trade Theories: Adam Smith, Ricardo, Heckscher-Ohlin model and New Trade Theories

UNIVERSITY ENTRANCE EXAMINATION [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT - EDUCATION



Education

- 1. Education -Meaning, Nature and scope of education, education as a science, education as a social process, factors of education. Aims of education Social, Vocational and Democratic. Functions of education General, National functions of education. Agencies of Education Formal, Informal and Non-formal. Relationship between school and society. Impact of society on Education, Impact of Education on Society, Duties of Society towards Education, Duties of Education towards Society. Education and Social Mobility, School as a sub social system.
- Philosophy of Education- Relationship between Philosophy & Education. Major Philosophies of Education- Naturalism; Idealism; Pragmatism. Educational Thinkers & their Contribution in developing Principles of Education- M. K. Gandhi, Tagore, John Dewey.
- 3. Sociology of Education- Meaning and Scope of Educational Sociology, Culture -Concept & Dimensions of Culture; Relationship between Culture & Education, Social Change- Concept of social change and Roles of Education for social change. Value Education and National Integration.
- 4. Psychology & Educational Psychology: Nature & Meaning of Psychology; Nature, Meaning and functions of Educational Psychology. Growth and Development-Concept, Stages of development, Role of hereditary and environment in the development of individual. Learning & Motivation- Concept of learning & Motivation; Factors of influencing learning – Personal & Environmental, Techniques of enhancing learner's motivation; S-R Theory of Learning (Thorndike), Classical conditioning (Pavlov), Operant Conditioning theory of learning (Skinner) and Gestalt theory of Learning (Kohler et al), Cognitive theory (Piaget), Social development theory (Vygotsky), Behaviorism, Constructivism and Eclectic approach. Intelligence- Nature & Meaning, Measurement of Intelligence -Concept of I.Q, Verbal, Nonverbal& Performance tests; Two-factor Theory (Spearman); Multifactor Theory (Thurston); Structure of intellect (Guilford), Multiple Intelligence (Gardner). Personality- Meaning & nature and Development of Personality - biological & socio-culture Determinants- a brief overview of Trait-theory of Personality (Allport), Factor-theory of Personality (Cattell), Psycho analytical theory of Personality (Freud), Maslow's hierarchy of needs and their educational implication. Memory and Forgetting.
- 5. **Experimental Psychology-**Meaning, types, Methods, Scope, Characteristics. Reporting of a Problem- Selection, Objectives, Hypothesis Variables.
- 6. **Indian Education-** Vedic, Medieval and British Period, Macaulay's Minutes, Wood Dispatch, Indian Education Commission-1882, Sadler Commission, Radha Krishnan Commission, Mudaliar Commission, Kothari Commission.
- 7. **Current issues related to Indian Education-** Universalization of Elementary Education with special reference to Sarva Siksha Abhiyan; Education of children with special needs, Women's Education, Education of Weaker Sections, National Policy on Education-1986 and Acharya Rammurti Commission, Right to Education Act 2009.
- 8. **Curriculum-** Meaning, Types, Principles of Curriculum Construction, co-curricular activities.

- 9.Teaching Process: Concept of teaching; Characteristics & Functions of teaching; Principles & Maxims of teaching. Techniques of Teacher-Preparation: Microteaching - Nature & Meaning, Main proposition, Phases, Steps, Merits & Limitations; Simulated - Nature & Meaning, Teaching Role Play, Advantages & Limitations; Programmed learning- Meaning & Characteristics, Learning -Principles & Development of the Programmed instructions. - Types. - Merits & Demerits.
- Taxonomy of Educational Objectives & Lesson Planning: Bloom's Taxonomy of instructional objectives - Cognitive, Affective & Psychomotor domains; Meaning & Significance of lesson planning, Preparation of Lesson planning, Lesson plan in constructivist approach Methods of teaching: Play Way Method; Project Method; Discussion method, Heuristic Method, Activity method, Cooperative learning.
- 11. **Educational Management-**Meaning, Nature, Scope, Characteristics, Institutional Planning, Finance Management of the Institution, School Supervision and Inspection, School Infrastructure, Time table and discipline, Guidance and Counselling Programme in the Schools, Role of Principal.
- 12. **ICT:** Meaning, Basics in ICT, Multimedia approach, Use of ICT in teaching learning process.
- 13. **Measurement-** Meaning, types, Tools for measurement, and construction and standardization of tests.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – ENGLISH</u>



English

- 1. History of English and Indian Literatures:
- Major Authors
- Texts
- Literary Movements
- 2. Indian Writing in English:
- Major Authors
- Texts including English translations
- History
- 3. Literary Terms:
- Allegory
- Ballad
- Blank Verse
- Comedy
- Dissociation of Sensibility
- Dramatic Monologue
- Elegy
- Enlightenment
- Epic
- Fancy and Imagination
- Imitation
- Intentional Fallacy
- Motif
- Ode
- Onomatopoeia
- Paradox
- Plot
- Figures of Speech
- Satire
- Soliloquy
- Sonnet
- Tragedy
- Wit, (etc.)
- 4. Literary Genres:
- Fiction and Non-fiction
- Life writings
- Diary
- Drama

- Essay
- Novel
- Poetry
- Prose
- Short Story
- Epic
- Travelogue
- Science Fiction, (etc.)
- 5. Comparative Literature and Translations studies:
- Concepts
- Theories
- Texts
- 6. Literary Criticism and Theory:
- Classical and Modern Criticism
- Marxism
- Structuralism and Post-structuralism
- Feminism
- Eco-criticism
- Post Colonialism
- 7. Awareness of Current Literary Trends, Events, Awards etc.

UNIVERSITY ENTRANCE EXAMINATION [PG- 2025-26]

SYLLABUS FOR PG ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT –</u>

- 1. M.SC. (ENVIRONMENTAL SCIENCE)
- 2. <u>PG DIPLOMA ENVIRONMENT MANAGEMENT</u>
- 3. <u>ADVANCE PG DIPLOMA IN ENVIRONMENTAL</u> <u>ECONOMICS</u>



Unit I: Understanding of Environment

- (i) Definition, scope and importance of Environment, Multidisciplinary nature of Environmental Sciences
- (ii) Understanding of Ecology and Ecosystems, Ecological Succession and Ecosystem Services
- (iii) Energy flow in an Ecosystem; Food Chain, Food Web and Ecological Pyramids
- (iv) Structure, Component and Importance of various ecosystem types { Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)}
- (v) Human interaction with its Environment

Unit II: Natural Resources and Biodiversity Conservation

- (i) Basic concept, types and values of Natural Resources
- (ii) Land resources and land use change; Land degradation, soil erosion and desertification
- (iii) Water resources: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water resources (international & national level).
- (iv) Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs
- (v) Resource Consumption, Restoration and Conservation Practices
- (vi) Sustainable Development: Scope and importance; Concept of sustainability
- (vii)Deforestation: Causes and impacts due to mining, dam building on environment forests, biodiversity and tribal populations

Unit III: Biodiversity and its Conservation

- (i) Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
- (ii) India as a mega---biodiversity nation; Endangered and endemic species of India
- (iii) Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions
- (iv) Conservation of biodiversity: In---situ and Ex---situ conservation

(v) Biodiversity and its linkages with culture, health and people

Unit IV: Global Environmental issues

- (i) Environmental Pollution (air, water, noise, soil)
- (ii) Climate Change, Green House Effect and Global Warming
- (iii) Radiations, Nuclear and Technological Hazards and human health risks
- (iv) Population Growth, Disaster, Pandemic and Human Health Risks
- (v) Solid waste management: Control measures of urban and industrial waste
- (vi) Biomedical and E-waste management

Unit V: Environment and Society

- (i) Origin and Evolution of Human; Social, Cultural and Religious Structure and values of Environment
- (ii) Traditional Wisdom, Indigenous/traditional Communities and Livelihood Security
- (iii) Industrial Society, Modernization and Adaptations to Natural and Anthropogenic variations
- (iv) Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- (v)Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- (vi), Environmental Ethics and Legislations
- (vii) Connecting human society with conservation and management of water, energy, biodiversity, culture and heritage and waste management

Unit VI: Environment Legislations, polices and related issues

- (i) Environment Laws: Environment Protection Act 1986; Air (Prevention & Control of Pollution) Act 1981; Water (Prevention and control of Pollution) Act 1974; Wildlife Protection Act 1972; Forest Conservation Act 1980.
- (ii) Environmental policies: National Environmental Policy, Disaster Management Policy, Forest Policy. Water Policy, Agriculture Policy
- (iii) International agreements and conventions: Montreal protocol, Kyoto protocol and Convention on Biological Diversity (CBD), Paris Agreement, Earth Summit, UNFCC, Ramsar
- (iv) Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.
- (v) Human population growth: Impacts on environment, human health and welfare.
- (vi) Disasters and their management: floods, earthquake, cyclones and landslides, cloud burst, volcanic eruptions, forest fire etx
- (vii) Resettlement and rehabilitation of project affected persons
- (viii) Environmental communication and public awareness
UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – FORESTRÝ</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Forestry

Unit I: Importance of Agriculture/Forestry/ Livestock in national economy. Important rural development programs in India. Organizational set up of Agricultural/Forestry Research, education and extension in India.

Unit II: Forestimportance, types, classification, ecosystem, bioticandabioticcomponents, ecological succession and climax, nurseryand plantingtechnique, social forestry, farm forestry, urban forestry, communityforestry, forest management, silvicultural practices, forest mensuration, natural regeneration, man-made plantations, shifting cultivation, taungya, dendrology, hardwoods, softwoods, pulp woods, fuel woods, multipurpose tree species, wasteland management. Agroforestry - importance and land use systems, forest soils, classification and conservation, watershed management, forestgenetics and biotechnology and tree improvement, tree seed technology, rangelands, wildlifeimportance, abuse, depletion, management, major and minor forest products including medicinal and aromatic plants, forest inventory, vield regulations, forest depletionanddegradation-

importanceandimpactonenvironment,globalwarming,roleof forestsandtreesin climatemitigation,biomass and carbon sequestration, carbon credits, carbon financing. Elements of statistics.

Unit III: Major insect pests, diseases and plant parasitic nematodesof forest crops and their management. Aaerial photo interpretation and remotesensing, Remote sensing and its application in Forestry, SIS, GIS and GPS- basic features and uses in Forestry. Indianforestpolicies, Indianforest act, forestengineering, foresteconomics, jointforest management and tribology.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – GEOLOGY</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Geology

UNIT-I

Physical Geology:

Introduction to Geology and its scope, Earth and solar system: origin, size, shape, mass, density and its atmosphere. A brief account of various theories regarding the origin andage of the Earth. Brief idea of interior of earth and its composition. Weathering and erosion: factors, types and their effects. Earthquakes: nature of seismic waves, their intensity and magnitude scale; Origin of earthquake. Volcanoes: types, products and causes of volcanism.

Geomorphology:

Basic principles of Geomorphology, geomorphological cycles, weathering and erosion; geomorphic mapping- tools and techniques. Epigene/ exogenic processes: degradation and aggradation. Hypogene/endogenic processes; Diastrophism and volcanism, Extraterrestrial processes; Geological work of wind, glacier, river, underground water andocean.

Geodynamics:

Earth as a dynamic system. Elementary idea of continental drift, sea-floor spreading andmid-oceanic ridges. Paleomagnetism and its application. Plate Tectonics: the concept, plate margins, orogeny, deep sea trenches, island arcs and volcanic arcs.

Environmental Geology:

Earth and its spheres: atmosphere, hydrosphere, lithosphere, biosphere and Man; Earth Material. Energy budget: Solar radiation. Global environments: coastal, riverine, desertic,tropical, cold, polar. Concept of global warming and climate change. Geological hazards: Earthquakes, volcanism, landslides, avalanches, floods, droughts; Hazard mitigation.

Resource Management: Energy resources (Conventional and non-conventional), watershed management, land use planning, management of water resources, landreclamation.

Structural Geology:

Introduction to Structural Geology; contours, topographic and geological maps; Elementary idea of bed, dip and strike; Outcrop, effects of various structures on outcrop. Clinometer/Brunton compass and its use. Elementary idea of types of deformation; Folds: nomenclature and types of folds. Faults: nomenclature, geometrical and genetic classifications, normal, thrust and slip faults. Definition, kinds and significance of joints and unconformity.

Hydrology:

Definition of hydrogeology, Hydrological cycle. Hydrological parameters -Precipitation, evaporation, transpiration and infiltration. Origin of groundwater; Vertical distribution of groundwater. Types of aquifers;

Water bearing properties of rocks - Porosity and Permeability; specific yield, specific retention. Surface and subsurface geophysical and geological methods of ground water exploration. Groundwater provinces of India.

Physical Geography

Definition and Scope, Components of Earth System. Atmosphere – Heat Balance, Global Circulation Pattern, Tropical Cyclones, Monsoon, Climatic Classification (Koppen).Lithosphere – Internal Structure of Earth based on Seismic Evidence, Plate Tectonics andits Associated Features. Fluvial Cycle of Erosion – Davis and Penck. Hydrosphere – Hydrological Cycle, Ocean Bottom Relief Features, Tides and Currents.

Fundamentals of Remote sensing & GIS:

Remote sensing systems; remote sensing sensors; signatures of rocks, minerals and soils. Application of remote sensing in geoscience and geomorphological studies. Types of Indian and Foreign Remote Sensing Satellites, Digital image processing; fundamental stepsin image processing; elements of pattern recognition and image classification.

Introduction to Geographic Information System (GIS); components of GIS; productgeneration in GIS; tools for map analysis; integration of GIS with remote sensing.

UNIT-II

Crystallography:

Crystals and their characters, form, face, edge, solid angle; Interfacial angle and their measurements; Crystallographic axes and angles. Crystal parameters, Weiss and

Miller system of notations. Symmetry elements and description of normal class of Isometric, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

Mineralogy:

Introduction to Mineralogy, Definition and characters of mineral. Physical properties of minerals. Chemical composition and diagnostic physical properties of minerals such as: Quartz, Orthoclase, Microcline, Hypersthene, Hornblende, Garnet, Muscovite, Biotite, Chlorite, Olivine, Epidote, Calcite. Polarizing microscope, its parts and functioning; Ordinary and polarized lights; Common optical properties of some common rock forming minerals (Quartz, Orthoclase, Microcline, Olivine, Augite, Hornblende, Muscovite, Biotite, Garnet, Calcite).

Geochemistry:

Introduction to geochemistry: basic knowledge about crystal chemistry. Types of chemical bonds, coordination number; Colloids in geological systems, ion exchanges and geological evidence for earlier colloids. Elementary idea of Periodic Table. : Cosmic abundance of elements; Composition of the planets and meteorites; geochemical evolution of the earth and geochemical cycles. Gold Schmidt's geochemical classification of elements; Distribution of major, minor and trace elements in igneous, metamorphic and sedimentary rocks. Elements of geochemical thermodynamics; Isomorphism and polymorphism.

Petrology:

Igneous Petrology: Magma: definition, composition, types and origin; Forms of igneousrocks; textures of igneous rocks. Reaction principle; Differentiation and Assimilation;Crystallization of unit-component and bi-component (mix-crystals) systems; Bowen's reaction series. Mineralogical and chemical classification of igneous rocks. Detailed petrographic description of Granite, Granodiorite, Rhyolite, Syenite, Phonolite, Diorite, Gabbro. Processes of formation of sedimentary rocks; Classification, textures and structures of sedimentary rocks. Petrographic details of important siliciclastic and carbonate rocks such as - conglomerate, breccia, sandstone, greywacke, shale, lime stones. Process and products of metamorphism; Type of

metamorphism. Factors, zonesand grades of metamorphism. Textures and structures of metamorphic rocks. Classification of metamorphic rocks. Petrographic details of some important metamorphicrocks such as - slate, schists, gneiss, quartzite, marble.

Economic Geology:

Concept of ore and ore deposits, ore minerals and gangue minerals; Tenor of ores;Metallic and non- metallic ore minerals; Strategic, Critical and essential minerals. Processes of formation of ore deposits; Magmatic, contact metasomatic, hydrothermal,sedimentation. Study of important metallic (Cu, Pb, Zn Mn, Fe, Au, Al) and non-metallic(industrial) minerals (gypsum, magnesite, mica). Distribution of coal and petroleum in India.

Mineral exploration:

Elementary idea of geological, geochemical and geophysical prospecting. Elementary idea of mining and environmental considerations for mining.

Stratigraphy:

Definition, Principle of stratigraphy; Geological Time Scale and stratigraphic classification;Physiographic division of India. Study of following Precambrian succession: Dharwar, Cuddapha, Vindhyan and Delhi Supergroups; Brief idea of Palaeozoic succession of northwestern Himalaya; Triassic of Spiti; Mesozoic type secession of Kutch and Rajasthan;Cretaceous of Tiruchirapalli. Study of following type localities: Gondwana and Deccan Trap. Paleogene- Neogene sequences of northwest Himalaya and Assam.

Paleontology:

Definition, Fossils: definition, characters, binomial nomenclature in taxonomy, mode of preservation, condition of fossilization and significance of fossils. Morphology and geological distribution of brachiopods, pelecypods, cephalopods. Morphology and geological distribution of trilobite, echinoidea. Evolutionary history of horse. Morphology, distribution and significance of Gondwana flora. UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – HIMALAYAN</u> <u>AQUATIC BIODIVERSITY</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Syllabus for PG Entrance Examination

UNIT 1: Life and Animal Diversity

- Systematics and Classification of Animals
- o Animal distribution, taxonomy, and evolutionary relationships
- o Classical and molecular phylogenetics
- Invertebrate Zoology (Phylum-Wise Study)
- Protozoa: Classification, biodiversity, life cycles (*Plasmodium, Entamoeba, Trypanosoma,* etc.)
- **Porifera**: Canal system, spicules (*Sycon*)
- **Coelenterata**: Polymorphism, coral reefs (*Obelia*)
- Helminths: Life cycles and pathogenicity (Fasciola, Schistosoma, etc.)
- Annelida: Metamerism, larval forms (Pheretima)
- **Arthropoda**: General study (*Periplaneta*)
- **Mollusca**: Torsion/detorsion, respiration (*Pila*)
- Echinodermata: Larval forms, Aristotle's lantern (Asterias)
- Hemichordata: Basic characters and classification

UNIT 2: Ecology and Environmental Biology

- Ecological Principles: Niches, species diversity, food chains/webs, biogeochemical cycles
- Population Ecology: Interactions, growth, birth/death rates, age structure
- Ecosystems: Types, dynamics, productivity, energy flow, succession
- Biodiversity & Conservation: Hotspots, Red Data Book, afforestation, restoration
- Global Environmental Issues: Climate change, ozone depletion, biomagnification
- Phyto-geography: Indian ecological zones, flora endemism, climate variation

UNIT 3: Natural Resources and Their Management

- Natural Resources: Types, values, factors affecting distribution and depletion
- Forest & Wildlife: Types, exploitation impact, management, conflicts
- Water Resources: Status, usage, IWRM, policies, governance

Energy Resources: Renewable vs. non-renewable, crisis, sustainability

UNIT 4: Environmental Pollution, Monitoring and Management

- Air, Water, Soil and Noise Pollution: Standards, pollutants, Impacts
- Monitoring Concepts: Goals, ecological assessment, planning
- Programs: GEMS, NAMP, NWMP
- **Bioindicators**: Lichens, algae as pollution indicators
- Pollution Control: Techniques, cleaner fuels, STPs, ETPs, tree plantations

UNIT 5: Fisheries and Aquaculture Management

- Fisheries: Indian freshwater systems, gears, production
- Aquaculture: Finfish, crustaceans, hatchery, nutrition, biotechnology
- Aquarium Industry: Species care, maintenance, budgeting
- Fish Farming: Water quality, algal control, transport techniques

UNIT 6: Microbial Ecology

- Microbial Ecology: Interactions, nutrient cycles, bioremediation
- Techniques: Culture methods, microscopy, PCR, NGS
- Taxonomy & Diversity: Bacteria, Archaea, viruses, fungi, protozoa
- Cell Biology: Structure of prokaryotes, cell walls, motility
- Microbial Growth & Control: Growth curve, biofilms, sterilization

UNIT 7: Plant Systematics, Physiology & Economic Botany

- Systematics: Botanical nomenclature, APG system, DNA barcoding
- Anatomy: Root, stem, leaf, floral organs, meristems, secondary growth
- Physiology: Photosynthesis (C3, C4, CAM), respiration, nitrogen metabolism, water transport
- Plant Hormones: Auxin, GA, ABA, ethylene, cytokinin, etc.
- Economic Botany: Cereals, pulses, fiber, oils, dyes, GM crops, algae, fungi, medicinal plants

विश्वविद्यालय प्रवेश परीक्षा (यूईटी) (पी0जी0 2025-26)

विश्वविद्यालय प्रवेश परीक्षा हेतु पाठ्यक्रम





<u>हिंदी</u>

- 1. हिंदी साहित्य का काल विभाजन और नामकरण, प्रमुख इतिहास ग्रंथ।
- हिंदी साहित्य का इतिहास (आदिकाल से आधुनिक काल तक) : प्रमुख रचनाकार, रचनाएं और प्रवृत्तियां।
- हिंदी साहित्य की विविध गद्य विधाएं : उपन्यास, कहानी, नाटक, निबंध, आलोचना एवं अन्य गद्य विधाएं।
- प्रयोजनमूलक हिंदी के विविध रूप : जनसंचार माध्यम, यूनिकोड, कार्यालयी हिंदी एवं अनुवाद, हिंदी पत्रकारिता का संक्षिप्त इतिहास।
- भारतीय काव्यशास्त्र : शब्द शक्ति, काव्य हेतु, काव्य प्रयोजन एवं काव्य लक्षण, रस, छंद, अलंकार।
- हिंदी भाषा : हिंदी का नामकरण, हिंदी का विकास, राजभाषा और राष्ट्रभाषा, देवनागरी लिपि।
- 7. हिंदी व्याकरण : ध्वनि व्यवस्था, शब्द, संधि, समास, काल, वाक्य विन्यास।
- 8. लोक साहित्य एवं जनपदीय साहित्य : गढ़वाली एवं कुमाउंनी लोक साहित्य।

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

SUBJECT -

1. <u>M.A. HOME SCIENCE</u> 2. <u>M.SC. HOME SCIENCE (FOOD & NUTRITION)</u> 3. <u>PG DIPLOMA (NUTRITION AND DIETETICS</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Home Science

FOOD AND NUTRITION:

- Fundamentals of food and Nutrition, food groups, methods of cooking, food safety and preservation, Food adulteration.
- Elementary knowledge of General, Organic and In-organic Chemistry and Bio-chemistry.
- Concept of Nutrition, balanced diet, nutrients: sources & deficiency diseases, physiology of human body, Human Energy, B.M.R. and community nutrition, RDA, nutrition during life cycle
- Scientific basis for planning and preparation of therapeutic Diets and Diets for various physiological conditions.

HOME MANAGEMENT:

- Home Management Concept & process of Home Management, Resources and their management, Decision making, Time, Energy & Money Management, Work simplification, savings, Household budget.
- Concept of interior and exterior decorations of House, elements and principles of art and design, Housing, Household Equipment, Consumer protection and Markets.

CLOTHING AND TEXTILE:

- History of textiles in India,
- Textile fibres: manufacturing, characteristics, properties and classification
- Selection of fabrics for various purposes. Family clothing, its construction and storage.
- Fabric construction and fabric finishes, Dyeing and Printing, laundering of fabrics.

CHILD DEVELOPMENT:

- Concept of Growth and Development, Principles of development, areas of development
- Developmental Tasks, factors affecting development, stages of development
- Mortality and morbidity of children, immunization, child rearing methods, methods of child study.
- Adjustment of children, marriage and family establishment, functions of family, parent's education and mental health.

EXTENTION EDUCATION:

- Role of Audio-Visual aids in the teaching process
- Community development programmes its objective and history in relation to rural development.
- Various National and International programmes for the upliftment of women and children and society at large.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – HORTICULTURE</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Horticulture

UNIT-I: Importance of Agriculture in national economy; basic principles of crop production; cultivation of rice, wheat, chickpea, pigeon-pea, sugarcane, groundnut, tomato and mango. Major soils of India, role of NPK and their deficiency symptoms. Structure and function of cell organelles; mitosis and meiosis; Mendelian genetics; elementary knowledge of photosynthesis; respiration, and transpiration; structure and functions of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India; Elements of statistics.

UNIT-II: Layout and establishment of orchards; pruning and training; propagation, climatic requirement and cultivation of fruits like mango, banana, citrus, guava, grape, pineapple, papaya, apple, pear, peach and plum; cultivation of plantation crops like coconut and cashew nut and spices like black pepper, coriander, turmeric, important physiological disorders; major vegetable crops of tropical, subtropical and temperate regions 'like cole crops (cauliflower, cabbage and knol khol), cucurbits (pumpkin, bottle gourd, bitter gourd, luffa, muskmelon and watermelon, cucumber), root crops (radish, tapioca sweet potato and potato), leafy vegetables (fenugreek and spinach); solanaceous crops (tomato, chillies and brinjal); techniques for raising the nursery; nutritive value of fruits and vegetables and their role in human nutrition; basic physiology of ripening in fruits and vegetables and their products; type of fruits and vegetable products and control of fungal and bacterial diseases; major floricultural crops grown in India for commercial purposes like rose, carnation, chrysanthemum, marigold, tuberose, gladiolus, orchids; establishment and maintenance of lawns, trees, shrubs, creepers, hedges and annuals; type of gardens, methods of crop improvement; male sterility and incompatibility; pure line and pedigree selection; backcross, mass selection; heterosis; plant nutrients, deficiency symptoms of nutrients, manures and fertilisers, systems of irrigation, management of important pests and diseases of fruits and vegetables.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION

SESSION 2025-26

<u>SUBJECT –</u>

- 1. <u>M.A. JOURNALISM AND MASS</u> <u>COMMUNICATION</u>
- 2. <u>PG DIPLOMA IN JOURNALISM AND MASS</u> <u>COMMUNICATION</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Journalism and Mass Communication

- 1. General Awareness and Current Affairs
- 2. Fundamentals of Communication
- 3. Advertising and Public Relations
- 4. History of Mass Media
- 5. Information and Communication Technologies and their application in Media Industry
- 6. Mass Media and Society.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – LL.M



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

H.N.B. Garhwal University, Srinagar, Garhwal

School of Law

(LL.B. Three Years (6 Semesters) Course)

Applicable from Academic Session 2022-23

Important Instructions

- 1. The admission to the above-mentioned Course shall be made in accordance with the guidelines laid down by the Bar Council of India (as amended from time to time) and the Ordinances of the University (as amended from time to time).
- 2. The examination shall be conducted to the above-mentioned courses as per the rules/guidelines laid down in the ordinances of the University.
- 3. Each Theory Paper and Practical Paper shall be of four (4) credits.
- 4. There will be 70 marks for written examination and 30 marks for the sessional work in each paper.
- 5. The division of marks of the practical paper as coming under this syllabus shall be as per the guidelines prescribed by the Bar Council of India.
- 6. Each theory paper will be divided in two Parts i.e. Part A and Part B. There will be Seven (07) Short Answer Type questions in Part A out of which a student will have to attempt five questions and each question will carry five (05) marks. In Part B there will be Six (06) Long Answer type questions out of which a student will have to attempt three (03) questions.
- 7. The duration of theory examination shall be Two (02) hours.
- 8. The total number of credits for LL.B. Three Years (Six Semesters) Course shall be 120.
- 9. The curriculum of study for the LL.B. Degree shall be spread over three academic years and shall be divided into six semesters for the examination purposes, called as First, Second, Third, Fourth, Fifth and Sixth Semesters.

School/Department of Law H.N.B. Garhwal University, Srinagar, Uttarakhand Revised Course Structure -LL.B. 3 Years (6 Semesters) Course (Applicable from Academic session 2022-23) First

(Ist) Semester

Sl.No.	Name of the Paper	Paper Code	Maximum Marks	Credits
1.	Constitutional Law-I- DSC	101111	100	4
2.	Law of Contract (Contract-I)- DSC	101112	100	4
3.	Law of Crimes-I (Bhartiya Nyaya Sanhitha 2023)- DSC	101113	100	4
4.	Law of Torts, M V Act and Consumer Protection Laws- DSC	101114	100	4
5.	English- DSC	101115	100	4
Total Credits				20

Second (2nd) Semester

Sl. No.	Name of the Paper	Paper Code	Maximum	Credits
			Marks	
1.	Constitutional Law -II- DSC	102111	100	4
2.	Law of Contract-II (Special Contract)- DSC	102112	100	4
3.	Family Law-I – DSC	102113	100	4
4.	Public International Law-DSC	102114	100	4
5.	Company Law- DSC	102115	100	4
Total Credits				20

Third (3rd) Semester

Sl.No.	Name of the Paper	Paper	Maximum	Credits
		Code	Marks	
1.	Jurisprudence- DSC	103111	100	4
2.	Property Law (Transfer of Property Act and	103112	100	4
	Easement Act)- DSC			
3.	Family Law-II- DSC	103113	100	4
4.	Land Laws Including Tenure and Tenancy	103411	100	4
	System- DSE; or			
5.	Information Technology Law- DSE; or	103412	100	4
6.	Aviation Law-DSE	103413	100	4
7.	Professional Ethics and Professional	103611	100	4
	Accounting System - DSC- P			
Total Credits				20

Fourth (4th) Semester

Sl. No.	Name of the Paper	Paper	Maximum	Credits
		Code	Marks	
1.	Administrative Law- DSC	104111	100	4
2.	Interpretation of Statutes & Principles of	104112	100	4
	Legislation- DSC			
3.	Civil Procedure Code and Limitation Act- DSC	104113	100	4
4.	Banking Law-DSE; or	104411	100	4
5.	Competition Law- DSE; or	104412	100	4
6.	Insurance Law-DSE	104413	100	4
7.	Alternative Dispute Resolution-Arbitration,	104811	100	4
	Mediation and Conciliation (Clinical/Practical			
	Paper) DSE-P			
Total Credits			20	

Fifth (5th) Semester

Sl. No.	Name of the Paper	Paper	Maximum	Credits
		Code	Marks	
1.	Law of Evidence (Bhartiya Sakshya Adhiniyam,	105111	100	4
	2023) - DSC			
2.	Law of Crimes - II (The Bharatiya Nagarik	105112	100	4
	Suraksha Sanhita,2023) -			
	DSC			
3.	Labour Law and Industrial Law-I - DSC	105113	100	4
4.	Offences Against Children and Juvenile	105411	100	4
	Offences- DSE; or			
5.	Women and Law- DSE; or	105412	100	4
6.	Human Rights Law and Practice- DSE	105413	100	
7.	Drafting, Pleading and Conveyancing	105611	100	4
	(Clinical/Practical Paper)- DSC-P			
Total Credits				20

Sixth (6th) Semester

Sl. No.	Name of the Paper	Paper Code	Maximum	Credits
			Marks	
1.	Labour Law and Industrial Law-II- DSC	106111	100	4
2.	Environmental Law- DSC	106112	100	4
3.	Principles of Taxation- DSC	106113	100	4
4.	Intellectual Property Rights Law- DSE; or	106411	100	4
5.	Health Care Laws-DSE; or	106412	100	4
6.	Private International Law-DSE	106413	100	4
7.	Moot Court Exercise and Internship (Clinical/Practical)- DSC- P	106811	100	4
Total Credits			20	

LL.B. Semester-I Code: 101111 Credit: 4 Paper I

Constitutional Law-I

Objectives of the Course

- 1. The basic understanding of the Constitutional Principles and working of the fundamental rights and its relationship with the Directive Principles of State Policy.
- 2. To learn how various interpretations of Constitution are possible and why significant interrelation was adopted in a particular situation.
- 3. To know the genesis, nature and special features and beware of the social, political and economic influence of the constitution.
- 4. To know the importance of the fundamental rights in real time in the administration of justice and governance of the country.

Outcomes of the Course

Students will be able to:

- 1. Understand the salient features of the Constitution and fundamental concepts of Constitutional Law.
- 2. Critically assess the role and importance of fundamental rights in the governance of the country.
- 3. Put in practice acquired knowledge into their research on contemporary Constitutional law issues.

Course Content

Unit-I: Introduction

Sources of the Indian Constitution Preamble of the Indian Constitution Nature of the Indian Constitution Salient Features of the Indian Constitution Rule of Law Separation of Power Citizenship

Unit-II: Fundamental Rights

Definition of State for enforcement of Fundamental Rights- Article 12 Justifiability of Fundamental Rights Article 13- Doctrine of Eclipse, Severability, waiver, distinction between Pre-Constitutional and Post-Constitutional Law Article 14- Right to Equality: Doctrine of Reasonable Classification and Principle of Arbitrariness Article 15- Prohibition of Discrimination on grounds of religion, race, caste, sex or place of birth

Article 16- Equality of Opportunity in matters of Public Employment

Unit-III: Fundamental Rights

Article 17- Abolition of Untouchability Article 18- Abolition of Titles Articles (19) (1) (a) to Article (19) (1) (g)- Right to Freedoms Article 20- Protection in respect of conviction for offences Article 21- Right to Life and Personal Liberty Article 21-A- Right to Education

Unit- IV: Fundamental Rights

Article 22- Protection against Arrest and Detention in certain Cases Article 23 & 24- Protection and Exploitation Articles 25 to Article 28- Right to Freedom of Religion Article 29 & 30- Cultural and Educational Rights Article 32 to Article 32- Right to Constitutional Remedies Public Interest Litigation

Reference Books

D.D. Basu, Introduction to Constitution of India, Lexis Nexis, 2021H.M. Seervai, Constitutional Law of India, Universal Law Publishing Co., 2021M.P. Jain, Indian Constitutional Law, Lexis Nexis, 2018

Text Books

V.N. Shukla, Constitution of India, Eastern Book Company, 2021J.N. Pandey, Constitutional Law of India, Central Law Agency, 2020Narender Kumar, Constitutional Law of India, Allahabad Law Agency, 2021B.K. Sharma, Introduction to Constitution of India, PHI Learning, 2019

LL.B. Semester-I Code: 101112 Credit: 4 M.M.: 100 Theory: 70 Sessional: 30

Law of Contract (Contract-I)

Objectives of the Course

- 1. To equip the students with fundamental knowledge of Contract Law.
- 2. This course is intended to acquaint the students with the conceptual and theoretical aspects of various general contractual principles.
- 3. To analyze the various definitions of 'Contract' in order to identify the best approach of understanding the subject.
- 4. To develop research, analysis, reasoning and presentation skills in students.
- 5. To enable the students to apply the knowledge of contract law in legal practice.

Outcomes of the Course

Students will be able to:

- 1. Understand the fundamentals of contract law with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of contract law with comparative analysis.
- 3. Research, analyze, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: Formation of Contract

Contract: definitions, elements and kinds

Proposal and Acceptance- their various forms, essential elements, communication and revocation - proposal and invitations for proposal-floating offers-tenders, Agreement

Consideration - its need, meaning, kinds, essential elements - nudum pactum -privity of contract and of consideration- its exceptions- adequacy of consideration-present, past and adequate consideration- unlawful consideration and its effects

Unit-II: Capacity to Contract and Void Agreements

Capacity to enter into a contract

Meaning- incapacity arising out of status and mental defect-minor's agreements-definition of 'minor, Nature of Minor's Contract

Free consent- Need and definitions, Factors vitiating free consent –Coercion, Undue influence, Fraud, Misrepresentation, Mistake

Paper II

Legality of Objects and Consideration

Void Agreement- Agreements without consideration, Agreements in restraint of marriage, Agreements in restraint of trade - its exceptions- sale of goodwill, Agreements in restraint of legal proceedings- its exceptions, Uncertain agreements, Wagering agreement -its exception

Unit-III: Discharge and Performance of Contract, Quasi-Contract, Discharge

By performance- conditions of valid tender of performance- How? By whom? Where? When? In what manner? Performance of reciprocal promises-time as essence of contract. By breach - anticipatory breach and present breach.

Impossibility of performance - Specific grounds of Frustration, Theories of frustration, Effect of frustration, Frustration and restitution. By period of limitation

By agreement- Rescission and Alteration

Unit-IV: Quasi-Contract and Remedies

Quasi-Contracts or certain relations resembling those created by contract

Remedies available under the Indian Contract Act, 1972- Meaning, nature, remoteness etc, Quantum meruit Remedies available under the Specific Relief Act- Specific Performance of Contract- What contracts can be specifically performed and what not Injunction- when granted and when refused-Why?, Kinds of Injunction

Text Books

Indian Contract Act, 1872 (Bare Act) Indian Contract Act - Pollock and Mulla, Lexis Nexis, 2014 Law of Contract & Specific Relief - Avtar Singh, EBC, Reprinted with Supplement, 2021 संविदा विवि एिं विवलिद स्टिअिटुतोष अवविवियम – एक परिचय by Avtar Singh, EBC, Reprint 2020 Samvidha Vidhi (Hindi) - S. K. Kapoor, Central Law Agency,2019 Law of Contract- Kailash Rai, Central Law Publisher, 2014 Beatson, J., Anson's Law of Contract, Oxford University Press, 2020 Bhadbade, Nilima, Mulla Indian Contract and Specific Relief Acts, Vol. 1 & 2, Butterworths, LexisNexis Butterworths, 2013

Reference Books

Law of Contract – Anson, LexisNexis Butterworths, 2017 R. K. Abichandani, (ed.), Pollock and Mulla on the Indian Contract and the Specific Relief Act., N.M. Tripathi, Bombay, 1994 Mc Kendrick, Ewan, Contract Law, Text, Cases and Materials, Oxford University Press, Ninth Edition, 2020

Paper-III

LL.B. Semester-I

Code-101113

Credit-4

M.M:100

Theory:70

Sessional:30

Law of crimes-I (Bhartiya Nyaya Sanhitha2023)

Course Objective

- 1. To provide a comprehensive understanding of the Bharatiya Nyaya Sanhita, 2023.
- 2. To analyse the fundamental principles and concepts of criminal laws of India.
- 3. To develop skills for interpreting and applying provisions of the Bharatiya Nyaya Sanhita, 2023.
- 4. To critically evaluate the reforms and updates in the Bharatiya Nyaya Sanhita, 2023.
- 5. To enable the students to apply the knowledge in legal practice.

Learning outcomes

Students will be able to:

- 1. Understand the key provisions and principles of the B.N.S.2023
- 2. Apply the legal provisions to hypothetical and real-world scenario.
- 3. Analyse case laws and judicial interpretations related to B.NS.
- 4. Critically assess the effectiveness of 2023 reforms in BNS.

Outline of the course

Unit: I

Introduction

- Crime- meaning, elements and stages of Crime.
- Principles of criminal liability -actus reus and Mens rea and other Maxims.
- Preliminary (Sec. 1) and various definitions Sec. 2(1) to (39),Punishments including community services(Sec. 4 to 13),General explanations and expressions(Sec. 3)common intentionSec. 3(5), Principle of joint and constructive liability,Repeal and saving clause(Sec. 358)
- General exceptions- Mistake of fact(Sec. 14, 17), Judicial Act(Sec. 15, 16), accident(Sec. 18), act done without criminal intention and to prevent more harm(Sec.19), act of a child(Sec. 20, 21), act of person of unsound mind(Sec.22), act under intoxication(Sec.23, 24), acts with consent(Sec.25 to 28), trivial acts(Sec.33), Right of private defence of body and property(Sec.34 to 44).
- Abetment(Sec. 45 to 60), criminal conspiracy(Sec. 61), attempt to commit offences(Sec. 62).

Unit: II

• Offences against women and children:

Rape(Sec. 63 to 66), Marital rape(Sec. 67), custodial rape(Sec. 68), sexual intercourse by employing deceitful means etc(Sec. 69), Gang rape(Sec. 70), Assault to women with intent to outrage her modesty(Sec. 74), sexual harassment(Sec. 75), to disrobe(Sec. 76), voyeurism(Sec. 77), stalking(Sec. 78), To insult modesty of women(Sec. 79), Dowry death(Sec. 80), Bigamy(Sec. 82), Cruelty by husband(Sec. 85, 86), Miscarriage(Sec. 88 to 92), Hiring, employing or engaging a child to commit an

offence(Sec. 95), procuration of child(Sec. 96, 97), selling and buying of child for prostitution(Sec. 98, 99).

• Offences against human body:

Culpable homicide(Sec. 100, 102, 105, 107),Murder(Sec. 101, 103, 104),Mob-lynchingSec. 103(2),causing death by negligence(Sec. 106),Abetment of suicide of child of unsound mind(Sec. 107),Abetment of suicide(Sec. 108),Attempt to murder(Sec. 109),Organised crime(Sec. 111),Petty organised crime(Sec. 112),Terrorist act(Sec. 113),Hurt(Sec. 114, 115),Grievous hurt(Sec. 116 to 123),Acid attack(Sec. 124),wrongful restraint(Sec. 126), wrongful confinement(Sec. 127), criminal force(Sec. 128 to 129), assault(Sec. 130 to 136),Kidnapping(Sec. 137),Abduction(Sec. 138 to 142), trafficking (Sec. 143, 144).

Unit: III

• Offences against state

Waging war against government & its conspiracy(Sec. 147 to 158), acts endangering sovereignty, unity and integrity of India(Sec. 152).

- Of offences relating to elections(Sec. 169 to 177),
- Of offences relating to coin, currency note, government stamps(Sec. 177 to 188).
- Of offences against public tranquillity (unlawful assembly Sec. 189, Rioting 191, Affray 194, common object Sec. 190).
- Contempt of the lawful authority of public servant(Sec. 206 to 226).
- False evidence and offences against public justice(Sec. 227 to 269),Offence affecting public health,safety,convenience etc(Sec. 270 to 297).
- Offences relating to religion(Sec. 298 to 302).

Unit: IV

• Offences against property

Theft(Sec. 303 to 307), Snatching(Sec. 304),Extortion(Sec. 308),Robbery(Sec. 309),Dacoity(Sec. 310 to 313),Dishonest misappropriation of property(Sec. 314, 315), criminal breach of trust (Sec. 316),stolen property(Sec. 317), Cheating(Sec. 318, 319),Mischief(Sec. 324 to 327), Criminal trespass and house trespass (Sec. 329), house trespass and house breaking (Sec. 330 to 333), Criminal offences relating to document and property marks(Sec. 335 to 350).

• Criminal intimidation(Sec. 351), insult, annoyance(Sec. 352 to 355), defamation(Sec. 356).

Bare Act:

• The Bhartiya Nyay Sanhitha 2023

Text Books:

- RatanLal and Dhirajlal, The Indian Penal Code, Lexis Nexis, 2019
- S.N. Mishra, Indian Penal Code, CLP, 2019
- B M Gandhi, Indian Penal Code, EBC, 2017

Reference Books:

- Williams Glanville, Text Book of Criminal Law, Universal Law Publishing Co., 2012
- K.D. Gaur, A Text Book on the Indian Penal Code, Universal Publishing Co., 2012
- P.S.A. Pillai- Criminal Law, Lexis Nexis, 2017
- K.D. Gaur, Criminal Law Cases and Materials, Lexis Nexis, 2019

LL.B. Semester-I Code: 101114 Credit: 4 Paper IV

Law of Tort, M.V. Act and Consumer Protection Laws

Objectives of the Course

- 1. To equip the students with fundamental knowledge of Law of Torts.
- 2. To elucidate and familiarize the students with the nature and extent of liability of the private enterprises, multinationals and the government authorities for the civil wrongs committed against the individual and identify the remedies available.
- 3. To understand and the essential principles of Tortious liability.
- 4. To develop sound knowledge, skills and disposition on some of the contemporary issues Product Liability, Motor Vehicles Act, Consumer Protection Act etc.

Outcome of the Course

Students will be able to:

- 1. Explain the conceptual knowledge of Law of Torts, MV Act and Consumer Protection Act.
- 2. Examine the fundamentals and elements of Law of Torts, MV Act and Consumer Protection Act.
- 3. Illustrate the operation and application of Law of Torts, MV Act and Consumer Protection Act.
- 4. Research and analyze issues related to Law of Torts, MV Act and Consumer Protection Act.

Course Content

Unit-I: General Principles of Tort

Tort: Definition, Nature and Distinction from Crime, Contract and quasi contract, Constituents of Tort: Wrongful Act, Injuria sine damnum, Damnum sine injuria, Ubi jus ibi remedium; General Principles of Tortious Liability: Two Competing Theories- Pigeon-Hole Theory, Justification in Tort- Volenti non fit injuria, Act of God, Inevitable Accident, Necessity, Plaintiff's Default, Private Defence

Mental Elements in Tort- Motive, Intention, Malice, Malfeasance, Misfeasance and Nonfeasance, Fault

Unit-II: Specific Torts (Torts against Person, Property, Freedom & Reputation) & MV Act

Tresspass to Person: Assault, Battery, False Imprisonment, Malicious Prosecution Trespass to Land, Nuisance Torts related to Reputation: Defamation Negligence, Contributory Negligence, Res ipsa loquitor Salient Features of MV Act with special reference to Compulsory Insurance Third party liability of owner under the Motor vehicle Act.

Unit-III: Principles of Liability in Torts and Legal Remedies

Vicarious Liability Strict Liability and Absolute Liability Kinds of Damages, Remoteness of Damage, Novus Actus Interveniens, Nervous Shock General Remedies in Tort- Judicial and Extra Legal Remedies Joint-Tort Feasors

Unit-IV: Concept of Consumer and Consumer Protection Act

Definition of Consumer and Object of Consumer Protection Act, Rights and Duties of Consumers, Unfair Trade Practices, Defects in Goods and Services, Types of Services, Deficiency-Meaning, Consumer Protection Councils, Consumer Disputes Redressal Agencies: District Forum, State Commission, National Commission

Text Books

R.K. Bangia, Law of Tort Allahabad Law Publication, 2020
S.P. Singh, Law of Tort Universal Publication, 2015
Siddhartha Dubey, Law of Tort & Consumer Protection, Central Law Agency, 2017
Pillai P.S.A., Law of Tort, 9th ed., EBC, 2008

Reference Books

Wienfield And Jolowicz, Torts, Sweet & Maxwell 2010 Iyer, Ramaswamy; The Law of Torts, Lexis Nexis, 2007 Taxmann's, Consumer Protection Law Manual with Practical Manual, 2008 Taxmann Publication. LL.B. Semester-I Code: 101115 Credit: 4 Paper V

<u>English</u>

Objectives of the Course

- 1. To make the students conversant with legal maxims
- 2. To ensure the student understand the importance of English
- 3. To ensure that the students have a basic understanding of tenses
- 4. To hone their skills of writing 'legal essays'

Outcomes of the Course

Students will be able to:

- 1. Appreciate the need and importance of English
- 2. Demonstrate enhanced understanding of tenses
- 3. Analyse and rectify the errors made by them in Spoken English
- 4. Demonstrate the understanding and applicability of important legal maxims

Course Content

Unit-I: Introduction

- a. Need for and Importance of English
- b. One word Substitution
- c. Homonyms, antonyms, synonyms
- d. Some Common Errors in English

Unit-II: Proficiency in General English

- a. Parts and Types of Sentences
- b. Parts of Speech-A Brief Introduction
- c. Tenses-Forms and Uses
- d. Active and Passive Voice
- e. Direct and Indirect (or Reported) Speech

Unit-III: Legal Terminology

Meaning and use of the following shall be explained:

a. Ab Initio, Ad Idem, Ad Infinitum, Ad Valorem, Ad Nauseam, Alibi, Ambiguitas Latens, Ambiguitas Patens, Amicus Curiae, Animus Possidendi, Audi Alteram Partem, Bonafide, Caveat Emptor, De Facto, De Jure, De Novo, Ejusdem Generis, Ex Gratia, Ex Parte, Ex Post Facto, Factum Valet, Fait Accompli, Fiat Justitia, Inter Alia, In Limine, Jus Ad Rem, Jus In Personam, Letter Rogatory, Locus Standi, malafide, Modus Operandi, Mutatis Mutandis, Nudum Pactum, Obiter Dicta, Onus Probandi, Parens Patriae, Pari Passu, Per Incuriam, Prima Facie, Pro Bono Publico, Quid Pro Quo, Ratio Decendi, Raison D'etre, Res Integra, Res Nullius, Sine Qua Non, Intra- Vires, Ultra Vires

b. Actus non facit reum nisi men sit rea, Damnum sine injuria esse potest, Extra territorium jus dicenti non paretur impune, Actus non facit reum nisi mens sit rea, Audi alteram partem, Commodum ex injuria sua memo habere debet, Delegatus non potest Delegare, Pacta sunt servanda, Res ipsa loqitor, Ubi jus ibi remedium, Executio juris non habet injuriam, Nemo dat quod non habet, Quid pro quo

Unit-IV: Factor Pricing

- a. Essay Writing in English on topic of Legal Interest
- b. Letter Writing in English

Text Books

S.K. Mishra, Legal Language, Legal Writing & General English, Allahabad Law Agency, 2017

G.S. Sharma, Legal Language Legal Writing and General English, University Book House, 2018

Alok Yadav, Legal Studies and General English, Mewar University Press, 2016

Reference Books

Wren & Martin, English Grammar, S Chand & Company, 2017

J.S. Singh, Legal Language, Writing and General English, Allahabad Law Agency, 2018 Herbert Broom, A Solution of Legal Maxims, Cornell University, 1874 Ministry of Law, Justice and Company Affairs Government of India, Legal Glossary LL.B. Semester-II Code: 102111 Credit: 4

M.M.: 100 Theory: 70 Sessional: 30

Constitutional Law-II

Objectives of the Course

- 1. The basic understanding of the constitutional principles.
- 2. The enable students in understanding the Constitutional Governance of the Country and working of the Constitutional bodies.
- 3. To enable students in exploring the importance of the working of the constitutional institutions.

Outcomes of the Course

Students will be able to:

- 1. Assess the role and importance of Constitutional bodies, functionaries, and institutions.
- 2. Analyze working of Judiciary, Executive and Legislative bodies
- 3. Put in practice the acquired knowledge into their research.

Course Content

Unit-I: Directive Principles of State Policy and Writs

Article 36 to Article 51- Directive Principles of State Policy Nature and Justiciability of Directive Principle of State Policy, Interrelationship between Fundamental Rights and Directive Principles of State Policy

Article51-A– Fundamental Duties

Article226– Power of High Court to issue certain Writs

Writs- Habeas Corpus, Mandamus, Certiorari, Prohibition and Quo-Warranto

Unit-II: Distribution of Powers Between Centre and States

Legislative Powers

Doctrine of Territorial Nexus Doctrine of Harmonious Construction Doctrine of Pith and Substance Doctrine of Repugnancy Doctrine of Colorable Legislation

Paper VI
Administrative Powers Financial Powers

Unit-III: Constitutional Organs

Union Parliament and State Legislature- Constitution and Function, Parliamentary Sovereignty, Parliamentary Privilege, Anti-Defection Law, Collective Responsibility of Cabinet Union and State Executive Supreme Court and High Courts- Constitution and Jurisdiction, Power of Judicial review, Independence of Judiciary

Unit-IV: Liability of the State

Contractual and Tortious Liability of State Freedom of Trade, Commerce and Intercourse, Services under the Union and States, Emergency Provisions Amendment of the Constitution

Reference Books

D.D. Basu, Introduction to Constitution of India, Lexis Nexis, 2021 H.M. Seervai, Constitutional Law of India, Universal Law Publishing Co., 2021 M.P. Jain, Indian Constitutional Law, Lexis Nexis, 2018

Text Books

V.N. Shukla, Constitution of India, Eastern Book Company, 2021J.N. Pandey, Constitutional Law of India, Central Law Agency, 2020Narender Kumar, Constitutional Law of India, Allahabad Law Agency, 2021B.K. Sharma, Introduction to Constitution of India, PHI Learning, 2019

Paper VII

LL.B. Semester-II Code: 102112 Credit: 4 M.M.: 100 Theory: 70 Sessional: 30

Law of Contract-II (Special Contract)

Objectives of the Course

- 1. This will enable the students to better appreciate the law governing special contracts like indemnity, guarantee, agency etc. which are more relevant in the contemporary society.
- 2. To equip the students to better appreciate the legal services required in a corporate office so that they can enhance their relevance as a lawyer in the society.
- 3. To enhance knowledge of students regarding special type of contracts.
- 4. The main focus is to ingrain in the students a critical understanding of the context and importance of such contracts from an economic, social and legal perspective.

Outcomes of the Course:

Students will be able to:

- 1. Understand the fundamentals of special contract with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of special contract with comparative analysis.
- 3. Research, analyze, rationalize and present effectively.
- 4. Identify the principles and doctrines that guides such contracts.
- 5. Exhibit an understanding of the legal concepts involved in such contracts.

Course Content

Unit-I: Contract of Indemnity and Guarantee (Ss. 124-147)

Indemnity (Ss. 124-125) –the Concept, Definition, Methods Commencement of liability of the indemnifier, Nature of indemnity clauses, Right and liabilities of Indemnifier and Indemnity-Holder, difference between indemnity contract and Contingent contract, distinction between contract of indemnity and guarantee

Guarantee- (S. 126-147) Definition, Nature, and scope, Kinds of Guarantee, essential elements, Extent of Liability of guarantor, co-existence of surety and principal debtor's liabilities, joint and separate liability of surety, continuing guarantee, Rights of surety, Discharge of Surety's liability

Unit-II: Contract of Bailment, Pledge and Agency (Ss. 148-128)

Contract of Bailment Ss. 148-171)- (Definition, Kinds, Rights and Duties of Bailor and Bailee, termination of bailment, Rights and responsibility of finder of goods, Provisions relating to lien, Pledge (Ss. 172-181)- Definition, Essential elements, Pledge: comparison with bailment, Rights of Pawnor, Rights of Pawnee

Contract of Agency (S.182-238) -Definition-Creation of Agency, Kinds of Agents, Ratification, Rights and duties of Agent, Relation of Principal with third parties, Termination of Agency

Unit-III: Law Relating to Partnership

Definition, Nature and Essentials, Test of Determining, Relation of Partner to another partner, Rights and duties of partner, relation of partners to third parties, Incoming and outgoing partners dissolution of a firm, Registration of firms, Limited Liability Partnership-Meaning, Nature, a limited liability partnership and a company

Unit-IV: Sales of Goods

Concept of sale as a contract, Definition, Conditions and Performance, Formation of Contract, Effect of Contract, concepts of caveat emptor, Right of Parties and Remedies, Performance of Contract, Rights of Unpaid Seller, Remedies for breach of contract

Prescribed Legislations

The Indian Partnership Act, 1932 The Limited Liability Partnership Act, 2008 (6 of 2009) The Indian Contract Act, 1872 The Sale of Goods Act, 1930

Text Books

H. K. Saharay: Dutt on Contract-The Indian Contract Act, 1872, Eastern Law House, 2013 A.G. Guest(ed.), Benjamin's Sale of Goods, Sweet & Maxwell, 1992 Mulla, The Sale of Goods Act and The Indian Partnership Act, Lexis Nexis, 2019 Venkoba Rao (revised by S. C. Srivastava): Law of Agency, LexisNexis India, Butterworth, 2001 Sanjiv Agarwal and Rohini Agarwal, Limited Liability Partnership: Law and Practice, LexisNexis Butterworths, 2009

Bharuka, The Indian Partnership Act, LexisNexis Butterworths, 2007

Avtar Singh, Introduction to Law of Partnership, EBC, 2019

Reference Books

Deepa Paturkar, Avtar Singh's Law of Sale of Goods, EBC, 2021 Fedrick Pollock and Mulla, Pollock and Mulla on Sale of Goods Act Lexis Nexis,2021 Madhusudan Saharay, Textbook on Sale of Goods and Hire Purchase, Universal Publication, 2017

Benjamin, Sale of Goods, Sweet and Maxwell, 2010

LL.B. Semester-II	Paper VIII	M.M.: 100
Code: 102113		Theory: 70
Credit: 4		Sessional: 30

Family Law-I

Objectives of the Course

- 1. To equip the students with fundamental knowledge of Family Law.
- 2. To Prepare the students with strong conceptual and comparative analytical skills.
- 3. To develop research, analysis, reasoning and presentation skills in students.
- 4. To enable the students to apply the knowledge in legal practice.

Outcomes of the course

Students will be able to:

- 1. Understand the fundamentals of personal law with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of personal law with comparative analysis.
- 3. Research and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: Concept of Family and Development of Family System

Patriarchal Family, Matrilineal Family, Nuclear family, Joint family, Joint Hindu Family (*Mitakshara and Dayabhaga*) Source of Hindu Law and Sources of Muslim Law Schools of Hindu Law and Schools of Muslim Law

Unit-II: Introduction to Marriage Laws

Concept of Marriage, Nature of Marriage, Essential Conditions of Marriage, Registration of Marriages (Hindu Marriage Act, 1955; Muslim Marriage, Special Marriage Act, 1954)

Matrimonial Reliefs

Annulment, Restitution of conjugal Rights, Judicial separation, Theories of Divorce, Conditions for grant of matrimonial remedies, (Hindu Marriage Act,1955, Special Marriage Act,1954)

Matrimonial Remedies for Muslims (*Talaq, Ila, Zihar, Tafwiz, khula, Mubara*), Muslim wife's grounds of divorce, Dissolution of Muslim Marriage Act, 1939, The Muslim Women (Protection of Rights on Marriage) Act,2019 Barsto Matrimonial Relief

Maintenance

Maintenance of divorced wives, neglected wives, minor children and parents (Hindu MarriageAct,1955, Hindu Adoptions and Maintenance Act; 1956) Maintenance of Muslims wives during and after divorce; Muslim Women (Protection of Rights on Divorce) Act, 1986, Maintenance under Sec.125 of Cr.P.C. Maintenance of Parents and Senior Citizens Act,2007

Unit-III: Child and the Family

Parentage and Legitimacy, Legal status of Child born of void and voidable Marriage under Hindu Law, Acknowledgement of Paternity, Legitimacy and Legitimation, Legitimacy under Sec.112 of Indian Evidence Act,1872 Adoption and Custody, Hindu Law (Hindu Adoption and Maintenance Act,1956) Juvenile Justice Care and Protection Act,2015, Inter-Country Adoption

Guardianship (Hindu Minority and Guardianship Act, 1956 and Muslim Law)

Customary Practice and the Law

Dower, Types of Dower, Nature of Dower, Muslim Women's right on non-payment of Dower Dowerwhether heritable or transferable

Offences against Marriage-Adultery, Bigamy, Same Sex Marriages, Demand of Dowry (Dowry Prohibition Act, 1961, Protection of Women from Domestic Violence Act,2005) Child Marriage (Prohibition of Child MarriageAct,2006)

Unit-IV: Family Court and the Need for UCC

Composition, Power and functions of Family Courts (Family Courts Act, 1984)

Article 44 of the Indian Constitution

Recent Trends in Family Law

Live-in relationship, Concept of Palimony, Surrogacy

TextBooks

Aquil Ahmad, Mohamedan Law, Central Law Agency,2006 Paras Diwan, Family Law, Allahabad Law Agency,2009 Prof.G.C.V. Subba Rao's, Family Law in India, S. Georgia & Company, 2010 Kusum, Family law lectures-family Law-I, Lexis Nexis Butterworths, 2008 Mamta Rao, Law relating to Women & Children, Eastern Book Co., 2008

Reference Books

Asaf A.A. Fyzee, Outline of Mohammedan Law, Oxford University Press,2008 D.D. Basu, Commentary on the Constitution of India, (Vol.3), Lexis Nexis Butterworths Wadhwa, 2008 Poonam Pradhan Saxena, Family Law II lecturers, Lexis Nexis, 2019 Flavia Agnes, Marriage, Divorce and Matrimonial Litigation, Oxford University Press, 2011 Flavia Agnes, Marriage, Family Laws and Constitutional Claims, Oxford University Press, 2011 Mayne's, Hindu law & usages, Bharat Law House, 2008 Mulla, Hindu Law, Lexis Nexis Butterworths, Wadwa, 2012 Mulla, Principles of Mahomedan Law, Lexis Nexis Butterworths, Wadhwa, 2012 R.V. Kelkar, Criminal Procedure, 5th Edn. 2008 S.A. Desai, Mulla, Hindu Law, LexisNexis ButterworthsWadhwa, 2008 S.C. Tripathi and Vibha Arora, Law Relating to Women and Children, Central Law Publications, 2010 Syed Khalid Rashid's, Muslim Law, Eastern Book Company, 2008

LL.B. Semester-II Code: 102114 Credit: 4 Paper IX

Public International Law

Objectives of the Course

- 1. The aim of the course is to help the student develop a learning approach that combines critical thought and applied knowledge to the study of international law.
- 2. It will introduce public international law and focus on its essentials with an emphasis on problem-solving approach.
- 3. It will begin with an introduction to the traditional approaches to international law and understand its nature, scope and functions. We will then look into the processes and institutions of international law formation, key principles, international organisations, and dispute settlement mechanism in international law.

Outcomes of the Course

Students will be able to:

- 1. Analyse the necessary knowledge and skills of international law.
- 2. Develop capacity to apply international law in concrete cases.

Course Content

Unit-I: Nature, Scope, and Development of International Law

Definition, Nature & Basis of International Law Codification of International Law Subjects of International Law Relationship between International and Municipal Law Third World and International Law

Unit-II: Recognition of State

Nature of State Recognition (De facto and De jure recognition) Succession Acquisition and Loss of Territory

Unit-III: Jurisdiction, Power and Immunities in International Law

Nationality Extradition Asylum Diplomatic Agents Treaties

Unit-IV: International Organizations

International Organizations United Nations Organizations Security Council International Court of Justice International Criminal Court Regional Organizations (EU, SAARC and ASEAN)

Text books

Starke's International Law, Oxford, New York, 2008Ian Brownlie, Principles of Public International Law, Oxford University Press, 2008H.O. Aggarwal, International Law & Human Rights, Central Law Publication, 2018S. K. Kapoor, International Law & Human Rights, Central Law Agency, 2018

Reference books

Malcolm N. Shaw, International Law, Cambridge Publications, 2002 Oppenheim's International Law, Volume 1 & 2. Oxford University Press, 2008 B.S. Chimni, International Refugee Law: A Reader, Sage Publications, New Delhi, 2005 Paper X

Company Law

Objectives of the Course

1. To enable students to understand the Laws, Rules & Regulations relating to the companies.

2. To appreciate the issues and challenges of companies with the development of students' skills in legal reasoning, analysis and presentation through research by relying on study of statutes, case law and regulatory practice governing companies.

3. To understand the legal protection available to shareholders and their rights and to examine corporate social responsibility in India as a mandatory requirement.

4. To enable students to understand the intricacies of the different offices operating in the company set up like promoters, directors, independent directors etc. and their rights and duties.

5. To enable the students to apply the knowledge in practice.

Outcomes of the Course

Students will be able to:

1. Demonstrate strong insight of the formation and incorporation of a company, including the foundational understanding of the general role of promoters.

2. Appreciate the significance of company as a corporate entity compared to other form of corporate and non-corporate organizations.

3. Appreciate the varied methods of raising capital, other than shares, like borrowing and debentures etc.

4. Critically evaluate the existing legal framework relating to companies in accordance with the Companies Act (2013) including the Companies Amendment Act, (2017) and the Companies Amendment Act, (2020)

5. Understand the process of winding up of a corporate person and its dissolution and also appreciate the recently introduced Insolvency and Bankruptcy Code

Course Content

Unit- I: Formation, Registration and Incorporation of Company

Need of Company for development, Definition, meaning, nature and kinds of Company including one person company, comparison between Company and Partnership and Company and Limited Liability Partnership, theory of corporate personality, Advantages and disadvantages of corporate form of enterprise, Lifting of corporate veil, position of promoters and pre-incorporation contracts, formation of company and registration of company.

Unit-II: Memorandum of Association and Prospectus

Clauses in Memorandum of Association including the doctrine of Ultra Vires, alteration of Memorandum, Articles of Association and its contents, relationship of Articles with Memorandum, alteration of Articles, doctrine of constructive notice with its exceptions.

Prospectus- Definition; contents; Shelf-Prospectus and Red Herring Prospectus; remedies against misrepresentation in Prospectus, Liability- Civil and criminal.

Unit- III: Shares/Debentures and Meetings

Equity finance- Shares and their kinds including equity and preference shares, general principles of allotment and statutory restrictions on allotment, share certificate, transfer of shares. Share capital and its kinds. Debt Finance- Definition, kinds and remedies of debenture holders. Directors- Position and Powers, Director Identification Number, Corporate social responsibility. Meetings- Kinds, Procedure, Voting.

Unit -IV: Winding Up and Adjudicatory Bodies

Winding up under the Companies Act 2013- Winding up by the Tribunal, grounds for compulsory winding up, who can make petition, company liquidator and winding up committee, consequences of winding up order.

Winding up under the Insolvency & Bankruptcy Code, 2016- Voluntary liquidation of a company, Default in payment of debts, Corporate Insolvency Resolution Process, Interim Resolution professional, committee of creditors.

National Company Law Tribunal and National Company Law Appellate Tribunal-powers, jurisdiction and Judicial review

Text Books

Avtar Singh, Indian Company Law, EBC, 2018 Kailash Rai, Principles of Company Law, Allahabad Law Agency, 2019 G.K. Kapoor & Sanjay Dhamija, Company Law and Practice, Taxman, 2021

Reference Books

A. Ramaiya, Guide to the Companies Act, Lexis Nexis, 2021
N.C. Jain, Company Law: Principles and Practices, Allahabad Law Agency, 2010
L.C.B. Grower, Principles of Modern Company Law, Maxwell, 2015
S.C. Tripathi, New Company Law, Central Law Publications, 2018

LL.B. Semester-III	Paper XI	M.M.: 100
Code: 103111		Theory: 70
Credit: 4		Sessional: 30

Jurisprudence

Objectives of the Course

- 1. To understand the historical evolution of legal thought and legal theory.
- 2. To acquaint students with the growth and development of law in different countries under different social and political conditions.
- 3. To understand the various fundamental legal concepts such as Rights, Duties, Property, Liability, Persons etc.
- 4. To acquaint students with the theories, attitude and insights of various jurists.

Outcomes of the Course

Students will be able to:

- 1. Understand, define and explain the jurisprudential understanding of the legal concepts.
- 2. Explain and corelate the diverse origins and conceptualizations of law and develop a keen sense of objectivity while dealing with various laws.
- 3. Critically analyse various legal theories and to distinguish them into broader history of thought.
- 4. Put in practice the acquired knowledge and will use logical, analytical and decisionmaking ability to deal with contemporary challenges.

Course Content

Unit-I: Meaning and Importance of Jurisprudence

Jurisprudence, Law and State, Nature and Scope of Jurisprudence, Meaning and Definition and Classification of Law, Definition, Elements and Functions of State, Relation of Law and State, Law and Morals

Unit-II: Sources of Law and Administration of Justice

Classification of Sources, Custom, Legislation, Judicial Precedent Administration of Justice

Unit-III: Schools of Jurisprudence

Natural Law School, Analytical School, Historical School, Sociological School, The Pure Theory of Law

Unit-IV: Concepts of the Law

Rights and Duties, Ownership, Possession, Person, Property, Liability

Text Books

B.N. Mani Tripathi, Jurisprudence (The Legal Theory), Allahabad Law Agency,2012
N.V. Paranjape, Studies in Jurisprudence and Legal Theory, Central Law Agency, 2013
Nomita Aggarwal, Jurisprudence, Central Law Publication,2010
S.N. Dhyani, Fundamentals of Jurisprudence (The Indian Approach), Central Law Agency,2004

Reference Books

Michael Doherty, Jurisprudence: The Philosophy of Law, Old Balley Press, 2003 P.J. Fitzgerald, Salmond on Jurisprudence, Thomson Sweet & Maxwell Universal, 2008 R.W.M. Dias, Jurisprudence, Lexis Nexis (Indian Edition)2013 Suri Ratnapala, Jurisprudence, Cambridge University Press (First South Asian Edition)2009 W. Friedmann, Legal Theory, Universal Law Publishing Co.,2008 Paper XII

LL.B. Semester-III Code: 103112 Credit: 4 M.M.: 100 Theory: 70 Sessional: 30

Property Law (Transfer of Property Act & Easement Act)

Objectives of the Course

- 1. To make the students understand basic principles and concepts related to transfer of property.
- 2. To enable the students, understand and analyse various modes of alienation under Transfer of Property act, 1882 and related legal requirements.
- 3. Be acquainted with the questions of law involved in the transfer of property.
- 4. Be acquainted with the concept, creation, scope and application of easement.
- 5. To enable the students to apply legal principles in practice.

Outcomes of the Course

Students will be able to:

1. Understand basic principles and concepts related to transfer of property.

2. Understand and analyse various modes of alienation under Transfer of Property Act and related legal requirements.

- 3. Understand and answer the questions of law involved in the transfer of property.
- 4. Understand and apply the concept, creation and scope of easement.
- 5. Integrate the different laws with the law of transfer of property and apply them towards problem solving.

Course Content

Unit- I: Introduction

Definitions Essentials of valid transfer Condition restraining alienation Transfer for benefit of unborn person Rule against perpetuity Vested & Contingent interest Conditional Transfer

Unit-II: General Principles

Election Apportionment Ostensible owner Doctrine of Lis-pendence Fraudulent transfer Part performance

Unit-III: Specific Transfers

Sale: Definition and Essential Rights & liabilities of buyer and seller Mortgage: Definition and types of Mortgage Rights & Liabilities of Mortgage and Mortgagee Exchange Gift Actionable claims

Unit-IV: Lease and Easement Lease

Nature & Kinds of Easement Imposition & Acquisition Disturbance Extinction, Suspension & Revival Difference between License and Easement

Text Books

Poonam Pradhan Saxena, Property Law, Lexis Nexis, 2012, Nagpur R.K. Sinha, The Transfer of Property Act, CLA, 2021, Allahabad G.P. Tripathi, The Transfer of Property Act, CLA,2014, Allahabad

T.P Tripathi, The Transfer of Property Act, 1882, ALA, 2011, Allahabad S.N. Shukla Transfer of Property Act, Allahabad law Agency, 2020

Reference Books

G.C. Bharuka ,Mulla's Transfer of Property Act 1882 , Lexis Nexis Buttherworths, 2006, New Delhi.

Vepa P. Sarthi, Transfer of Property, Eastern Book Publication,5th Ed, Lucknow, 2012 Subbarao, Transfer of Property, Eastern Book Publication,2012

Hari Singh Gour and A.R. Lakshmanan, Commentary on Transfer of Property Act, Delhi Law House ,2011, Delhi.

M.R. Mallick, Goyle's A Commentary on the Transfer of Property Act, Delhi Eastern Law House, 200, Delhi.

157th Law Commission Report

181st Law Commission Report

Transfer of Property Act, 1882

Indian Easement Act, 1882

Paper XIII

Family Law-II

Objectives of the Course

1. The course is designed to analyse the presence of different personal laws for different community.

2. A critical and comparative study of different personal laws governing testamentary and intestate succession i.e., their diversities, similarities, affinities and paradoxes.

3. Examine in particular, fundamental concepts dealing with the joint family, coparcenary, partition, interstate succession as well as the law relating to gifts, wills, and inheritance.

Outcomes of the Course

Students will be able to:

- 1. Understand that personal laws owe their diversity to their varied origin, distinct principles and the bulk of substantive law itself.
- 2. Analyse that personal laws play a vital role in governing the conflicting interest of the individuals.
- 3. Interpret that personal law of a person is not determined by his domicile or his nationality but by his membership of the community to which he belongs.
- 4. Examine and corelate the intricacies and applicability of personal laws in handling the disputes.

Course Content

Unit-I: Introduction

Mitakshara Joint Family: *Mitakshara coparcenary* formation and incidents Property under *Mitakshara* Law: separate property and coparcenary property *Dayabhaga coparcenary*: formation and incidents, Property under *Dayabhaga* Law *Karta* of the Joint Family : who can

be *Karta*, His/ Her position, powers, privileges and obligation. Difference between *Mitakshara* and *Dayabhaga Coparcenary* Alienation of property: Separate and coparcenary

Debts: Doctrine of Pious Obligation and Antecedent debt

Partition- Concept, subject matter, modes, how partition effected family and its Changing Patterns

Processes of social change in India

Unit-II: Intestate Succession and Testamentary Succession

Devolution of interest in *Mitakshara Coparcenary* property under the HSA,1956 General Principle of Inheritance under Hindu Law

Succession to property of Hindu male dying intestate under the Hindu Succession Act,1956, The Repealing and Amending Act, 2015

Succession to property of Hindu female dying intestate under the Hindu Succession Act,1956, *Stridhan* and Women Estate

Disqualifications of heirs relating to succession

General rules of succession & exclusion from succession under Islamic law: Shia & Sunni Classification of heirs under Hanafi and Ithna Asharia School; Their shares and distribution of property, Disqualified heirs

Testamentary Succession

Will under Indian Succession Act, 1925- Of will and Codicil Execution of unprivileged & privileged wills

Attestation, revocation, alteration & revival of will, Will under Hindu law-Sec 30, HSA 1956; Will under Islamic Law- Competence of Testator, testamentary limitations

Unit-III: Disposition Inter-vivos

Gift under Hindu Law-Transfer of PropertyAct,1882

Hiba- meaning & characteristics, who can make and to whom Hiba, classification of Hiba Hiba during Marz–ul-maut, revocation of Hiba, Musha, Distinction between Hiba, Ariya, Sadaqa & Wakf, Hiba-ba-Shartul-iwaz, Hiba-bil-iwaz

Pre-emption under Islamic Law

Pre-emption – Definition, Classification, Subject matter Formalities & legal effects, when right lost, Constitutional validity

Unit-IV: Hindu Religious Endowments and Muslim Law of Wakf

Traditional Religious principles of creation, Administration & Offices, Statutory methods of creation of trust, Powers & functions of Trustees, *Wakf*- meaning, essentials & formalities for creation Powers of *Mutawalli* Muslim Religious institutions & Offices

Text Books

Poonam Pradhan Saxena, Family Law II Lecturers, LexisNexis, 2019Aquil Ahmad, Mohammedan Law, Central Law Agency, 2006Paras Diwan, Family Law, Allahabad Law Agency, 2011G.C.V. Subba Rao, Family Law in India, S. Georgia & Company, 2010

Reference Books

Asaf A. A. Fyzee, Outline of Mohammedan Law, Oxford University Press, 2008
Flavia Agnes, Marriage, Divorce, and Matrimonial Litigation, Oxford University Press, 2011
Mayne's, Hindu law & usages, Bharat Law House, 2008
Mulla, Hindu Law, Lexis Nexis Butterworths Wadhwa, 2012
Mulla, Principles of Mohammedan Law, LexisNexis Butterworths Wadhwa, 2012
S.A. Desai, Mulla, Hindu Law, LexisNexis Butterworths Wadhwa, 2008
Syed Khalid Rashid's, Muslim law, Eastern Book Company, 2008

LL.B. Semester–III Code: 103411 Credit:4 Paper: XIV(A)

M.M:100 Theory:70 Sessional:30

Land Laws Including Tenure & Tenancy System

Objectives of the Course

1. To familiarize with the fundamental principles of Land Laws and Tenancy System.

2. To make them understand the nuances of the Land Laws and Tenancy system.

3. To make them understand the applicability of legal principles in order to handle nitty -gritties of the Land laws and Tenancy system.

Outcomes of the Course

Students will be able to:

- 1. Possess knowledge of different types of land property and related concepts.
- 2. Define how to transfer the immoveable property to the other person.
- 3. Explain and interpret various principles of land Laws.
- 4. Apply the principles in legal practice.

Course Content

Unit-I: U.P. Zamindari Abolition and Land Reforms Act, 1950

- a. Aims and object of the Act
- b. Salient features of the Act
- c. Reasons for abolition of Zamidari system
- d. Definitions
- (i) Agriculture year
- (ii) Estate
- (iii) Gram Panchayat
- (iv) Improvement
- (v) Intermediary
- (vi) Land
- (vii) Rent free guarantee
- (viii) Sir and Khudkast

e. Acquisition of the interest of intermediaries and its consequences, Consequences of Vesting

Unit-II: U.P. Zamindari Abolition and Land Reforms Act, 1950

- a. Acquisition of the interest of intermediaries and its consequences
- i) Rights retained by intermediaries
- ii) New land tenures

- iii) Status conferred on Old Tenants
- b. Compensation and Rehabilitation grant
- c. Gram Panchayat and Land Management Committee
- d. Allotment of Land and declaratory suit

Unit-III: U.P. Zamindari Abolition and Land Reforms Act, 1950

a. Tenure-Holders

- i) Classes of Tenure holders
- ii) Rights of Tenure holders
- iii) Ejectment of Tenure holders
- b. Abandonment, surrender, extinction and lease.
- c. Succession

Unit-IV: Land Revenue

a. Liability to pay, First charge, Collection and Recovery, Settlement of land Revenue (S.243 to

272 U.P.Z.A. & L. R. Act, 1950).

- b. The U.P. Land Revenue Act, 1901
- i) Maintenance of maps and records
- ii) Revision of maps and records
- iii) Procedure of Revenue Courts and Revenue Officers
- iv) Appeal, Revision, Review and Reference

Text Books

R.R. Maurya, Uttar Pradesh Land Law, Central Law Publication, 2020. Yatendra Singh, The Uttar Pradesh Imposition of Ceiling on Landing Act, 1960, Central Law Publication.

Reference Books

S.R. Myneni, Land Laws Asia Law House, 2020.

N. Maheswara Swami, Land Laws Asia Law House, 2020.

Sheetal Kanwal, Land Law including Tenure & Tenancy System, Amar Law Publication.

LL.B. Semester–III Code: 103412 Credit:4 Paper: XIV(B)

M.M:100 Theory:70 Sessional:30

Information Technology Law

Objectives of the Course

- 1. The primary object of this course will introduce students to the information technology law.
- 2. To provide insight into the applicability of other laws in the digital environment.

Outcomes of the Course

Students will be able to:

Analyse the provisions of Information Technology laws and its peculiarities.
 Understand the concept of electronic commerce - electronic signatures, data protection, cyber

security; penalties & offences under the IT Act, dispute resolution, and other contemporary issues.

Course Content

Unit-I: Introduction

Information Technology, Understanding cyber space, Interface of technology and law, Information Technology Act, 2000, Legal recognition & authentication of electronic records under Information Technology Act and UNCITRAL model law on Electronic Commerce & e-signatures.

UNIT-II: Civil Liabilities

Data protection, Damage to computer, Online defamation and Dispute resolution under I.T act.

UNIT-III: Criminal Liabilities

Financial frauds, hacking, obscenity and pornography, identity theft, IPR related crime, cyber stalking, cyber terrorism, internet service provider liability and cyber security.UNIT- IV: Applicability of other laws on e-commerce,

E-contracts, United Nations Convention on the Use of Electronic Communication in International Contract, trademarks and domain name, and concept of jurisdiction in cyber space.

Text Books

Pavan Duggal, Legal Framework on Electronic Commerce and Intellectual Property Rights in Cyberspace, (Universal, 2014)

Kamath Nandan, Law Relating to Computers Internet & E-commerce - A Guide to Cyber laws & The Information Technology Act, Rules, Regulations and Notifications along with Latest Case Laws (Universal, 2019)

Ishita Chatterjee, Law and Information Technology, (Central Law Publications, 2018).

Reference Books

Pavan Duggal, An exhaustive section-wise commentary on the Information Technology Act, 2000 (Universal 2014)

S.K. Verma and Raman Mittal (Eds.), Legal Dimensions of Cyberspace, (ILI 2004).

Aparna Viswanathan, Cyber Law (Indian & International Perspectives on key topics including Data Security, E-commerce, Cloud Computing and Cyber Crimes (LexisNexis 2015)

LL.B. Semester–III Code: 103413 Credit:4 Paper: XIV (C)

Aviation Law

Objectives of the Course

- 1. To equip students with the basic understanding of the various international conventions that affect Aviation law.
- 2. To apprise students with the concept of carrier and product liability in Aviation.
- 3. To make the students understand national laws governing aviation industry.
- 4. To equip the students with the basic understanding of legal regime governing crimes on board.

Outcomes of the Course

Students will be able to:

- 1. Explain comprehensively the Aviation industry sector.
- **2.** Understand the international laws governing civil aviation applicable as between sovereign States.
- 3. Understand the domestic law of India governing the issues related to civil aviation.
- 4. Comprehend the rules governing liability in event of death, or injury to persons and cargos.
- 5. Demonstrate the intellectual and creative skills to research, interpret and synthesize relevant legal matters.

Course Content

Unit -I: Introduction to Air Law

Origin of air law Theories of airspace Freedom v. Sovereignty debate The development of international legal regime

Unit- II: International and National Frame work

Chicago Convention and the Fundamental Principles Scheduled and non -scheduled air traffic Airline cooperation Nationality of aircrafts Rules on airports, Jurisdiction, International Civil Aviation Organization

National Laws

Aircraft Act of 1934, The Aircraft Rules, 1937

Unit -III: Legal Regime Governing Crimes on Board Aircrafts

Problem of jurisdiction and applicable law to try the offenses on board aircrafts The Tokyo Convention The Hague Convention to combat hijacking The Montreal Convention and the safety of civil aviation

Unit -IV: Carriers' Liability and Product Liability in Aviation

Carriers' Liability under the Warsaw Convention Debate over the applicability Carriage documents Extent of the liability of carrier Duration of the Liability Jurisdiction and procedural aspects Related instruments

Product Liability in Aviation

Concept of product liability Move towards strict liability in aviation Crashworthiness Punitive damages Codification of product liability

Reference Books

Lawrence B. Goldhirsch, The Warsaw Convention Annotated: A Legal Hand Book, The Hague: Kluwer Law International, 2000.

Elmar Giemulla, et al., Montreal Convention, The Netherlands: Wolters Kluwer, 2010. Chia-Jui-Cheng and Doo Hwan Kim, The Utilization of the World's Airspace and Free Outer Space in the 21st Century, The Hague: Kluwer Law International, 2000.

Text Books

Peter Martin, et al., Air Law, Vol. 1, Butterworths, 1977.

P.P.C. Haanappel, The Law and Policy of Air Space and Outer Space, The Hague: Kluwer Law International, 2003.

J. C. Batra, International Air Law, New Delhi: Reliance Publishing House, 2003.

Air Law and Policy in India S. Bhatt, VS Mani, V. Balakista Reddy, Lancer Books 2008

LL.B. Semester–III Code: 103611 Credit:4 Paper: XV

M.M:100 Theory:70 Sessional:30

Professional Ethics & Professional Accounting System (Clinical/Practical Paper)

Objectives of the Course

- 1. To have a discourse on the legal provisions, guidelines, and judicial decisions on the subject of professional conduct for advocates and on Contempt of Court Act.
- 2. It will also aim to discuss the opinions/decisions of the State Bar Councils/Bar Council of India on professional misconduct.

Outcomes of the Course

Students will be able to:

- 1. Identify situations of professional dilemmas.
- 2. Understand the concept of contempt of court and its implications on legal profession.
- 3. Analyze and evaluate the law and principles of legal ethics under the Advocates Act, 1961.

Course Content

Unit-I: Introduction

Brief History of Legal Profession in India Its Nature, Evolution and Development in India Meaning of Ethics, Object of Legal Ethics, Necessity for an Ethical Code

Unit -II: Admission & Enrollment of Advocate

Right to Practice Conduct of Advocates and Disciplinary Proceedings

Unit-III: Rights and Duties of Advocates

Rights, Privileges, Duties, Disabilities and Social Responsibilities of an Advocate Standard of Professional Conduct and Etiquette Professional and other Misconducts

Unit-IV: Relation with Bar& Bench

Powers and Procedure of Disciplinary Committees of the Bar Accountancy for Lawyers. Bench Bar Relations Legality of Lawyers Strike in the Right-Duty Discourse Contempt Law and Practice: The Contempt of Courts Act, 1971

Text Books

C.L. Anand: Professional Ethics of the Bar, Allahabad Law Books, 1987.B.K. Goswani: Legal Profession and Its Ethics, Gogia Law Publisher, 1995.Anirudh Prasad, Principles of the Ethics of Legal Profession in India, 2004, Universal Book House, 2005.

S.K. Mookerji, Iyer's Law of Contempt of Court, Delhi Law House, 2011. Krishnaswami Iyer's Professional Conduct and Advocacy, (1945)

Reference Books

G.C.V. Subba Rao, Commentary on Contempt of Courts Act 1971, 2014.Ranadhir Kumar De, Contempt of Court Law & Practice, Wadhwa Book Company, 2012.Francis L. Wellman, The Art of Cross Examination, Simon & Suchester, 1997.Kailash Rai, Legal Ethics, Accountability for Lawyers and Bench-Bar Relations, Central Law Publication, 2015.

Paper: XVI

LL.B. Semester–IV Code: 104111 Credit:4

M.M:100 Theory:70 Sessional:30

Administrative Law

Objectives of the Course

- 1. To expose to the guiding principles and applicable doctrines of select sub-fields of Administrative Law.
- 2. To foster an informed perspective on the nature and limit of Judiciary in the development of the Administrative Law.
- 3. To cultivate ability to identify latent issues in Administrative Law.
- 4. To equip students with the intellectual tools necessary to properly conceptualize and analyse issues in Administrative Law.

Outcomes of the Course

Students will be able to:

- 1. Understand and explain the principles of Administrative Law covered in the course.
- 2. Apply the critical thinking required to bring about solutions to complex Administrative Law Problems/lacunae/uncertainties.
- 3. Predict and construct how unresolved or ambiguous Administrative Law questions could be resolved by the courts through an analysis of case law and the judicial method.

Course Content

Unit-I: Introduction

Definition, Nature and Scope of Administrative Law, Reasons for the growth of Administrative Law, Relation between Administrative Law and Constitutional Law, The impact and implications of the Doctrine of Separation of power and the Rule of Law on Administrative Law, Droit Administrative

Unit-II: Administrative Action

Classification of Administrative Action – the necessity, Delegated Legislation: Meaning, Kinds and causes of its growth, Constitutionality of Delegated Legislation, Control Mechanism: Legislative Control, Procedural Control and Judicial Control

Unit-III: Principles of Natural Justice and Liability

Administrative Tribunals, Principle of Natural Justice, Exception to Natural Justice, Judicial Review of Administrative Discretion: Meaning, nature and scope, Doctrine of Promissory

Estoppels, Doctrine of legitimate expectation, Doctrine of proportionality, Liability of Administration in Tort and Contract

Unit-IV: Review of Administrative Action

Judicial Review of Administrative Action, Writs, Ombudsman in India (Lokpal and Lokayukta), Central Vigilance Commission, Constitutional Protection to Civil Servants, Parliamentary Committees – Commission of Enquiry

Text Books

I.P. Massey, Administrative Law, EBC, 2019 Jain & Jain, Principles of Administrative Law, Lexis Nexis,2015 C.K. Takwani, Lectures on Administrative Law, EBC. 2019,

Reference Books

H.W.R. Wade, Administrative Law, Oxford University Press, 2019P.P. Craig, Administrative Law, Sweet & Maxwell, 2003De. Smith, Judicial Review of Administrative Action, Sweet & Maxwell, 2004V.N. Shukla's, Constitution of India, EBC ,2020S.P. Sathe, Administrative Law, Lexis Nexis, 2010

LL.B. Semester–IV Code: 104112 Credit: 4 Paper: XVII

M.M:100 Theory:70 Sessional:30

Interpretation of Statutes and Principles of Legislation

Objectives of the Course

- 1. To equip the students with various tools of interpretation of statutes.
- 2. To provide understanding and working knowledge about interpretation of statutes.
- 3. To make students understand certain rules, doctrines and principles of interpretation.

Outcomes of the Course

Students will be able to:

- 1. To know the techniques adopted by courts in construing statutes.
- 2. Interpret the conceptual basis of legal principles with comparative analysis.
- 3. Research, analyse, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: General and Rules of Statutory Interpretation

Basic Principles of Interpretation, Statutes, Parts of Statutes, Kinds of Statutes, Intention of Legislature, Meaning of Construction and Interpretation, Purpose of interpretation, Guiding rules of interpretation

Unit-II: Aids to the Interpretation

Internal Aids to Interpretation- Title, Preamble, Heading, Marginal Note, Section, Sub-section, Punctuation mark, Illustration, Exception, Proviso, Explanation, Saving Clause, Schedule, Non - obstante clause

External Aids to Interpretation- Dictionaries, Translations, Constituent Assembly debate for Constitutional Interpretation, Legislative History, Legislative intention, Statement of objects and

reasons, Legislative Debate, Law Commission Reports, Stare Decisis, Contemporanea Expositio, General Clause Act

Unit-III: Rules and Principles of Statutory Interpretation

Primary rules- Literal rule, Golden rule, Mischief rule (rule in the Heydon's case), Rule of harmonious construction

Secondary Rules - Noscitur a sociis, Ejusdem generis, Reddendo Singula Singulis, Principle of Constitutional interpretation, ut res magis valeat quam pereat, In bonam partem.

Unit-IV: Interpretation with Reference to the Subject Matter and Purpose

Restrictive and beneficial construction - Taxing statutes, Penal statutes, Welfare legislation Interpretation of substantive and adjunctive statute, Interpretation of directory and mandatory provisions, Interpretation of enabling statutes, Interpretation of codifying and consolidating statutes, Interpretation of statutes conferring rights, Interpretation of statutes conferring powers.

Text Books

G. P. Singh, Principles of Statutory Interpretation, Wadhwa, 1999

P. St. Langan (Ed.). Maxwell on the Interpretation of Statutes, Lexis Nexis, 2006

N.M. Tripathi, Bombay K. Shanmukham, N.S. Bindras's Interpretation of Statutes, The Law Book Co., 2007

V. Sarathi, Interpretation of Statutes, Eastern Book Company, 2010

M.P. Jain, Constitutional Law of India, Wadhwa & Co., 2008

M.P. Singh, (Ed.) V.N. Sukla's Constitution of India, Eastern Book Company, 2017

Reference Books

Narotam Singh Bindra, N.S. Bindra's Interpretation of Statutes, LexisNexis Butterworths, 2007

Sandeep Bhalla, Principles of Interpretation in India: (with Legal Maxims), IEbooks Inc., 2015 U. Baxi, Introduction to Justice K.K. Mathew's, Democracy Equality and Freedom, EBC, 1978

Paper: XVIII

LL.B. Semester–IV Code: 104113 Credit: 4 M.M:100 Theory:70 Sessional:30

Civil Procedure Code and Limitation Act

Objectives of the Course

- 1. To equip students with the fundamental knowledge of civil procedure code
- 2. To familiarize students with certain important concepts of civil procedure code such as place of suit, pleadings, particular suits, trial of suits, order, decree so on and so forth.
- 3. To acquaint students with the knowledge of procedural aspects of working of civil courts.
- 4. To equip students with the fundamental knowledge of the Limitation Act, 1963

Outcomes of the Course

Students will be able to:

- 1. Understand the fundamentals of Civil Procedure Code with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of Civil procedure code with comparative analysis
- 3. Research, analyze, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: Introduction

Background and Significance of the CPC, 1908

Definitions: Decree, Judge & Judgment, Order, Foreign Court & Judgment, Mesne Profits, Public Officer, Affidavit, Plaint, Suit, Written Statement

Jurisdiction and Place of suing

Doctrine of *Res sub judice*, Doctrine of *Res Judicata*, Caveat, Inherent Power of Courts, Restitution

Transfer of Proceedings

Unit -II: Civil Suits

Parties to Suit, Framing of suits Pleadings: Definition and Fundamental Rules of Pleading Plaint: General Rules of Plaint, Return and Rejection of a Plaint Limitation for Filing Written Statement under CPC Joinder, Re-joinder, Misjoinder, set-off and counter claim Summoning under the CPC Incidental Proceedings Appearance and Non-Appearance of Parties Ex-parte decree, Dismissal for Default

Unit -III: Particular Suits and Trial of Suits

Particular Suits: Suits by or against Governments, Suits by or against a foreigner, Suits by or against minors, Suits by or against firms, Suits by or against indigent person, Suits relating to public matters, Interpleader suits

Trial of Suits: Examination of the Parties, Admission and Affidavit, Adjournment, Withdrawal and Compromise of suits

Judgment: Judgment, decree and order, Execution of order and decree, Appeal from order and decree

Unit -IV: Interim Orders, Supplementary Proceedings and the Limitation Act

Commissions

Arrest and Attachment before Judgment

Temporary Injunction and Interlocutory orders

Appointment of Receiver

Reference, Review and Revision

The Limitation Act, 1963: Limitation of suits, Appeal and Application [Section 3-11], Computation of Periods of Limitation [Section 12- 24], Acquisition of Ownership by Possession [The Schedule of period of Limitation is excluded]

Text Books

Dinshaw Fardaunzi Mulla, Mulla's Code of Civil Procedure, Lexis Nexis , 2017 Sudipto Sarkar & V.R. Manohar, Sarkar's Code of Civil Procedure (2 Vols), Lexis Nexis India (11th Edn)

M. P. Jain, The Code of Civil Procedure, LexisNexis Butterworth India, 2019

Reference Books

Universal's Code of Civil Procedure, 1908 (Bare Act)

C.K. Takwani, Code of Civil Procedure, Eastern Book Company, 2010

M.R. Malik, Ganguly's Civil Court, Practice and Procedure, Eastern Law House, 2012

M.P. Tandon, Code of Civil Procedure, Allahabad Law Agency, 2005

LL.B. Semester–IV Code: 104411 Credit:4 M.M:100 Theory:70 Sessional:30

Banking Law

Objectives of the Course

- 1. To equip the students with fundamental knowledge of Banking Law.
- 2. To acquaint the students with the historic development of banking industry in India.
- 3. To ascertain the laws applicable to banking sector.
- 4. To acquaint the students with the recent and emerging dimensions of banking system.
- 5. To develop research, analysis, reasoning and presentation skills in students.
- 6. To enable the students to apply the knowledge of banking law in legal practice.

Outcomes of the Course

Students will be able to:

- 1. Understand the fundamentals of banking law with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of banking law with comparative analysis.
- 3. Research, analyze, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit- I: Introduction

History &Evolution of Banking in India Nationalisation of Banks Meaning & Definition of Banking Kinds of Banks & their functions

Unit -II: Laws relating to Banking in India Banking Regulation Act, 1949

Definitions of bank, banker, banking and banking companies Control Over Management Prohibition of certain activities in relation to Banking Company Acquisition of Undertakings of Banking Companies in Certain cases Suspension of Business and Winding up of Banking Companies

Special Provisions for Speedy Disposal of Winding up proceedings

The Central Bank: Reserve Bank of India

Evolution of RBI Organization and Management Functions of RBI

Unit -III: Banker and Customer

Relationship between Banker & Customer

Definition of Banker and Customer General and Special Relationship Legal Character Contract between banker & Customer Banks duty to customers General lien & Persons entitled to General lien Types of Accounts

Special classes of Customers

Minor Partnership Company Married Women Trust Illiterate persons Joint Hindu Family Executors lunatics

Unit -IV: E- Banking and Ancillary Services

E-Banking-

Definition

Internet Banking- Retail & Corporate Mobile banking ATM Banking E-Cheque-authentication

Remittances-

General, Demand Draft, Money Transfer Traveler's Cheques, Bank orders, credit cards/debit cards Safe deposit vaults, gift cheques

Banking Ombudsman

Text Books

M.L. Tannan, Tannan's Banking Law and Practice in India, LexisNexis, 2017
Avatar Singh, Banking and Negotiable Instruments, Eastern Book Company (P) Ltd, 2018
Ross Cranston, Principles of Banking Law, New York: Oxford University Press, 1997
R.K. Gupta, Banking Law and Practice, Modern Law Publications, 2004
Paget's, Law of Banking, LexisNexis, 2015
R.N. Chaudhary, Banking Laws, Central Law Publications, 2016

Reference Books

Basu, Review of Current Banking: Theory and Practice, Macmillan, 1974 L.C. Goyle- The Law of Banking and Bankers, Eastern Law House Pvt. Ltd., 1995
S.N. Gupta, The Banking Law in Theory and Practice, Universal Publishing Co. Pvt. Ltd, 2017

LL.B. Semester–IV Code: 104412 Credit:4 Paper:XIX (B)

M.M:100 Theory:70 Sessional:30

Competition Law

Objectives of the Course

- 1. To develop an understanding about the concept of monopoly, constitutional perspectives pertaining to state monopoly.
- 2. To trace historical development of the competition law regime and learn about the need for having competition law.
- 3. To provide an analysis of the legal developments, from MRTP to the Competition Act.
- 4. To learn the nuances of the competition law and the various guidelines issued within its purview by the regulatory bodies.
- 5. To study and enhance the knowledge pertaining to the working of the competition commission of India and identify the areas where competition law has marked its presence.

Outcomes of the Course

Students will be able to:

- 1. Explain the concept of monopoly, constitutional directives against monopoly and the practice of monopolization.
- 2. Illustrate the evolution, object and functions of Competition law.
- 3. Compare the types of anti-competitive agreements and testing its validity; the practices covered by abuse of dominant position; practices in connection with combinations.
- 4. Examine the enforcement mechanisms and regulatory framework envisaged under the Competition Law.

Course Content

Unit-I:

The Concept of Monopoly: Advantages and Disadvantages, The Role of monopoly in Indian economy, Constitutional directives regarding concentration of economic power, The Right of the state to set up a monopoly in trade or business, Monopolies in the Private and Public Sectors, Monopolization of certain trades and services - Magnitude and trends.

Unit-II:

History and Development of Competition Law/ Antitrust Law, Liberalization and Globalization - Raghavan Committee Report, Competition Act 2002; Difference between MRTP Act and Competition Act, 2002, Historical Introduction to Monopolies and Antitrust Legislation in U.S.A. and U.K. -The Sherman Act, the Clayton Act and the Monopolies and Mergers Act; Monopolies Inquiry Commission Recommendations: Constitutional directive, MRTP Commission: Policy and Law.

Unit-III:

Enforcement Mechanisms under The Competition Law, 2002: Establishment and Constitution of Competition Commission of India, Powers and Functions- Jurisdiction of the CCI – adjudication and appeals, -Competition Appellate Tribunal (CompAT), Director General of Investigation (DGI) Regulation of Anti-competitive Agreements, Abuse of Dominant Position, Combinations under the Act

Unit-IV:

The Competition Act, 2002- Penalties for Contravention (Chapter VI) and Role of Competition Advocacy (Chapter VII)

Textbooks

T. Ramappa, Competition Law in India: Policy, Issues and Development, Oxford University Press, New Delhi

Avtar Singh, Competition Law, Eastern Book Company, Lucknow

Abir Roy & Jayant Kumar, Competition Law in India, Eastern Law House, Kolkata Dr. Souvik Chatterji, Competition Law in India and USA, Allahabad Law Agency, Faridabad Versha Vahini, Indian Competition Law, Lexis Nexis, Gurgaon

Reference Books

J.M. Blair, Economic Concentration - Structure, Behaviour and Public Policy Rowley, International Mergers Anti-Trust Process. Evel and Little: Concentration in British Industry

J.B. Health, (ed.) International Conference on Monopolies - Mergers and Restrictive Practices C. Kaysen and Turner, Anti-Trust Policy

W.F. Muller, A. Primer on Monopoly and Competition

A. Sutherland, The Monopolies Commission in Action

Government of India, Report of the Industrial Licensing Policy Inquiry Committee (1969)

Government of India, Report of the High-Powered expert Committee on the Companies Act

V.K. Singania, Economic Concentration through Intercorporate

S.M. Jhala, Monopolies and Restrictive Trade Practices in India

LL.B. Semester–IV Code: 104413 Credit:4 Paper: XIX (C)

Insurance Law

Objectives of the Course

- 1. To equip the students with fundamental knowledge of Insurance Law.
- 2. To acquaint the students with the general and specific principles of law of insurance.
- 3. To familiarize with the various types of insurances and the laws governing insurance in India.
- 4. To develop research, analysis, reasoning and presentation skills in students.
- 5. To enable the students to apply the knowledge of insurance law in legal practice.

Outcomes of the Course

Students will be able to:

- 1. Understand the fundamentals of insurance law with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles of insurance law with comparative analysis
- 3. Research, analyze, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: Principles of Contract of Insurance

Meaning, Definition & Nature of Insurance Contract. Parties and Premium under Contract of Insurance General Principles: - Essentials of Contract of Insurance Proposal and Acceptance **Competence of Parties** Consideration Free Consent Legality of Object Capacity to Contract Specific principles: Principle of utmost good faith (Duty of Disclosure, uberrima fides) Principle of Insurable Interest Principle of Subrogation Principle of Contribution Principle of Proximate Cause Principle of Indemnity Material facts Double Insurance & Re-insurance

Unit -II: Life Insurance

Life Insurance:

History & Evolution
Nature and definition of life Insurance Contract
Kinds of Life Insurance Contracts
Formation of Life Insurance Contract
Factors affecting the risk
Amounts recoverable and persons entitled to payment under Life Insurance
Policy
Settlement of Claims and payment of Money
Important Provisions of LIC Act, 1956

Unit- III: Marine & Fire Insurance

Marine Insurance

Nature & Characteristics of Marine Insurance Indemnity

Kinds of Marine Insurance policies

Warranties & Breach of Warranties

- Voyage & Deviations
- Maritime perils

Settlement of Claim

Fire Insurance

Nature, Scope & Importance of Fire Insurance Contract of Indemnity Types of Fire Insurance Perils insured against and proximate cause Excepted perils Inclusions & Exclusions under Fire Insurance Policy Manipulated Fire and its effects Settlement of Claim

Unit -IV: Legislations Governing Insurance in India

Insurance Act, 1938 Assignment & Transfer of Policies Nomination Difference between Assignment & Nomination Misstatement & Concealment Insurance Regulatory and Development Authority (IRDA) Duties, Powers & Function of the authority Registration, Cancellation of Registration and Requirements as to Capital Redress of Public Grievances Rules, 1998: Insurance Ombudsman

Text Books

K.S.N. Murthy & Dr. K.V.S. Sarma, Modern Law of Insurance, LexisNexis, 2014Avtar Singh, Law of Insurance, Eastern Book Company, 2017J.V.N. Jaiswal, Law of Insurance, Eastern Book Company,2008M.N. Srinivasan, Principles of Insurance Law, LexisNexis Butterworth Wadhwa, 2009

Reference Books

Taxmann's, Insurance Law Manual, 2015

B.C. Mitra, Law Relating to Marine Insurance, 2012

E.R. Hardy Ivamy, General Principles of Insurance

LL.B. Semester–IV	Paper: XX	M.M:100
Code: 104811		Theory:70
Credit:4		Sessional:30

Alternative Dispute Resolution- Arbitration, Mediation and Conciliation (Clinical / Practical Paper)

Objectives of the Course

- 1. The intent of the course is to provide a strong academic understanding of the various modes of Alternative Dispute Resolution (ADR) systems.
- 2. Discuss the procedural aspects of the different modes of ADR.
- 3. Inculcate the practical approaches through the case study on Domestic Arbitration and International Arbitration.
- 4. Developed the practical approaches, participation and report writing skills through the participation in Lok Adalats and Legal Awareness Camps.

Outcomes of the Course

Students will be able to:

- 1. Understand various modes of ADR with procedure and practice.
- 2. Evaluate the sophisticated understanding of ethical and legal issues surrounding Dispute Resolution models and practice including case study.
- 3. Formulate the modalities and techniques of resolution of disputes through outside court settlement.

Course Content

Unit- I: Introduction & General Concept of Alternative Dispute Resolution and Arbitration Meaning, Nature and Scope of ADR.

Arbitration- Definitions with related Sections description, New York Convention and Geneva Convention.

Unit -II: Other Modes of Alternative Dispute Resolution

Conciliation, Mediation, Negotiation, Section 89 of the Civil Procedure Code, 1908 and Plea Bargaining.

Unit -III: Institution and Case Analysis

One leading case on Domestic Arbitration and one on International Arbitration. Indian Council of Arbitration (ICA) – Its system and working.

Unit- IV: Report Writing

Reports on participation in Legal Awareness Camps organized by department and/or with other institutions.

Reports on participation in Lok Adalats.

Text Books

Avtar Singh: Law of Arbitration & Conciliation and Alternative Resolution Systems, Eastern Book company, 2021

K.V. Satyanarayana, Law of Arbitration and Conciliation in India, Asia Law House, 2021 Madsudan Sahary, Text book on Arbitration and Conciliation with Alternative Dispute Resolution, Universal Law Co. Pvt.Ltd.,2017

NV Paranjpe, Law relating to Arbitration & Conciliation in India, Central Law Agency, 2016

Reference Books

Rohit M. Subramanium, Eastern Book Co.2021

Anirban Chakraborty, Law & Practice of Alternative Dispute Resolution in India, Lexis Nexis, 2016

Justice S.M. Jhunjhunwala, Law of Arbitration and Conciliation, Snow white Publications Pvt. Ltd. 2021

Shashank Garg, Alternative Dispute Resolution, Oxford, 2018

Paper XXI

LL.B. Semester-V Code: 105111 Credit-4 M. M: 100 Theory: 70 Sessional : 30

Law of Evidence (Bhartiya SakshyaAdhiniyam, 2023)

Course Objectives:

1. To make the students understand nature and functions of the law of evidence.

2. To demonstrate to students the quality and type of proof needed to prevail in litigation.

3. To inculcate in them the skills of an Advocate by exposing them to the techniques of cross examination.

4.Students will be able to exhibit skills in practices and procedures of law. 5. To explore the latest developments and grey areas of evidence law.

Outcomes of the Course

Students will be able to:

- 1. Acquire the knowledge of the basics of law of evidence and will develop an understanding of the law of evidence and its operation.
- 2. Demonstrate a coherent and fundamental knowledge of the rules of evidence, evidential concepts and principles.
- 3. Develop communication skills to present a clear and coherent understanding of the rules of evidence to a legal audience.
- 4. Discuss the facts of complex legal principles pertaining to evidence.
- 5. Demonstrate a detailed knowledge of the specific areas of current importance and to analyse the evolving nature of law of evidence.

Outline of the Course

Unit-I

Introduction and Interpretation Clause

Definition, Nature, Functions and relationship of Law of Evidence with the substantive and procedural laws

Principles of rules of Best Evidence

Evidence (Sec.2(1)(e), Document (Sec.2(1)(d), Proved(Sec.2(1)(j),Disproved(Sec.2(1)(c), Not proved(Sec.2(1)(i),

Relevant Facts {(Section 2(1) (k)} and Fact in Issue {(Section 2 (1)(g)}

May Presume{(Section 2(1)(h)}, Shall Presume{(Section 2(1)(l)} and Conclusive Proof{(Section 2(1)(b)}

Relevancy of Facts

Res Gestae (Section 4) Occasion, Cause & Effect (Section 5) Motive, Preparation, Conduct& Introductory Facts (Sections 6 & 7) Relevancy of facts constituting Conspiracy (Section 8) Alibi(Section 9)

Unit-II

Definition of Admission and Relevancy

Admission Defined & Persons who can make Admissions (Sections 15 -18) Proof of Admissions against the Persons making them (Sections 19- 20) Admissions in Civil cases (Section 21)

Definition of Confession and Relevance of Confessions, Dying declaration

Confession(Section 22) Confession to Police, Confession in the presence of Magistrate& Discovery Statement (Section 23) Confession by Co-accused& Evidentiary value of Retracted Confession (Section 24) Dying Declaration (Section 26) Relevancy of Previous Judgements (Sections 34- 38) Relevancy of Opinion of Experts (Sections 39- 45) Relevancy of Character (Sections 46-50)

Unit-III

Documentary Evidence

Facts Which Need Not be Proved (Sections 51-53) Oral and Documentary Evidence (Sections 54-77) Exclusion of Oral by Documentary Evidence (Sections 94-99)

Production and Effect of Evidence

Burden of Proof (Sections 104-114) Presumptions (116-120) Estoppel (121-123) Competence of Witnesses(Sections 124-127) Privileged Communications (Sections 128 -137) Accomplice as a Witness(Section 138) Hostile Witness (Section 157)

Unit-IV

Examination of Witnesses

Types of Examinations (Section 142) Leading Questions {(146 (1)(2)(3) & (4)} Questions which can be asked during different type of Examinations (Section 168) Impeaching the Credit of Witnesses (Section 158) Refreshing Memory (Section162) Improper Trial or Rejection of Evidence (Section 169) Digital Signatures & Digital Certificates (Sections 61-66) Recent Developments – Introduction to Electronic and Forensic Evidence

Bare Act-

• The Bhartiya Sakshya Adhiniyam, 2023

Text Books

- Batuk Lal, Law of Evidence, Central Law Agency, 2023
- Ratan Lal Dhiraj Lal, The Law of Evidence, Lexis Nexis, 2019
- Dr. Avtar Singh, Principles of the Law of Evidence, Central Law Publications, 2022
- Chief Justice M. Monir, Text Book on the Law of Evidence, Universal Law Publishing, 2018

Reference Books

- Vepa P. Sarathi, Law of Evidence, EBC, 2021
- Richard D. Friedman, Wigmore on Law of Evidence
- Chief Justice M.Monir, The Law of Evidence (In2Volumes)- Sarkar and Manohar, Sarkar on Evidence, Lexis Nexis, 2010
- Albert S. Osborn, The Problem of Proof, Nabu Press, 2010
- Ali and Woodroffe, Law of Evidence, Lexis Nexis, 2016

Paper: XXII

LL.B. Semester-V Code: 105112 Credit-4 M. M: 100 Theory : 70 Sessional: 30

Law of Crimes- II (The Bharatiya Nagarik Suraksha Sanhita, 2023)

Course objectives:

1. To understand the criminal Justice system in India.

2. The course will acquaint the student with organization of the functionaries under the Sanhita, their power and functions at various stages and the procedure according to which these powers and functions are to be exercised.

3. To understand how procedural law will promote and protect the interests of a common man, especially during police investigation.

4. The students will also undertake the study of two cognate Acts as a part of this course viz.; Juvenile Justice Act and Probation of Offenders Act.

Outcomes of the Course:

Students will be able to:

- 1. Understand the fundamentals of law with commitment towards learning.
- 2. Identify the stages of Investigation, Inquiry and Trial.
- 3. Research, analyze, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Outline of the course

Unit – I

Objects, Scope and extent of the Act, Definitions(Section 2), Constitution of Criminal Courts and Offices(Sections 6-20), Powers of Courts(Sections 21-29), Powers of superior officers of police and aid to the Magistrates and the Police (Sections 30-34).

Unit – II

Arrest of Persons(Sections 35- 62), Processes to Compel Appearance (Section 63-93), Process to compel the production of things(Section 94-110), Reciprocal arrangements for assistance in certain matters and procedure for attachment and Forfeiture of property(Sections 111-124), Security for keeping the peace and for good behavior(Sections 125-143), Order for Maintenance of Wives, Children and Parents(Sections 144-147), Maintenance of Public order and Tranquility (Sections 148-167), Preventive Action of the Police(Sections 168-172), Information to the Police and their Powers to Investigate (Sections 173-196), Jurisdiction of the Criminal Courts in Inquiries and Trials(Sections 197-209).

Unit – III

Conditions requisite for initiation for proceedings (Sections 210-222),Complaint to Magistrate (Sections 223-226), Commencement of proceedings before Magistrates (Sections 227-233), Limitations for taking Cognizance for certain offences (Sections 513-519), The

charge (Sections 234-247), ,Types of Trail (Session, Warrant, Summon and Summary trial, Sections 248-288), Plea bargaining(Sections 289-300), Attendance of persons confined or detained in person (Sections 301-306), Evidence in Inquiries and trials(Sections 307-336), General Provisions as to Inquiries and trials(Sections 337-366).

Unit – IV

The Judgment (Sections 392-406), Submission of Death Sentences for Confirmation (Sections 407-412), Appeals (Sections 413-435), Reference and Revision (Sections 436-445), Transfer of criminal cases (Sections 446-452), Execution, Suspension, Remission and Commutation of Sentences (Sections 453-477), Provision as to Bail and Bonds (Sections 478-496), Irregular proceedings (Sections 506-512), Inherent powers of High Court (Section 528), Salient features of the Juvenile Justice (Care & Protection of Children) Act, 2015 with latest Amendment, Salient features of the Probation of Offenders Act, 1958.

Bare Acts:

- The Bharatiya Nagarik Suraksha Sanhita, 2023
- Probation of Offenders Act, 1958
- Juvenile Justice (Care & Protection of Children) Act, 2015

Text Books:

- J.K. Verma, Bharatiya Nagarik Suraksha Sanhita, 2023 (Criminal Procedure) : A Commentary, EBC, 1st Edition, 2024.
- R.V. Kelkar- Criminal Procedure, EBC 2021.
- Ratanlal & Dhiraj Lal- The Code of Criminal Procedure, Lexis Nexis, 2020
- S.N.Mishra- The Code of Criminal Procedure, 1973 Central Law Publication, 2020,

Reference Books:

- P. S. A. Pillai, Criminal Law, Lexis Nexis, 2017
- S.C. Sarkar, Code of Criminal Procedure (Volume –I &II), Lexis Nexis, 2018
- S.R. Myneni, Criminal Procedure Code Law of Juvenile Justice & Probation Of Offenders, ALA, 2022

LL.B. Semester–V

Paper: XXIII

M.M:100 Theory:70

Sessional:30

Credit:4

Code:105113

Labour Law and Industrial Laws-I

Objectives of the Course

- 1. This course aims to introduce fundamental principles and regulations relevant in the domain to labour and industrial law.
- 2. It will focus on developing research, analysis and presentation among the students.
- 3. It also aims to disseminate legal awareness about the relevant legislation such as trade unions act, industrial dispute act, and employee's state insurance act particularly in the context of Uttarakhand.

Outcomes of the Course

Students will be able to:

- 1. Possess the necessary legal knowledge in the domain of Labour Laws.
- 2. Develop capacity to apply these regulations in industrial disputes.

Course Content

Unit-I: Trade Union Act, 1926

Trade Unionism in India Definition of trade union and trade dispute Registration of trade unions Legal status of registered trade union Mode of registration Powers and duties of Registrar Cancellation and dissolution of trade union Procedure for change of name Amalgamation and dissolution of trade union Disqualifications of office-bearers, Right and duties of office-bearers and members General and Political funds of trade union Civil and Criminal Immunities of Registered trade unions Recognition of trade union Collective bargaining

Unit-II: The Industrial Dispute Act, 1947 Resolution of Industrial Dispute

Industrial dispute and individual dispute Arena of interaction and Participants– Industry, workman and employer Settlement of industrial dispute Works Committee Conciliation Machinery Court of Enquiry Voluntary Arbitration Adjudication – Labour Court, Tribunal and National Tribunal settlement bodies and techniques Powers of the appropriate Government under the Industrial Disputes Act, 1947 Unfair Labour Practice

Unit-III: The Industrial Dispute Act, 1947

Instrument of Economic Coercion

Concept of strike Gherao Bandh and Lock-out Types of strike Rights to strike and Lock-out General Prohibition of strikes and lock-outs Prohibition of strikes and lock-outs in public utility services Illegal strikes and lock-outs Justification of strikes and lock-pouts Penalties for illegal strikes and Lock-outs Wages for strikes and lock-outs

Unit-IV: Employee's State Insurance Act, 1948

Historical Background Aims, Objects & Application Definitions Security Measures (Benefits Available) Employment Injury General Rules concerning benefits Authorities under the Act

Bare Acts

Trade Union Act, 1926, Industrial Employment (Standing Orders) Act, 1946 Industrial Dispute Act, 1947 Employee's State Insurance Act, 1948

Text Books

S.C. Srivastava, Labour Law and Industrial Relations, Vikas Publishing House, 2012.

- S.K. Puri, Labour and Industrial Laws, Allahabad Law Agency, 2017.
- G.B. Pai, Labour Law in India, Butterworths, 2001.
- V.G. Goswami, Labour Law and Industrial Law, Central Law Agency, 2019.

Reference Books

S.N. Misra, Labour and Industrial Law, Central Law Agency, 2020O.P. Malhotra, Industrial Disputes Act, Vol. I & II, Lexis Nexis, 2004Indian Law Institute, Cases and Materials on Labour Law and Labour Relations, Indian Law Institute, 2007

LL.B. Semester–V

Paper: XXIV (A)

Code: 105411

Credit-4

Sessional:30

Offences Against Children and Juvenile Offences

Objectives of the Course

- 1. To understand the meaning of Juvenile Delinquency and the factors responsible for its causation
- 2. To enable the students to understand the meaning of crime related to child
- 3. To introduce the student to various aspects of criminal liability and the logical classification of offences according to their gravity
- 4. To acquaint them to available National and International legal regimes pertaining to child protection.

Outcomes of the Course

Students will be able to:

- 1. Understand the various dimensions of the various aspects of crime and criminal behavior and the implementation of the law through Judicial interpretation
- 2. Work efficiently and with critical engagement with various concepts of Criminal law in relation to child protection, having due regard to the practical implementation of the principles in actual cases
- 3. Put in practice the acquired knowledge, procedural and practical aspects of jurisprudential law and will use logical, analytical and decision-making ability to deal with challenge

Course Content

Unit-I: Constitutional and International Legal Status of Child

Constitutional Concern-Articles 15(3), 21(A), 24, 39(e) & (f) and 45 International concern and endeavour for the welfare of children: Minimum Age conventions Child rights conventions U.N. Declaration of the Rights of the Child, 1924,1959 Contributions – UNESCO, UNICEF, CEDAW

Unit-II: Legal Control of Child Labor

International conventions and recommendations of the ILO The Factories Act, 1948 The Child Labor (Prohibition and Regulation) Act, 1986

Unit-III: Child and Criminal Liability: Statutory provisions

Sections82, 83,299 (Explanation3), 312, 313,314, 315,316, 317, 318, 363A, 372,376 and 377 of IPC. Section 27 of the Cr.P.C. The Prohibition of Child Marriage Act,2006 The Children Act, 1960 The Child Abuse Prevention and Treatment Act, 1974

Unit-IV: Juvenile Offence, Juvenile Delinquency and Sexual Abuse of Children

Concept of Juvenile Delinquency

Legal Position in India

The Juvenile Justice (Care and Protection of Children) Act, 2015 General Principles of Care and Protection of children Juvenile Justice Board: Procedure, Powers and functions Procedure in relation to children in conflict with law Children's Court and its Powers Child welfare committee: Procedure, Powers and functions Procedure in relation to children in need of Care and Protection Rehabilitation and Social Re-Integration. - Offences against Children. Probation of Offenders Act, 1958 (benefit of Section 6 of the Act)

Sexual Abuse of Children

Meaning, Definition, Nature and different types of Sexual Abuses Protection of Children from Sexual Offences Act, 2013 Preventive Sexual Assault and Aggravated Penetrative Sexual Assault (3 to 6) Sexual Assault and Aggravated Sexual Assault (7 to 10) Sexual Harassment (11, 12) Using Child for Pornographic Purpose (13 to 15) Abetment and Attempt to commit an offence (16 to 18) Procedure for Reporting Case (19 to 23) - Procedure for recording Statement (24 to 27) Special Courts and Procedure and Powers of Special Courts (28 to 38)

Text Books

S.C. Tripathi and Vibha Arora, Law relating to Women & Children, Central Law Publications, 2017

R.N. Choudhary, Law relating to Juvenile Justice in India, Orient Publishing House, 2015Mamta Rao, Law relating to Women & Children, Eastern Book Company,2018S.N. Jain (Ed.), Child and Law, Indian Law Institute,1979

Reference Books

K.D. Gaur, Textbook on Indian Penal Code, Universal Law Publishing Co.,2012
K.I. Vibhuti, PSA Pillai's Criminal Law, LexisNexis, ButterworthsWadhwa,2012
S.R. Myneni, Offences against Child and juvenile Offences, New Era Law
Publication, 2018
S.K. Chatterjee, Offences against Child and Juvenile Offences, Central Law
Publication, Allahabad, 2012
Ved Kumari, The Juvenile Justice System in India: From Welfare to Rights,
Oxford University Press India, 2010
M.S. Sabnis, Juvenile Justice and Juvenile Correction, Somaiya Publications Pvt.
Ltd., 1996 edition, 1996

N.K. Chakrabarty, Juvenile Justice in the Administration of Criminal Justice, Deep & Deep Publications, N 2000

LL.B. Semester–V

Credit:4

Code: 105412

Paper: XXIV (B)

M.M:100

Theory:70

Sessional:30

Women and Law

Objectives of the Course

1. To create awareness and to make the students familiar with women's issues and women's rights

To enable them to critically analyse women's issue on human right perspective
 To familiarize the students with the major historical developments of women's movement in their onward march to freedom and equality

4. To understand the nature and growth of women's movement in the modern age, covering arrange of issues pertinent to women's emancipation, dignity and status.

Outcomes of the Course

Students will be able to:

- 1. Appreciate the norms of equality and liberty as the basis of just and fair society.
- 2. Demonstrate that how and in what manner the laws relating to women should be considered in proper perspective.
- 3. Analyse the radical transformation in the position of women internationally as well as nationally.
- 4. Able to put in practice the acquired knowledge.

Course Content

Unit-1: Introduction: Status of Women : International and National Perspective Women Rights as Human Rights Universal Declaration of Human Rights, 1948 Convention on the Elimination of all forms of Discrimination against Women, 1979

Declaration on the Elimination of Violence against Women, 1993

Gender Equality and Constitution Preamble Political Rights, Economic Rights and Social Justice Fundamental Rights

Equality, Right to Livelihood, Right to Live with Dignity, Right against Exploitation

Directive Principles of State Policy

Equal Justice and Free Legal aid, Provision for Just and Humane Conditions of Work and Maternity Relief, Uniform Civil Code Fundamental Duties- Art. -51-A[e] Women's Representation in Local Bodies

Unit-II: Personal Laws and Women

Marriage Divorce Adoption Maintenance Succession Guardianship

Unit-III: Criminal Laws and Women

Adultery Rape (Custodial Rape, Gang Rape, Marital Rape) Outraging Modesty Domestic Violence Dowry Deaths Sexual Harassment

Unit-IV: Women Welfare Laws

The Dowry Prohibition Act, 1961 Pre-conception and pre-natal diagnostic techniques (Prohibition of Sex Selection) Act, 1994 Indecent Representation of Women (Prohibition) Act, 1986ImmoralTraffic (Prevention) Act, 1986 Protection of Women against Sexual Harassment at Workplace Act, 2013 Protection of Women Against Domestic Violence Act, 2005

Labour Welfare Legislations:

Maternity Benefit Act, 1961 Factories Act, 1948 Equal Remuneration Act, 1976

Text Books

S.C. Tripathi and Vibha Arora, Law relating to Women & Children, Central Law Publications,2017Mamta Rao, Law relating to Women & Children, Eastern Book Company, 2018S.N. Jain (Ed.), Child and Law, Indian Law Institute,1979

Reference Books

Anjani Kant, Women and the Law, A.P.H Publishing Corporation, 2008 Arunima Baruah, The Soft Target-Crime Against Women, Kilaso Books, 2004 Dalbir Bharathi, Women and the law, A.P.H Publishing Corporation, 2008 P.D. Kaushik, Women Rights- Access to Justice, Bookwell, 2007 National Commission for Women, Gender Equity-Making it Happen, Strategies and Schemes of Government of India, NCW, 2001 LL.B. Semester–V

Paper: XXIV (C)

Code:105413

Credit:4

Theory:70

Sessional:30

Human Rights Law and Practice

Objectives of the Course

- 1. To expose students about concepts and ideas of Human rights.
- 2. To focus on the study of Law relating to Human rights in National and International perspectives.
- 3. To understand the development of Human rights Law in practice.
- 4. To understand the Conventions related to Human rights.

Outcomes of the Course

Students will be able to:

- 1. Understand the fundamentals of law with commitment towards learning.
- 2. Interpret the conceptual basis of legal principles with comparative analysis.
- 3. Research, analyze, rationalize and present effectively.
- 4. Expose the students about Enforcement of Human Rights in India

Course Content

Unit-I: Introduction

Concept and nature of Human Rights, History, Evolution and Growth of Human Rights, Development of Human Rights in International Law, Human Rights & U.N. Charter.

Unit-II: International Conventions

International Protection of Human Rights: Universal Declaration on Human Rights, International Covenant on Civil & Political Rights 1966, International Covenant on Social, Cultural and Economic Rights 1966, Regional Protection of Human Rights: European Convention on Human Rights, American Convention on Human Rights, African Charter on Human and People's Rights, Amnesty International.

Unit-III: Enforcement and Development of Human Rights in India

Enforcement of Human Rights, Development of Human Rights in India, Human Rights under the Indian Constitution and their Enforcement, Fundamental Rights Conventions against Torture, Inhuman and Degrading Behaviour, Directive Principles of State Policies

Unit -IV: Protection of Human Rights Act, 1993

Protection of Human Rights Act, 1993: Characteristics features, Promotion and Protection of Human Rights in India: National Human Rights Commission, State Human Rights Commission, Human Rights Courts. Human Rights during Armed Conflict, Awareness and Education of Human Right.

Text Books

S.K. Kapoor, Human Rights under International Law & Indian Law, Central Law Agency, 2017

D.D. Basu - Human Rights in Constitutional Law, Lexis Nexis,2008

H.O. Agarwal, Human Rights, Central Law Publicationc, 2020

Rashee Jain, Textbook on Human Rights Law and Practice, Universal Law Publishing, 2016

Reference Books

H.O. Agarwal, -International Law & Human Right, CLP, 2018S.K. Kapoor- International Law and Human Rights, Central Law Agency, 2021

Bare Act, The Protection of Human Right Act, 1993.

LL.B. Semester–V Code:105611 Credit-4

M.M:100 Theory:70 Sessional:30

Drafting, Pleading and Conveyancing (Clinical/Practical Paper)

Paper: XXV

Objectives of the Course

- 1. This course aims to introduce basic principles of drafting and pleading to the students.
- 2. During the course, format of applications, plaint and other forms of legal writing will be discussed in the class.

Outcomes of the Course

Students will be able to:

- 1. Understand the format and requirements of drafting in the legal proceedings.
- 2. Draft legal documents such as legal notices, applications and plaint etc. which will be useful in litigation.

Course Content

Unit-I: General Principles of Drafting and Pleading

Drafting rules Forms of Pleading

Unit-II: Criminal Pleading

Bail Application Complaint Criminal Revision Criminal Appeal

Unit-III: Civil Pleading

Plaint Written Statement Interlocutory Applications Original Petition Execution Petition Memorandum of Civil Appeal Petition Under Article 226 and Article 32 of The Constitution of India.

Unit-IV: Conveyancing

Essentials of Deeds Sale Deed Mortgage Deed Lease Deed Gift Deed Affidavit Promissory Note Power of Attorney (General) Power of Attorney (Special) Will Agreements Partnership Deed

Text Books

M.C. Agarwal and G.C. Mogha, Mogha's Law of Pleadings in India, Eastern Law House, 2016. M.R. Mallick, Ganguly's, Civil Court: Practice and Procedure, Eastern Law House, 2016.

Reference Books

J.M. Srivastava and G.C. Mogha, Mogha's The Indian Conveyancer, Eastern Law House, 2008. C.R. Datta and M.N. Das, De Souza's, Forms and Precedents of Conveyancing, Eastern Law House, 1999.

Paper: XXVI

LL.B. Semester–VI Code: 106111 Credit:4

M.M:100 Theory:70 Sessional:30

Labour & Industrial Law–II

Objectives of the Course

- 1. This course aims to introduce fundaments principles and regulations relevant in the domain to labour and industrial law.
- 2. It will focus on developing research, analysis and presentation among the students.
- 3. It also aims to disseminate legal awareness about the relevant legislation such as minimum wages act, payment of wages act, factories act and workman's compensation act particularly in the context of Uttarakhand.

Outcomes of the Course

Students will be able to:

- 1. Equip graduate student with the necessary legal knowledge, expertise in labour and industrial law.
- 2. Develop capacity to apply these regulations in industrial disputes.

Course Content

Unit-I: Minimum Wages Act, 1948

Concept of minimum wage, fair wage, living wage and need based minimum wage Constitutional validity of the Minimum Wages Act, 1948 Procedure for fixation and revision of minimum wages Fixation of minimum rates of wages by time rate or by piece rate Procedure for hearing and deciding claims

Unit-II: Payment of Wages Act, 1936

Object, scope and application of the Act Definition of wages Responsibility for payment of wages Fixation of wage period Time of payment of wage Deductions which may be made from wages

Maximum amount of deduction

Unit-III: Workmen's Compensation Act, 1923

Definition of dependent, workman, partial disablement and total disablement Employer's liability for compensation Employer's Liability when employee is employed under any contract or is engaged independently or by an independent contractor Amount of Compensation

Unit-IV: Factories Act, 1948 & Maternity Benefits Act, 1961

Concept of "factory", "manufacturing process" "worker" and "occupier" General duties of occupier Measures to be taken in factories for health, safety and welfare of workers Working hours for adults Maternity Benefits Act: Aims and Objects & Application, Definitions, Restriction of work, Right to Payment, Forfeiture of Maternity Benefits (v) Other Provision (Leaves etc.), Authorities, Powers & Duties of Inspectors and Penalty

Text Books

S.C. Srivastava, Labour Law and Industrial Relations, Vikas Publishing House, 2012.

S.K. Puri, Labour and Industrial Laws, Allahabad Law Agency, 2017.

G.B. Pai, Labour Law in India, Butterworths, 2001.

V.G. Goswami, Labour Law and Industrial Law, Central Law Agency, 2019.

Reference Books

S.N. Misra, Labour and Industrial Law, Central Law Agency, 2020. O.P. Malhotra, Industrial Disputes Act, Vol. I & II, Lexis Nexis, 2020. Indian Law Institute – Cases and Materials on Labour Law and Labour Relations, Indian Law Institute, 2007. LL.B. Semester–VI Code: 106112 Credit:4 Paper: XXVII

M.M:100 Theory:70 Sessional:30

Environmental Law

Objectives of the Course

1. To acquaint students of Indian approach to the problem of environmental pollution.

2. To explore the international obligations of the country for protection of environment.

3. To make the students aware about the legislative measures for protection of environment and spirit of Indian Constitution for protection of environment.

4. To make students understand the activist role played by Indian Judiciary in protection of environment and evolution of different principles such as polluter pay principle, precautionary principle, inter-generational equity and sustainable development.

Outcomes of the Course

Students will be able to:

- 1. Understand and explain the importance and basic principles of environmental law in India with current developments.
- 2. Analyze the social, historical, constitutional and legal developments on environmental law in India vis-a-vis international developments in the field.
- 3. Comprehend and appreciate the applicable legal regime specifically legislated for environmental protection and pollution in India.
- 4. Understand and appreciate the structure, functioning and jurisprudence of Special Courts and Tribunals in India on environmental issues.

Course Content

Unit-I: Concepts of Environmental Protection

Environmental Protection & its Importance, Global Warming and Depletion of Ozone Layer, Constitutional Provision and Environment Protection in India, Sustainable Development, International Concern for Environment Protection and Role of Judiciary in India, WTO and Environment Protection.

Unit-II: Environmental Legislations

Environmental Protection Act 1986 The National Green Tribunal Act, 2010

Hazardous Waste Management Rules, 2016

Unit-III: Air and Water Legislations

Water (Prevention and Control of Pollution) Act 1974 Air (Protection and Control of Pollution) Act 1981

Unit-IV: Wildlife and Forest Legislations

Wildlife (Protection) Act 1972 Forest (Conservation) Act 1980 Indian Forest Act, 1927.

Text Books

S.C. Shastri, Environmental Law, Eastern Book Company, Lucknow, 2005
I.A. Khan, Environmental Law, Central Law Agency, Allahabad, 2002
Amod S. Tilak, Environmental Law, Snow White Publication, Mumbai.
Shyam Divan and Armin Rosencranz, Environmental Law and Policy in India, Oxford University Press, New Delhi, 2005
Maheshwara Swamy, Textbook on Environmental Law, Asia Law House, Hyderabad, 2008
P Leelakrishnan, Environmental Law in India, Lexis Nexis, New Delhi, 2005
S. Shantakumar, Introduction to Environmental Law, Wadhwa & Company, Nagpur, 2005

Reference Books

Indra Priya, Environmental Law sustainable Development Asia Law Agency, 2010 K. Uma Devi, Sustainable Development, Asia Law House, 2010 Ratan Joshi, Environmental Study, Sahitya Bhawan Publication, Allahabad, 2019 Philippe Sands, Principles of International Environmental Law: Frameworks, Standards and Implementation, Cambridge University Press,2003 Stuart Bell & Donald Me Gillivray, Environmental Law – The Law and Policy Relating to the Protection of the Environment, Oxford University Press,2006 Daniel Budansky, The Art and Craft of International Environmental Law, Harvard University Press,2010 LL.B. Semester–VI Code: 106113 Credit:4 Paper: XXVIII

Principles of Taxation

Objectives of the Course

- 1. To analyse the basics of Income Tax Laws.
- 2. To apply the basics of heads of Incomes and computation procedures.
- 3. To explanation of legal solution for the problems relating to computation of Heads of Incomes and computation procedures.
- 4. To elucidate Tax authorities and recovery of taxes.

Outcomes of the Course

Students will be able to:

- 1. Explain canon of taxation including exemption & deductions of taxes.
- 2. Apply general principles of Heads of Incomes and its computational procedures on Assesses.
- 3. Evaluate basic concepts of Tax Authorities and Recovery of taxes.
- 4. Design a tax-payer friendly modality for practical and procedural legal issues, involve under taxation system.

Course Content

Unit-I: Introduction

Definitions.

Basis of Incomes- Charge of Income Tax, Scope of Total Income, Residential Status of an Assessee, Income deemed to accrue or arise in India and Foreign Income & its taxability.

Unit-II: Incomes which do not form part of Total Income

Incomes not included in total income.

Special provision in respect of newly established industrial undertaking in free trade Zone. Special provision in respect of newly established hundred percent export-oriented undertaking Income from property held for charitable or religious purpose. Income of trusts or Institutions from contributions. Section 11 not to apply in certain cases. Special provisions relating to incomes of Political parties.

Unit-III: Heads of Income

Salaries Income from House Property Profit and Gains of Business or Profession Capital Gains Income from other sources.

Unit -IV: Tax Authorities

Powers and Procedures for adjudication & settlement, Collection and recovery of Taxes Appeal, Reference and Revision.

Constitutional framework for GST and Salient Features of Goods & Services Laws.

Text Books

Pradeep S Shah, Taxmann's Master Guide to Income Tax Act, Taxmann Publications Pvt.. Ltd., 2021

H.C Mahrotra, Income Tax Law, Sahitya Bhawan Publications, 2020

Singhania, BK: Students Guide to Income Tax including GST, Taxmann Publications Pvt.Ltd.,2021 Vinod K Singhania, Taxmann's Direct Taxes Law, Taxmann Publications Pvt.Ltd., 2021

Reference Books

Girish Ahuja, Ravi Gupta, Systematic Approach to Income tax, Wolters Kluwer India Pvt. Ltd., 2019

Vinod K Singhania, Direct Taxes & Practice, Taxmann Publications Pvt.Ltd., 2021 Arvind P. Datar, Palkhiwalas' The Law and Practice of Income tax, 2 Vol., Lexis Nexis, 2014

Dr. P.K. Jain, Income Tax Law and Accounts, SBPD Publishing House, 2020

LL.B. Semester–VI Code:106411 Credit-4 Paper: XXIX (A)

Intellectual Property Rights Law

Objectives of the Course

- 1. To introduce fundamental aspects of Intellectual property Rights to students.
- 2. To disseminate knowledge on copyrights and its related rights.
- 3. To disseminate knowledge on patents, patent regime in India and abroad.
- 4. To disseminate knowledge on trademarks.

Outcomes of the Course

Students will be able to:

- 1. To get an adequate knowledge on patent and copyright for their innovative research works.
- 2. Interpret the conceptual basis of legal principles with comparative analysis.
- 3. Research, analyse, rationalize and present effectively.
- 4. Apply the legal principles and procedures in practice.

Course Content

Unit-I: IPR and International Conventions

Basic concept of IPR, The meaning of Intellectual property, Nature, the forms of intellectual property, Introduction to the leading international instruments concerning intellectual property rights: the Berne Convention, Universal Copyright Convention, the Paris Union TRIPS the World Intellectual Property Rights Organisation (WIPO) and the UNESCO

Unit-II: Copyright Act, 1957

Historical evolution of the copyright law in India, Meaning and Nature of copyright, Copyright in literacy, dramatic and musical works, Copyright in sound records and cinematograph films, Registration Procedure, Ownership of copyright, Assignment and licence, Copyright authorities,Performer's Right, Author's Special Right, Infringement of Copy right and remedies including Anton Pillor, injunctive relief in India

Unit-III: Patents Act, 1970

Concepts and Historical view of the patents, Nature and object of patent law and its scope in India;Elements of Patentability: Novelty, Non Obviousness (Inventive Steps), Industrial Application, Non-Patentable Subject Matter, Process of obtaining a patent: application, examination, opposition and sealing of patents: general introduction, Prior publication or anticipation, Procedure for filing patents, Rights and obligations of a patentee, Compulsory licences, Infringement, defences, Injunctions, Remedies & Penalties - Patent office and Appellate Board

Unit-IV: Trade Marks Act, 1999

Concept of Trademarks - Different kinds of marks (brand names, logos, signatures, symbols, well known marks, certification marks and service marks) - Non Registrable Trademarks - Registration of Trademarks - Rights of holder, assignment and licensing of marks, Passing off and infringement, Remedies & Penalties - Trademarks registry and appellate board

Text Books

W.R Cornish, Intellectual Property, Patents, Trademarks, Copy Rights and Allied Rights Asia Law House, 2019

Vikas Vashishth, Law & Practice of Intellectual Property Bharat Law House, 2002

P. Narayanan, Intellectual Property Law, Eastern Law House, 2020

Bibeck Debroy (ed) Intellectual Property Rights Rajiv Gandhi Foundation, 2004

W.R. Cornish, Intellectual Property, Sweet and Maxwell, 2007

M.K. Bhandari, Law relating to Intellectual Property Rights, Central Law Publication, 2021

Reference Books

P. Neeraj, & Khusdeep, D. Intellectual Property Rights, India, IN: PHI learning Private Limited, 2014

B.L. Wadhera, Patents, trademarks, copyright, Designs and Geographical Judications, Universal Law Publishing, 2007

A. K. Yadav, Copyright in Digital Era, Scholar's Press, 2014

Ahuja, V K. Law relating to Intellectual Property Rights. India, IN: Lexis Nexis.2017

Ashwani Kumar Bansal, Design Law, Universal Law Publishing Company, 2012

LL.B. Semester–VI Code:106412 Credit:4

Health Care Laws

Objectives of the Course

- 1. To develop basic understanding of the Health Law.
- 2. To contextualize the constitutional dimension to 'right to health', obligations of medical professionals and complex issues such as 'consent', 'confidentiality' and 'medical negligence.
- 3. To acquaint the students with both the conceptual and practical application of medicolegal guidelines, medical ethics and develop effective strategies to prevent and defend medical negligence litigation.
- 4. To enable the students to apply the knowledge in legal practice.

Outcomes of the Course

Students will be able to:

- 1. Understand the basic rules and doctrines of Health Law.
- 2. Understand the importance of the values and policies underlying Health law.
- 3. Research, analyse, rationalize and present effectively.
- 4. Apply the Health law to real-world problems.

Course Content

Unit-I: Introduction

- a. Healthcare as an issue at the national and international level
- b. Constitutional provisions:

Right to Health as a Fundamental Right; Remedies available under the Indian Constitution; Right to health vis-à-vis the right to confidentiality; Access to medical records

- c. National Health Policy
- d. Medical insurance
- e. Medical Ethics & Etiquettes

Unit-II:

- a. Problem of Drug Abuse & Drug Addiction Causes,
- b. Consequences & Remedial Measures
- c. The Problem of AIDS and its Socio-Medico Legal Aspects

Unit- III:

a. Medical Negligence

Essential features of Medical Negligence; Role of consent in medical practice; Confidentiality and medical practice; Error of judgment and gross negligence; Wrongful diagnosis and negligent diagnosis

b. Remedies for Medical negligence

Law of Torts; Law of Crimes; Consumer Protection Law

Unit-IV:

Legal Regulation of Transplantation & Human Organs Legal Regulation of Prenatal Diagnostic Techniques Medical Termination of Pregnancy, Artificial Insemination Reproductive technology – surrogate motherhood

Bare Acts

The Drugs and Cosmetics Act, 1940 The Indian Medical Council Act, 1956 The Indian Medicine Control Council Act, 1970 Medical Termination of Pregnancy Act, 1971 Transplantation of Human Organs Act, 1994 Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994 Vijay Malik, Drug and Cosmetic Act, 1940

Text Books

Anoop K. Kaushal, Medical Negligence & Legal Remedies, Universal Law Publishing, 2016
Jagdish Singh, Medical negligence & Compensation, Bharat Law Publications, 2014
P.K. Dutta, Drug Control, Eastern Law House, 2003

Reference Books

Jonathan Herring, Medical Law and Ethics, Oxford University Press, 2020

S. V. Joya Rao, Current Issues in Criminal Justice and Medical Law, Eastern Law House, 1999
LL.B. Semester–VI Code:106413 Credit-4 Paper: XXIX (C)

M.M:100 Theory:70 Sessional:30

Private International Law

Objectives of the Course

1. To introduce the concepts of jurisdiction, choice of law and the recognition and enforcement of judgments and their role in the reconciling conflict of laws.

2. To make students familiar with the concept of adoption and family law matters and their interface with the principles of private international law.

3. To develop the ability to apply the knowledge gained through this course in relevant cases and identify solutions.

Outcomes of the Course

Student will be able to:

- 1. Understand the principles of conflict of laws and its application in cases involving foreign element.
- 2. Apply the principles of conflict of laws in relation to the Indian legal mechanism and its practices.
- 3. Analyze the issue of jurisdiction and application of foreign laws in a case where foreign element are involved.

Course Content

Unit-I: Introduction

Application and subject matter of Private International Law, Hague Convention on Private International law. Distinction with Public International Law, Characterization and theories of characterization, Concept of Renvoi, Double Renvoi (Doctrine of Court) Application of foreign law. Domicile Jurisdiction of courts, Introduction to *lex-loci* and *lex-fori* concepts. Depecage

Unit-II: Family Law matters

Material and formal validity of marriage under Indian and English law. Hague Convention on Recognition of Divorces and Legal Separations and Civil Abduction Aspects of Child abduction Bill 2016, India.

Choice of law and jurisdiction of courts in matrimonial causes: dissolution of marriage, grounds of divorce, restitution of conjugal rights, recognition of foreign judgments.

Unit – III: Adoption

Recognition of foreign adoptions, Hague Convention on Protection of Children and Cooperation in Respect of Inter country Adoption.

Hague Conference on Private International Law on Family Law, and Child Abduction Convention.

Adoption by foreign parents.

Jurisdiction under Indian and English law.

Unit - IV: Indian Law relating to foreign judgment

Basis of recognition, recognition.

Finality, Failure.

Recognition and enforcement for foreign arbitral awards.

Direct execution of foreign decrees.

Bare Acts

Civil Procedure Code, 1908 Indian Succession Act, 1925

Text Books

North and Fawcett, Cheshire and North's Private International Law, 13th ed., Butterworths: New Delhi, 1999

Reference Books

Abla Mayss, Principles of Conflict of Laws, 3rd ed. Cavendish Publishing Ltd., U.K., 1999 John O'Brien, Smith's Conflict of Laws, Cavendish Publishing Ltd., U.K., 1999 Nandan Kamath, Law Relating to Computers Internet and e-commerce, Universal Law Publishing, New Delhi, 2001 Paras Diwan and Peeyushi Diwan, Private International Law, 9th ed., Deep and Deep Publications, Delhi, 1998 Paper: XXX

LL.B. Semester–VI Code:106811 Credit:4

Project/File+Vivavoce=60+10=70

Sessional=30

M.M:100

Moot Court Exercise and Internship (Clinical/Practical Paper)

Objectives of the Course

- 1. To promote the growth and knowledge of practical skills in students.
- 2. To develop the ability in students in researching and arguing.
- 3. To make the student understand and appreciate court room mannerisms.
- 4. To expose students as nearly as possible to court room situations.
- 5. To develop in them subtle techniques to interview clients.

Outcomes of the Course

Student will be able to:

- 1. Participate in Intramural and Intermural moot court competitions.
- 2. Demonstrate the skills set for effective argumentation.
- 3. Identify legal issues and address them.
- 4. Learn to work in teams and develop the co-operative nature essential for then legal practice.
- 5. Interview clients and advise them on the procedural aspects of litigation, costs and possible legal and social consequences.

This paper will have three components of 20 marks each, which will be prepared by the student in the form of a project/file. The fourth component of this paper will be viva-voce examination of 10 marks. There will also be a sessional examination of 30 marks conducted by the department/college.

(A) Moot Court

Every student will do at least two moot courts during this semester with 10 marks for each. The moot court work will be on assigned problems and it will be evaluated for 5 marks for written submissions (to be recorded in a diary of the sessional work) and 5 marks for oral Advocacy.

(B) Observance of Trial in two cases – One Civil and One Criminal

Students will attend two trials in the VI Semester. They will maintain a record and enter the various steps observed during their attendance on different days in the Court assignment. Every student will attend the court for two weeks in the whole semester. This scheme will carry 20 marks.

(C) Internship/Interviewing techniques and Pre-trial preparations

This part will require the students to be attached with a practicing lawyer of at least 10 years practice. Preparation of this has to begin from the first semester. Each student is required to spend at least one month doing internship during the summer vacation/winter break etc. Each student will observe two interviewing sessions of clients at the Lawyer's Office/Legal Aid Office and record the proceeding in a diary which will carry 10 marks. Each student will further observe the preparation of documents and court papers by the advocates and the procedure for the filing of the suit/petition. This will be recorded in the diary, which will carry10 marks.

(**D**) The fourth component of this paper will be viva-voce examination on all the above three aspects. This will carry 10 marks.

UNIVERSITY ENTRANCE EXAMINATION (UET) [2025-26]

SYLLABUS FOR M.ED. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – M.ED.</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

<u>M.Ed.</u>

Unit I.

Basics of Education:

Meaning and nature of Education:

- Modes of Education- Formal, Non-formal, Open and MOOCS.
- Aims of Education
- Philosophy and Education
- Meaning and Scope of Philosophy
- Functions of Philosophy
- Relationship between Education and Philosophy
- Significance of Philosophy of Education

Western Schools of Philosophy:

- Naturalism
- Idealism
- Pragmatism
- Existentialism their educational implications for aims content
- Methods of teaching and role of a teacher and concept of discipline
- Educational Thinkers: M.K Gandhi, Allama, Iqbal, John Dewey, J.J Rousseau.

Unit II.

Indian Society and Education:

- Education as a sub-system of Indian Society
- Education and relationship with Indian Social Structure
- Social Demand for Education

School as a Social Unit:

- Democracy in School life
- Culture and Education

Unit III

Psychology & Educational Psychology:

Nature & Meaning of Psychology

• Nature, Meaning and functions of Educational Psychology

Learning & Motivation:

Concept of learning & Motivation

• Factors of influencing learning – Personal & Environmental

Techniques of enhancing learner's motivation

- S-R Theory of Learning (Thorndike)
- Classical conditioning (Pavlov)
- Operant Conditioning
- Theory of learning (Skinner) and Gestalt Theory of Learning (Kohler et al)
- Cognitive theory (Piaget)
- Social Development Theory (Vygotsky) Behaviorism
- Constructivism and Eclectic approach

Intelligence and Personality:

Nature & Meaning, Measurement of Intelligence:

- Concept of I.Q
- Verbal, Non- verbal & Performance tests
- Two-factor Theory (Spearman)
- Multifactor Theory (Thurston)
- Structure of intellect (Guilford)
- Multiple Intelligence (Gardner) Personality

Meaning & Nature and Development of Personality

- Biological & Socio-culture determinant a brief overview of Trait-theory of Personality (Allport)
- Factor-theory of Personality (Cattell)
- Psycho analytical theory of Personality (Freud)
- Maslow's hierarchy of needs and their Educational implication

Unit V

- Definition, concept and importance of inclusive education
- Historical perspectives on education of children with diverse needs
- Difference between special education integrated education and inclusive education
- Advantages of inclusive education for all children

Unit VI Concept & Functions of Educational Management

- Basis of management Planning
- Organizing, Control, Direction and Financing
- School as a unit of decentralization planning

Unit VII Modern Management Techniques:

- Case study
- Man power surveys
- Educational Management Information System (EMIS)

Nature, Scope & types of Guidance

- Meaning and Definitions of Counseling
- Counseling as profession

Phases of Counseling Process:

- Assessment, Intervention, and Termination
- Qualities of an Effective Counselor

Unit VIII Elementary Education in India, Concept of Elementary Education

- Objectives of Elementary Education (UEE)
- District Primary Education Programme (DPEP)
- Universalization of Elementary Education (UEE)
- Sarva Shiksha Abhiyan (SSA) 2002
- Right to Education Act (RTE) 2009

Unit IV

Unit IX Current issues:

- Universalization of Elementary Education with special reference to Sarva Shiksha Abhiyan
- Education of children with special needs
- Women's Education
- Education of Weaker Sections

Unit X Teaching Process:

- Concept of teaching
- Characteristics & Functions of teaching
- Principles & Maxims of teaching

Techniques of Teacher-Preparation:

- Microteaching Nature & Meaning
- Main proposition, Phases, Steps, Merits & Limitations
- Simulated Nature & Meaning
- Teaching Role Play
- Advantages & Limitations
- Programmed learning- Meaning & Characteristics
- Learning Principles & Development of the Programmed instructions. Types. Merits & Demerit

UNIVERSITY ENTRANCE EXAMINATION (UET) [2025-26]

SYLLABUS FOR ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – M.P.ED.



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND The written test comprising of 100 multiple choice question carrying 100 marks. Questions shall be based on B.P.Ed. course syllabus of HNB Garhwal University Srinagar.

HNBGU, Srinagar Garhwal (Uttarakhand)



ORDINANCE (Revised on 25.05.2024)

Bachelor of Physical Education

(**B.P.Ed.**)

(Two Year Programme)

DEPARTMENT OF PHYSICAL EDUCATION SCHOOL OF EDUCATION

CURRICULUM FRAMEWORK

GUIDELINES OF REGULATIONS AND SYLLABUS STRUCTURE FOR B. P. Ed. TWO YEARS PROGRAMME (FOUR SEMESTERS) CHOICE BASED CREDIT SYSTEM (CBCS)

Preamble: Bachelor of Physical Education (B. P. Ed.) two years (Four Semesters Choice Based Credit System) programme is a professional programme meant for preparing teachers of physical education in classes VI to X and for conducting physical education and sports activities in classes XI and XII.

B. P. Ed. programme shall be designed to integrate the study of childhood, social context of Physical Education, subject knowledge, pedagogical knowledge, aim of Physical Education and communication skills. The programme comprises of compulsory and optional theory as well as practical courses and compulsory school internship.

Intake, Eligibility and Admission Procedure:

The Intake and Eligibility are as per the latest NCTE norms and standards. (The relaxation in the percentage of marks in the qualifying examination and in the reservation of seats for SC/ST/OBC and other categories shall be as per the rules of the Central Government/State Government, whichever is applicable).

Age:-

For General category candidates the upper age limit is 28 years as on 1st July of the academic year. Age relaxation for SC, ST and OBC candidate will be given according to the rules and regulation of GOI.

Number of seats: 62* (Sixty-Two) seats are approved by NCTE New Delhi for B.P.Ed. course.

Note:-

* At present 50 seats have been increased to 62 seats for the admission after implementation of 10% reservation quota for EWS category as per the direction of Govt. of India.

*Married girl is eligible for admission to B.P.Ed. programme. But, it is also compulsory for her to sign an undertaking that she will discontinue the programme at once for at least one academic year, if she gets pregnant during the course of study. She can join back afresh from the beginning of the semester keeping the guidelines pertaining to the maximum duration of the course in mind.

*No differently-abled candidate is eligible for the admission in B.P.Ed. Course.

Admission procedure:-

Admission shall be made on merit on the basis of marks obtained in the entrance examination consisting of 100 marks based on the following.

a-	Written test	50 marks
b-	Physical fitness test	40 marks
c-	Sports achievement	10 marks

The total entrance test will be conducted in two days and could be extended, if needed and it will be conducted at BCC campus Srinagar.

(A) Written Test: - Theory Paper comprising of 50 multiple-choice questions of one hour duration carrying 50 marks. Questions shall be based on B.P.Ed. course taught in the HNBGU Srinagar Garhwal.

(B) Physical Fitness test :- There shall be Physical Fitness test of 40 marks will be conducted by Internal Examiners of Department of Physical Education, HNBGU at Srinagar Garhwal. Following events will be conducted in the fitness test:-

	<u>Men's</u>	Women's
1.	50 Meter Dash	50 Meter Dash
2.	Bent knee sit-up (1 minute)	Bent knee sit-up (1 minute)
3.	Medicine ball throw (5 kg)	Medicine ball throw (3 kg)
4.	Standing broad jump	Standing broad jump
5.	800 meter run/walk	600 meter run/walk

(C) Sports Achievement Weightage:- In Sports Participation Weightage, candidate shall be given of maximum 10 marks weightage on the basis of their sports participation in any one of the following level:

Participation		Marks	
International	:	10	
Senior National championship/Natio	nal Games:		
1st Place	:	10	
2nd Place	:	09	
3rd Place	:	08	
Participation	:	07	
All India Inter-Zonal Inter Universit	y Competit	ions/Khelo India Inter University/Youth Games (U-21	l):
1st Place	:	08	
2nd Place	:	07	
3rd Place	:	06	
Participation	:	05	
Zonal Inter University/Junior Nation	nal/School N	National competition/Khelo India Youth Games (U-17)):
1st Place	:	07	
2nd Place	:	06	
3rd Place	:	05	
Participation	:	04	
Senior State Championship/Rural na	ational game	es/Woman Festival:	
1st Place	:	04	
2nd Place	:	03	
3rd Place	:	02	
Participation	:	01	

Note:-

*The marks will be given in only those games/sports, which are in the competition list of Association of Indian Universities (AIU) /IOA/ and/or School Games Federation of India (SGFI).

*The participation must be of last **five** academic sessions.

*The school state championship and inter collegiate championship participation shall be considered for eligibility criteria only; the candidate shall not get any marks for sports weightage.

*Sports participation marks shall be given on producing valid supporting certificate only. The highest possible weightage shall be given to the applicant in one category only, If he/she has participated in more than one category.

Medical examination:-

Qualified candidates will have to submit medical certificate by CMO and blood group certificate to the concern office.

Course fee: The total course fee is Rs 10,000/-, shall be deposited in the online mode of in favor of the **Finance Officer, HNBGU Srinagar Garhwal, Uttarakhand**. Rs 5,000/- shall be deposited in the beginning of each session.

Duration: The B.P.Ed programme shall be of duration of two academic years, that is, four semesters. However, the students shall be permitted to complete the programme requirements within a maximum of **three** years from the date of admission to the programme.

The student, who discontinue the programme after one year or more semesters due to extraordinary circumstances, are allowed to continue and complete the programme with due approval from the registrar.

The CBCS System: B.P.Ed. Programmes shall run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students, to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education.

Course: The term course usually referred to, as 'papers' is a component of a B.P.Ed. programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise Lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

Courses of Programme: The B.P.Ed. Programme consists of a number of courses, the term 'Course' applied to indicate a logical part of subject matter of the programme and is invariably equivalent to the subject matter of a "paper" in the conventional sense. The following are the various categories of courses suggested for the B.P.Ed. Programme.

Theory & Practicum: Core Course Elective Course Teaching Practices

Semesters: An academic year is divided into two semesters. Each semester will consist of 17-20 weeks of academic work equivalent to 100 actual teaching days. The odd semester may be scheduled from May/June to November/December and even semester from November / December to May/June. The institution shall work for a minimum of 36 working hours in a week (five or six days a week).

Working days: There shall be at least 200 working days per year exclusive of admission and examination processes etc.

Credits: The term 'Credit' refers to a unit by which the programme is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or one and half hours of practical work/field work per week. The term 'Credit' refers to the weight given to a course, usually in relation to the instructional hours assigned to it. The total minimum credits, required for completing a B.P.Ed. Programme is 90 credits and for each semester 20 credits. Total Number of hours required to earn 4 credits for each Theory Course are 68-80 hours per semester whereas 102-120 hours for each Practicum Course.

Condonation: Student must have 75% of attendance in each course for appearing the examination. Students who have 74% to 65% of attendance shall apply for condonation in the prescribed form along with the Medical Certificate or proof of participation in intercollege or inter university competitions. Students who have 64% to 50% of attendance shall apply for condonation in prescribed form along with the Medical Certificate. Students who have below 50% of attendance are not eligible to appear for the examination.

S. No.	Special Credits for Extra Co-curricular Activities	Credit
1.	Sports Achievement at Stale level Competition (Medal Winner)	1
	Sports Achievement National level Competition (Medal Winner)	2
	Sports participation International level Competition	4
2.	Inter Uni. Participation (Any one game)	2
3.	Inter College Participation (min. two game)	1
4.	National Cadet Corps / National Service Scheme	2
. 5.	Blood donation / Cleanliness drive / Community services	2
6.	Mountaineering – Basic Camp, Advance Camp / Adventure Activities	2
7.	Organization / Officiating – State / National level in any two game	2
8.	News Reposting / Article Writing / book writing / progress report writing	1
9.	Research Project	4

Provision of Bonus Credits Maximum 06 Credits in each Semester

Students can earn maximum **06 Bonus credits** in each semester by his/her participation in the above mentioned activities duly certified by the Head of the institution / Department. This Bonus credit will be used only to compensate loss of credits in academic activities.

Examinations:

1. There shall be examinations at the end of each semester, for first semester in the month of November /December: for second semester in the month of May / June. A candidate who does not pass the examination in any course(s) shall be permitted to appear in such failed course(s) in the subsequent examinations (supplementary examinations) to be held in November/December or May / June.

2. If the student again fails in the supplementary examination, he/she will not be allowed to continue the programme.

3. A candidate should get enrolled /registered for the first semester examination. If enrollment/registration is not possible owing to shortage of attendance beyond condonation limit / rules prescribed OR belated joining OR on medical grounds, such candidates are not permitted to proceed to the next semester. Such candidates shall redo the semester in the subsequent term of that semester as a regular student; however, a student of first semester shall be admitted in the second semester, if he/she has successfully kept the term in first semester.

Examiners: For a semester examination, there must be 1 internal and 1 external examiner in practical, teaching practice and sports specialization.

Pattern of Question Papers: Question Papers shall have five questions corresponding to four units of each theory course. B.P.Ed.: Format of Question Paper for 4 Units.

Question No.	Marks						
	(From Unit 1)						
	Answer in detail (Long Question) Or						
1.	Answer in detail (Long Question)	15					
	(From Unit 2)						
	Answer in detail (Long Question) Or	•					
2.	Answer in detail (Long Question)	15					
	(From Unit 3)						
	Answer in detail (Long Question) Or						
3.	Answer in detail (Long Question)	15 .					
	(From Unit 4)						
	Answer in detail (Long Question) Or						
4.	Answer in detail (Long Question)	15					
	Short Answer Type Questions						
	(Answer 4 out of 8 Questions.)						
5.	(2 Questions. from each unit)	10					
	Total	70					

.

Each question paper shall have five questions. The pattern will be as follows:

Evaluation: The performance of a student in each course is evaluated through continuous internal assessment (CIA), one test of 15 marks and of one to two hours duration is to be conducted around 10-14 weeks of academic work from the start of each semester; evaluation is to be done in terms of percentage of marks with a provision for conversion to grade point. If, any student is not able to give the internal test due to Medical reason or participation in intercollege or inter university competitions, the concerned course teacher must conduct the student examination as soon as possible (there is no provision for seeking improvement of internal assessment). The marks obtain in CIA is added with end semester examination and will be consolidated at the end of course. The components for continuous internal assessment are;

One theory or practical Test	20 Marks
Assignments	05 Marks
Presentation/Viva- voce	05 Marks
Total	30 Marks

Attendance shall be taken as a component of continuous assessment, although the students should have minimum 75% attendance in each course. In addition to continuous evaluation component, the end semester examination, which will be written type examination of at least $1^{1/2}$ hours duration, would also form an integral component of the evaluation. The ratio of marks to be allotted to continuous internal assessment and to end semester examination is 30:70. The evaluation of practical work, wherever applicable, will also be based on continuous internal assessment and on an end-semester practical examination.

Minimum Passing Standard: The minimum passing standard for CIA (Continuous Internal Assessment) and External Examinations shall be 40%, i.e. 12 marks out of 30 marks and 28 marks out of 70 marks respectively for theory courses. The minimum passing for both CIA & external examination shall be 50%, i.e. 15 marks out of 30 and 35 marks out of 70 marks for the teaching practice and practical courses.

Educational Tour/Camp: In addition to the above rules the student must fulfill the following requirements to acquire the degree which is mandatory. Educational Tour or Leadership Camp organized by the Department of Physical Education of at least 05 days. The students shall contribute separately for these activities. The student will have to attend Educational tour or Leadership camp in II semester, if any student due to extraordinary circumstances not able to attend tour/camp, are allowed to attend in IV semester with the permission of Head of the department. The students will have to submit tour/camp report within ten days after arrival from tour/camp compulsorily in the Department of Physical Education, H.N.B.G.U. failing which the result will not be declared.

Grading: Once the marks of the CIA (Continues Internal Assessment) and SEA (Semester End Assessment) for each of the courses are available, both (CIA and SEA) will be added. The marks thus obtained for each of the courses will then be graded as per details provided in Letter Grades and Grade Points table from the first semester onwards the average performance within any semester from the first semester is indicated by Semester Grade Point Average (SGPA) while continuous performance (including the performance of the previous semesters also) starting from the first semester is indicated by Cumulative Grade Point Average (CGPA). These two are calculated by the following formula:

(i) SGPA(Si) Si= \sum (Ci x Gi)/ \sum Ci

Where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

(ii) The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e. $CGPA = \sum (Ci xSi) / \sum Ci$

Where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

(iii) The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcript or certificate or marksheet.

Classification of Final Results: For the purpose of declaring a candidate to have qualified for the Degree of Bachelor of Physical Education in the First class / Second class / Pass class or First class with Distinction, the marks and the corresponding CGPA earned by the candidate in Core Courses will be the criterion. It is further provided that the candidate should have scored the First / Second Class separately in both the grand total and end Semester (External) examinations.

Award of the B.P.Ed. Degree: A candidate shall be eligible for the award of the degree of the B.P.Ed. only if he/she has earned the minimum required credit including Bonus Credits of the programme prescribed above.

Letter Grades and Grade Points:

- i. Two methods-relative grading or absolute grading- have been in vogue for awarding grades in a course.
- ii. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students in the course and the grades are awarded based on a cut-off mark or percentile.
- Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. To implement the following grading system, the colleges and universities can use any one of the above methods.

Grievance Redressal Committee: The college/department shall form a Grievance Redressal Committee for each course in each college/department with the course teacher / Principal / Director and the HOD of the faculty as the members. This Committee shall solve all grievances of the students.

Revision of Syllabi: Syllabi of every course should be revised according to the NCTE.

- Revised Syllabi of each semester should be implemented in a sequential way.
- In courses, where units / topics related to governmental provisions, regulations or laws, that change to accommodate the latest developments, changes or corrections are to be made consequentially as recommended by the Academic Council.
- All formalities for revisions in the syllabi should be completed before the end of the semester for implementation of the revised syllabi in the next academic year.
- During every revision, up to twenty percent of the syllabi of each course should be changed so as to ensure the appearance of the students who have studied the old (unrevised) syllabi without any difficulties in the examinations of revised syllabi.
- In case, the syllabus of any course is carried forward without any revision, it shall also be counted as revised in the revised syllabi.

Miscellaneous:

- 1. The procedural details may be given by the university from time to time.
- 2. Any unforeseen problems/difficulties may be resolved by Vice Chancellor, whose decision in the matter shall be final.
- 3. The provision of any order, rules or regulation in force shall be inapplicable to the extent of its inconsistency with these regulations.

The key program outcomes (POs) and program specific outcomes (PSOs) for the Bachelor of Physical Education (B.P.Ed.) programare as under:

Program Outcomes-

- The B.P.Ed. program aims to produce well-rounded physical education professionals with strong content knowledge, pedagogical skills, and the ability to support students' holistic development through sports and physical activity.
- After completion of the Program the student become eligible for Trained Graduate teachers in Physical education subject.
- The Student Demonstrates firm work/professional ethics and cultivate solidarity by working and dealing with colleagues, parents, and the community to support students' growth and well-being.

Program Specific Outcomes-

- The student Understand the disciplinary content knowledge and apply pedagogical content knowledge to effectively teach physical education subject.
- Identify and apply learner-centric teaching methods, teaching skills, and managerial skills to deal with classroom problems.
- Use effective communication skills and strategies to enhance student engagement and learning.
- Analyze curriculum and conduct action research to solve classroom issues and think critically.
- Develop training modules, categorize teaching and training activities, describe assessment strategies, and design fitness and conditioning programs for various sports and levels of athletes.
- Organize competitions at different levels, prepare and execute intramural programs, and design layouts of sports facilities.

Semester-I

Part- A Theoretical Course							
Course Code	Title of the papers	Total	Credits	Internal	External	Total	
		Hours		Marks	marks		
	Core Course						
SOE/PE/C-101	History of Physical Education	4	4	30	70	100	
SOE/PE/C -102	Anatomy and Physiology-I	4	4	30	70	100	
SOE/PE/C -103	Health Education and Environmental	4	4	30	70	100	
	Studies						
	Elective course(Anyone)						
SOE/PE/E-101	Olympic Movement	1	4	20	70	100	
SOE/PE/E -102	Officiating and Coaching	4	4	50	/0	100	
	Part – B Practical Cou	rse					
SOE/PE/P -101	Football	6	4	30	70	100	
SOE/PE/P -102	Hockey	6	4	30	70	100	
SOE/PE/P -103	Volleyball	6	4	30	70	100	
SOE/PE/PE -101-102	Handball / Basketball	6	4	30	70	100	
	Total	40	32	240	560	800	

Semester-II

Part- A Theoretical Course						
Course Code	Title of the papers	Total	Credits	Internal	External	Total
		Hours		Marks	marks	
	Core Course					
SOE/PE/C -201	Anatomy and Physiology-II	4	4	30	70	100
SOE/PE/C -202	Methods of Teaching in Physical Education	4	4	30	70	100
SOE/PE/C-203	Organization and Administration	4	4	30	70	100
	Elective course(Anyone)					
SOE/PE/E-201	Sports Nutrition and Weight Management					
SOE/PE/E -202	Theory of sports and game	4	4	30	70	100
	Part – B Practical Co	ourse				
SOE/PE/P -201	Track and Field	6	4	30	70	100
SOE/PE/P -202	Cricket	6	4	30	70	100
SOE/PE/PE -201-202	Badminton / Table Tennis	6	4	30	70	100
	Part – C Teaching Prac	ctices				
SOE/PE/T -201	Teaching Practices: (05 lessons) in light					
	apparatus activities and (05 lessons) of skill in	6	4	30	70	100
	different games)					
		40	32	240	560	800
	Total					

Semester-III

Part- A Theoretical Course						
Course Code	Title of the papers	Total	Credits	Internal	External	Total
		Hours		Marks	marks	
	Core Course					
SOE/PE/C-301	Basic principles of Sports Training	4	4	30	70	100
SOE/PE/C -302	Athlete's care and Rehabilitation	4	4	30	70	100
SOE/PE/C -303	Kinesiology	4	4	30	70	100
Elective Course (Anyone)						
SOE/PE/E-301	Computer Application in Physical					
	Education	4	4	30	70	100
SOE/PE/E-302	Education and Educational Technology					
	Part – B Practical Cou	ırse				
SOE/PE/P -301	Yoga and Gymnastics	6	4	30	70	100
SOE/PE/P-302	Track and Field	6	4	30	70	100
SOE/PE/PE -301-302	Kabaddi / Kho-Kho	6	4	30	70	100
	Part – C Teaching Prac	tices				
SOE/PE/T -301	Teaching Practice: (10 Lesson) of Track					
	and Field/ Team Games/ Yoga / Gymnastics	6	4	30	70	100
	/ Indigenous sports					
		40	32	240	560	800
	Total					

Semester-IV

	Part- A Theoretical Course							
Course Code	Title of the papers	Total	Credits	Internal	External	Total		
		Hours		Marks	marks			
	Core Cours	e						
SOE/PE/C-401	Test and Measurement in Physical Education	4	4	30	70	100		
SOE/PE/C-402	Sports Psychology and Sociology	4	4	30	70	100		
SOE/PE/C-403	Basics Statistics in Physical Education	4	4	30	70	100		
	Elective Course (Anyone)							
SOE/PE/E-401	Foundation and Principles of Physical Education							
SOE/PE/E-402	Yoga Education	4	4	30	70	100		
Part – B Practical Course								
SOE/PE/P -401	Sports specialization: Skill and Game							
	Proficiency (Any one Game & Sports)	6	4	30	70	100		
SOE/PE/P -402	Sports specialization: Skill and Game							
	Proficiency (Theory of any one Game &	6	4	30	70	100		
	Sports)							
Part – C Teaching	Practices (Coaching Lesson)							
SOE/PE/T-401	Sports specialization: Skill (5 coaching lessons)	6	4	30	70	100		
SOE/PE/T-402	Sports specialization: Tactics and Training (5	6	4	30	70	100		
	coaching lessons)							
		40	32	240	560	800		
	Total							

Scheme of Examination Semester-I

	Theory (400)			
Paper	Subjects	Internal	External	Total
		Marks	marks	
SOE/PE/C-101	History of Physical Education	30	70	100
SOE/PE/C -102	Anatomy and Physiology-I	30	70	100
SOE/PE/C -103	Health Education and Environmental	30	70	100
	Studies			
SOE/PE/E-101/102	Olympic Movement/ Officiating and	30	70	100
	Coaching			
	Practical (400)			
SOE/PE/P -101	Football	30	70	100
SOE/PE/P -102	Hockey	30	70	100
SOE/PE/P -103	Volleyball	30	70	100
SOE/PE/PE -101/102	Handball / Basketball	30	70	100
	Total	240	560	800

Semester-II

	Theory (400)			
Paper	Subjects	Internal	External	Total
		Marks	marks	
SOE/PE/C -201	Anatomy and Physiology-II	30	70	100
SOE/PE/C -202	Methods of Teaching in Physical Education	30	70	100
SOE/PE/C-203	Organization and Administration	30	70	100
SOE/PE/E-201/202	Sports Nutrition and Weight Management /			
	Theory of sports and game	30	70	100
	Practical (400)			
SOE/PE/P -201	Track and Field	30	70	100
SOE/PE/P -202	Cricket	30	70	100
SOE/PE/PE -201/202	Badminton / Table Tennis	30	70	100
SOE/PE/T -201	Teaching Lesson	30	70	100
	Total	240	560	800

Semester-III

	Theory (400)			
Paper	Paper Subjects		External	Total
		Marks	marks	
SOE/PE/C-301	Basic principles of Sports Training	30	70	100
SOE/PE/C -302	Athlete's care and Rehabilitation	30	70	100
SOE/PE/C -303	Kinesiology	30	70	100
SOE/PE/E-301/302	Computer Application in Physical	30	70	100
	Education / Education and			
	Educational Technology			
	Practical (400)			
SOE/PE/P -301	Yoga and Gymnastics	30	70	100
SOE/PE/P-302	Track and Field	30	70	100
SOE/PE/PE -301-302	Kabaddi / Kho-Kho	30	70	100
SOE/PE/T -301	Teaching Lesson	30	70	100
	Total	240	560	800

Semester-IV

	Theory (400)			
Paper	Subjects	Internal	Externa	Total
		Marks	l marks	
SOE/PE/C-401	Test and Measurement in Physical Education	30	70	100
SOE/PE/C-402	Sports Psychology and Sociology	30	70	100
SOE/PE/C-403	Basics Statistics in Physical Education	30	70	100
SOE/PE/E-	Foundation and Principles of Physical Education	30	70	100
401/402	/ Yoga Education			
SOE/PE/P -401	Skill and Game Proficiency	30	70	100
SOE/PE/P -402	Skill and Game Proficiency (Theory)	30	70	100
SOE/PE/T-401	Skill coaching Lesson	30	70	100
SOE/PE/T-402	Tactics and Training coaching Lesson	30	70	100
	Total	240	560	800

Semester	Theory	Practicum	Teaching Practice	Total
Ι	16	24	00	40
II	16	18	06	40
III	16	18	06	40
IV	16	12	12	40
TOTAL	64	72	24	160

 Table-1: Semester wise Distribution of Hours per Week

Minimum of 36 hours per week is required in five or six days in a week

Semester	Theory	Practicum	Teaching Practice	Total
Ι	16	16	00	32
II	16	12	04	32
III	16	12	04	32
IV	16	08	08	32
TOTAL	64	48	16	128

Table-2: Number of Credits per Semester

B. P. ED. – OUTLINE OF SYLLABUS THEORY COURSES

Semester – I

SOE/PE/C-101 History of physical education

Course Outcomes:

- Students will understand the meaning, aim and objectives of Physical Education.
- Students will be explained about the historical development of Physical Education in India.
- Students will be able to understand the role of European countries in development of Physical Education subject and discipline.
- Students will know the role of pioneer institutes in the field of Physical Education in India.
- Students will get knowledge about various Sports promotion schemes and sports awards.
- Students will get detail idea about Olympic movement; Ancient and Modern OlympicGames.

Course Specific Outcomes:

This course in the B.P.Ed. Ist Semester provides the basic but very important knowledge about the origin, evolution and present state of Physical Education in India and at world stage. The content of this program enables the student to get acquaint with field of Education.

Unit – 1: Introduction of Physical Education

- Meaning, Definition, Importance and Scope of Physical Education
- Aims and Objective of Physical Education
- Relationship of Physical Education with General Education.
- Physical Education as an Art and Science.

Unit- 2 – Historical Development of Physical Education in India (Ancient, Medieval andModern Period)

Ancient Period

- Indus Valley Civilization Period. (3250 BC–2500 BC)
- Vedic Period (2500 BC–600 BC)

Medieval Period

- Hindu Period (600 BC–1000 AD)
- Medieval Period (1000 AD–1757 AD)

Modern Period

- British Period (Before 1947)
- Physical Education in India (After 1947)

Unit- 3- History of Ancient World & Olympic Games

- Physical Education in Ancient Greece, Spartan city state and Athens.
- Physical Education in Ancient Roman.
- Ancient Olympics Games: Origin, Development, Decline & termination.
- Modern Olympics Games: origin, opening & closing ceremony, Olympic Flag & torch.
- IOC, IOA & SAI

Unit-4- Physical Education in Modern World:

Role of Pioneers in Globalization of Physical Education-

- U.S.A.
- Denmark
- Sweden
- Germany
- Great Britain
- Pioneer Institutions in India
 - ➢ Y.M.C.A., Madras
 - Lucknow Christian College, Lucknow
 - ➢ LCPE to LNIPE, Gwalior
 - HVPPM Amravati Maharashtra
 - > NSNIS Patiala
- Schemes & Awards
 - Rajkumari Amrit Kaur coaching scheme
 - > PYKKA to Khelo India
 - Arjuna & Dronacharya Awards
 - Rajiv Gandhi Khel Ratna Award & Maulana Azad Trophy
 - Dhyan Chand Award (Life time achievement award)
 - > Tilu Rauteli Sports Award & Uttarakhand Khel Ratna Awards

References:

Singh, Ajmer (2014). Essentials of Physical Education: New Delhi:Kalyani Publishers. Deshpande, S. H. (2014). *Physical Education in Ancient India*. Amravati: Degree college of Physical education. Sharman, J. R. (1964). *Introduction to physical education*. New York: A.S. Barnes & Co.

SOE/PE/C-102 ANATOMY AND PHYSIOLOGY- I

Course Outcomes:

- Students will understand the significance of Anatomy & Physiology in the field of PhysicalEducation.
- Students will be able to know about the structure of human body.
- Students will understand the functioning of Heart, Blood, Respiratory System, Digestive System, Sense organs, and various glands.
- Students will know about various body movements and role of different joints in it.

Course Specific Outcomes:

The course provides the students an understanding of Human body structure and its functions. The mechanics of various systems of the body will make the students aware the factors affecting its performance.

Unit-I

- Brief Introduction of Anatomy and physiology and Role in the field of Physical Education.
- Introduction of Cell. Types and Functions of Cell.
- Cell Division-Mitosis and Meiosis.
- Tissue-Its various types and Functions.

Unit-II

- The arrangement of the skeleton Functions of the skeleton Ribs and Vertebral columnand the extremities.
- Joints of the body, types and fundamental movements.
- The circulatory system: Structure of Human Heart, Circulation of blood, cardiac cycle, blood pressure, Lymph and Lymphatic circulation. Cardiac output.
- Blood: Constituents of blood and their function –Blood groups and blood transfusion, clotting of blood.

Unit-III

- The Respiratory system: The Respiratory passage the lungs and their structure and exchange of gases in the lungs.
- Mechanism of Respiration (internal and external respiration) lung capacity, tidal volume.
- The Digestive system: structure and functions of the digestive system.
- Digestive organs-Salivary Glands, The Liver, Gall-bladder and Pancreas, Metabolism.

Unit-IV

- Sense organs: A brief account of the structure and functions of the Eye and Ear.
- Structure and functions of the Skin.
- Organs of Taste and Smell.

References:

Gupta, A. P. (2010). Anatomy and physiology. Agra: SumitPrakashan.

Guyton, A.C. (1996). Textbook of Medical Physiology, Philadelphia: W.B. Saunders.Karpovich, P. V. *Philosophy of muscular activity*. London: W.B. Saunders Co.

Lamb, G. S. (1982). Essentials of exercise physiology. Delhi: Surjeet Publication. Morehouse, L. E. & Miller, J. (1967). *Physiology of exercise*. St. Louis: The C.V. Mosby Co.Pearce, E. C. (2004). *Anatomy and physiology for nurses*. London: Faber & Faber Ltd. Sharma, R. D. (1979). *Health and physical education*, Gupta Prakashan.

SOE/PE/C-103 HEALTH EDUCATION AND ENVIRONMENTAL STUDIES

Course Outcomes:

- The students will learn about meaning, concept, dimensions and determinants of Health.
- The students will understand about the significance of Hygiene in human life and health.
- The students will be able to know about various communicable diseases prevalent in the society, their prevention and treatment.
- The students will understand the meaning and value of Environment Science in human life.
- The students will know about various types of Pollutions. Its hazards and pollution management's strategies.

Course Specific Outcomes:

The course provides the students valuable knowledge about the Health, related issues various communicable disease, its preventive measures, Environment Science and pollution related issues will enable the students to know about.

Unit – I Health Education

- Concept, Dimensions, Spectrum and Determinants of Health
- Definition of Health, Health Education, Health Instruction, Health Supervision
- Aim, objective and Principles of Health Education
- Personal and Environmental Hygiene for schools

Unit – II Health Problems in India

- Communicable Diseases: (Dengue, Swine Flu, Bird Flu, Typhoid) Causes, Prevention &treatment
- Non-Communicable Diseases: (Jaundice, Cancer) Causes, Prevention & treatment
- Life style Diseases: (Obesity, Diabetes and Hypertension)
- Malnutrition, Adulteration in food
- School health services: Objectives and Its Role
- Health Services Care of skin, Nails, Eye health service, Nutritional service, Healthappraisal, Health record, Healthful school environment, first- aid and emergency care etc.

Unit – III Environmental Science

- Definition, Scope, Need and Importance of environmental studies.
- Concept of environmental education, Historical background of environmental education,
- Celebration of various days in relation with environment.
- Plastic recycling & probation of plastic bag / cover.
- Role of school in environmental conservation and sustainable development.

Unit-IV Natural Resources and related environmental issues:

- Water resources, food resources and Land resources
- Definition, effects and control measures of: Air Pollution, Water Pollution, Soil Pollution
- Noise Pollution, Thermal Pollution
- Management of environment and Govt. policies, Role of pollution control board.

References:

Agrawal, K.C. (2001). Environmental biology.Bikaner: Nidhi publishers Ltd.

Frank, H. &Walter, H., (1976). Turners school health education. Saint Louis: The C.V. MosbyCompany.

Nemir, A. The school health education. New York:Harber and Brothers. Odum, E.P. (1971). *Fundamental of ecology*. U.S.A.: W.B. Saunders Co.

SOE/PE/E-101 OLYMPIC MOVEMENT

Course Outcomes:

- The students will learn about origin of Ancient Olympic Games.
- The students will understand about evolution of Modern Olympic Games.
- The students will understand the various ceremonies and important aspect of Modern Olympic Games.
- The students will get knowledge about structure and function of International OlympicCommittee.

Course Specific Outcomes:

The course provides the detail knowledge to students about origin, evolution of Olympic movements. Present scenario of structure and expansion of Olympic Games in different variations like: Para Olympic Games, Winter Olympics, Youth Olympic Games etc.

Unit – I Origin of Olympic Movement

- Philosophy of Olympic movement
- The early history of the Olympic movement
- The significant stages in the development of the modern Olympic movement
- Educational and cultural values of Olympic movement

Unit – II Modern Olympic Games

- Significance of Olympic Ideals, Olympic Rings, Olympic Flag
- Olympic Protocol for member countries
- Olympic code of Ethics
- Olympism in action
- Sports for All

Unit – III Different Olympic Games

- Para Olympic Games
- Summer Olympics
- Winter Olympics
- Youth Olympic Games

Unit - IV Committees of Olympic Games

- International Olympic Committee Structure and Functions
- National Olympic committees and their role in Olympic movement
- Olympic commission and their functions
- Olympic medal winners of India

Reference:

Osborne, M. P. (2004). *Magictree house fact tracker: ancient Greece and the Olympics: a nonfiction companion to magic tree house: hour of the Olympics. New York:* Random House Booksfor Young Readers.

Burbank, J. M., Heying Boulder, C. H. (2001). Olympic dreams: the impact of mega-eventson local politics: Lynne Rienner

SOE/PE/E-102 OFFICIATING AND COACHING

Course Outcomes:

- The students will be able to know about the meaning and concept of officiating and itsprinciples in detail.
- The students will be able to understand about coaching; Principles and Philosophies, roleof Coach on and off the field.
- The students will get knowledge about the duties and responsibilities of an official.
- The students will be able to get idea of qualities required to be a good coach & official.
- The students will be able to know about the role of Coach as Mentor.

Course Specific Outcomes:

The content of this program gives vital information about nuances of Officiating and Coaching, their principles, qualities and qualification of a Coach and Official.

Unit- I: Introduction of Officiating and coaching

- Meaning, definition and concept of officiating and coaching
- Importance and principles of officiating
- Relation of official and coach with management, players and spectators
- Measures of improving the standards of officiating and coaching

Unit- II: Coach as a Mentor

- Duties of coach in general, pre, during and post-game.
- Philosophy of coaching
- Responsibilities of a coach on and off the field
- Psychology of competition and coaching

Unit- III: Duties of Official

- Duties of official in general, pre, during and post game.
- Philosophy of officiating
- Mechanics of officiating-position, signals and movement etc.
- Ethics of officiating

Unit- IV: Qualities and Qualifications of Coach and Official

- Qualities and qualification of coach and official
- Significance of rules and regulations of games and sports
- Eligibility rules of intercollegiate and inter-university tournaments, preparation of TA, DAbills
- Role of sports in development of Integrity and Ethical values

References:

Bunn, J. W. (1968). The art of officiating sports. Englewood cliffs N.J. Prentice Hall. Dyson,

G. H. (1963). *The mechanics of athletics*. London: University of London Press Ltd. Ltd.Lawther, J.D. (1965). *Psychology of coaching*. New York: Pre. Hall.

Singer, R. N. (1972). Coaching, athletic & psychology. New York: M.C. Graw Hill.

Semester – II

SOE/PE/C-202 ANATOMY AND PHYSIOLOGY-II

Course Outcomes:

- The students will be able to know about muscles in human body; its structures andfunctions.
- The students will understand the structure and functions of Nervous System, its types andNeuro muscular junction.
- The students will get knowledge of Excretary organs and their functions in the body.
- The students will know about the effects of various types of training on different systems of human body like: Muscular System, Cardiovascular System, and Respiratory System.

Course Specific Outcomes:

The program will enable the students to know about muscles and its types, mechanism of muscular contraction and Neuro-Muscular function. The students will be acquainted will the knowledge of Nervous System- structure, functions and its role in Human body. This course provides valuable information about the effect of different training programs on various systems which will allow them to design the training program as per the need and requirement of Human body.

Unit-I

- Muscular System: Types of muscles, Major Muscles in the human body.
- Structure, Composition, Properties and functions of skeletal muscles.
- Muscle Fibers: Types and its characteristics
- Sliding Filament Theory of Muscle contraction.

Unit-II

- Nervous systems: Structure and Function of Brain and Spinal cord.
- The Autonomic nervous system and Peripheral nervous system.
- Nerve control of muscular: activity: Reflex Action.
- Neuro-Muscular Junction Nerve Transmission across it.

Unit-III

- The Excretory system: Structure and functions of the kidneys and the skin.
- The Endocrine glands: Functions of Pituitary, Thyroid, Parathyroid, Adrenal, Pancreatic and the sex glands.
- The Lymphatic System. The Lymphatic Glands the Spleen.

Unit-IV

- Role of oxygen in physical training oxygen debt, second wind.
- Effect of exercise and training on Muscular system.
- Effect of exercise and training on Cardiovascular system.
- Effect of exercise and training on Respiratory system.

References:

Guyton, A.C. (1996). Textbook of Medical Physiology, Philadelphia: W.B. Saunders. Karpovich, P. V. *Philosophy of muscular activity*. London: W.B. Saunders Co.

Lamb, G. S. (1982). Essentials of exercise physiology. Delhi: Surjeet Publication. Morehouse, L. E. & Miller, J. (1967). *Physiology of exercise*. St. Louis: The C.V. Mosby Co.Pearce, E. C. (2004). *Anatomy and physiology for nurses*. London: Faber & Faber Ltd.

Sharma, R. D. (1979). Health and physical education, Gupta Prakashan.

SOE/PE/C-202 METHODS OF TEACHING IN PHYSICAL EDUCATION

Course Outcomes:

- The students will learn about various types of teaching methods used in PhysicalEducation, their principles and Merits/ Demerits.
- The students will be able to know about classification of students: Importance and methods of classification.
- The students will understand about various types of competitions: Intramural and Extramural. Their organisational setup, various committees and their functions.
- The students will be able to learn about methods of drawing fixtures.
- The students will know how to prepare a lesson plan and use of teaching aids for effective teaching in Physical Education class.

Course Specific Outcomes:

Program content provides opportunity to the students for learning about important methods used for teaching in Physical Education like: lecture, command, demonstration, imitation, project, mirror, whole part- whole method etc. It allows the students to get the idea of preparing a lesson plan as per the need of students and demand of situation by using effective teaching aids.

Unit – I Teaching Methods, teaching styles

- Teaching methods: Meaning, types & factor affecting it.
- Teaching style: Introduction, choosing & combination of appropriate style.
- Classification of student: Importance, Method and system of classification.

Unit – II Teaching Technique

- Teaching Technique Lecture, Command, Demonstration, Imitation, project, mirrormethod.
- Teaching Procedure Whole method, whole part whole method, part whole method.
- Presentation Technique–Personal and technical preparation
- Command- Meaning, Types and its uses in different situations.

Unit – III Competitions, Tournaments & Athletic meet

- Intramural & Extramural: meaning, importance and conduct.
- Tournaments: meaning, types
- Knockout tournaments & League: Types, merits & demerits
- Athletic meet: Events, organization & importance

Unit – IV Lesson Planning and Teaching Aids

- Lesson Planning–Meaning, Type, parts and principles of lesson plan.
- General and specific lesson plan.
- Teaching Aids–Meaning, Importance and its criteria for selecting teaching aids.
- Teaching aids Audio aids, Visual aids, Audio Visual aids, Verbal, Black board, Charts, Model, Slide projector, Motion picture etc.

References:

Tirunarayanna, C. and Hariharsharma, S. "Methods in Physical Education". Printed at the south India Press ,1986.

Karaikudi Singh Suja, "Methods in Physical Education" Twinkle Printing Press, Patiala

SOE/PE/C-203 ORGANZATION AND ADMINISTRATION

Course Outcomes:

- The students will know about the meaning and concept of Organisation andAdministration.
- The students will be able to learn about the role of administration for smooth functioningin Physical Education.
- The students will learnt about office management and related things like: Records, andRegisters (various types)
- The students will get the idea of preparing budget and its importance in the field of Physical Education.
- The student will be able to know about Public relation and its significance in successful organisation of sports events.

Course Specific Outcomes:

This program will enable the student to understand the concept of organisation, administration, management (office and class) and Budgeting in Physical Education. It allows knowing about the need, purchase, care and maintenance of various facilities in the Physical Education department. The content on Public relation and Tournament planning will educate the students about successful functioning.

Unit - I: Organization and administration

- Meaning and importance of Organization and Administration in physical education
- Qualification and Responsibilities of Physical Education teacher and pupil leader
- Planning and their basic principles,
- Program planning: Meaning, Importance, Principles of program planning in physical education.
- Functions of Planning, organizing, staffing, directing, communicating, co-ordination, controlling, evaluating and innovating.

Unit- II: Office Management, Record, Register & Budget

- Office Management: Meaning, definition, functions and kinds of office management
- Records and Registers: Maintenance of attendance Register, stock register, cash register, physical efficiency record, Medical examination Record.
- Budget: Meaning, Importance of Budget making,
- Criteria of a good Budget, Sources of Income, Expenditure, Preparation of Budget.

Unit-III: Facilities, & Time-Table Management

- Facilities and equipment management: Types of facilities Infrastructure-indoor, out door.
- Care of school building, Gymnasium, swimming pool, Play fields, Play grounds
- Equipment: Need, importance, purchase, care and maintenance.
- Time Table Management: Meaning, Need, Importance and Factor affecting time table.
Unit-IV: Class Management & Public relation

- Class management: Meaning, importance.
- Factors affecting class management, Principles of class management.
- Public relation: Meaning, Importance, Public relation with Media.
- Public speaking: Purpose, Topic, Delivery, Practice, Evaluation of speech.
- Sports Event Intramurals & Extramural Tournament planning

References:

- Broyles, F. J. & Rober, H. D. (1979). *Administration of sports, Athletic programme: AManagerial Approach.* New York: Prentice hall Inc.
- Bucher, C. A. (1983). Administration of Physical Education and Athletic programme. St. Lolis: The C.V. Hosby Co.
- Thomas, J. P.(1967). Organization & administration of Physical Education. Madras: Gyanodayal Press.
- Tirunarayanan, C. &Hariharan, S. (1969). *Methods in Physical Education*. Karaikudi: SouthIndia Press.

SOE/PE/E-201 SPORTS NUTRITION AND WEIGHT MANAGEMENT

Course Outcomes:

- The students will be able to know about the concept of Nutrition and Sports Nutrition.
- The students will understand the role of Macro and Micro Nutrients in energy liberation and their significance for Physical work.
- The students will get idea of weight management and related issues like obesity andDiabetes.
- The students will able to learn about the weight management technique by using balance diet program.
- The student will know to prepare a balance diet chart as per individual's requirement.

Course Specific Outcomes:

The program content will make students aware about Nutrition, its role in weight management and healthy life. It will also help them to understand about obesity, its causes and overcoming measures through nutritional diet program.

Unit – I Introduction to Sports Nutrition

- Meaning and Definition of Sports Nutrition
- Basic Nutrition guidelines
- Role of nutrition in sports
- Factor to consider for developing nutrition plan

Unit – II Nutrients: Ingestion to Energy Metabolism

- Carbohydrates, Protein, Fat-Meaning, classification and its function
- Role of carbohydrates, Fat and protein during exercise
- Vitamins, Minerals, Water–Meaning, classification and its function
- Role of hydration during exercise, water balance, Nutrition daily caloric requirementand expenditure.

Unit – III Nutrition and Weight Management

- Meaning of weight management Concept of weight management in modern era Factoraffecting weight management and values of weight management
- Concept of BMI (Body mass index), Myth of Spot reduction, Dieting versus exercise forweight control, Common Myths about Weight Loss
- Obesity–Definition, meaning and types of obesity and its hazard
- Health Risks Associated with Obesity, Obesity Causes and Solutions for OvercomingObesity.

Unit – IV Steps of planning of Weight Management

- Nutrition–Daily calorie intake and expenditure, Determination of desirable body weigh
- Balanced diet for Indian School Children, Maintaining a Healthy Lifestyle
- Weight management program for sporty child, Role of diet and exercise in weightmanagement
- Design diet plan and exercise schedule for weight gain and loss

References:

Bessesen, D. H. (2008). Update on obesity. *J ClinEndocrinolMetab*.93(6), 2027-2034. DeMaria, E. J. (2007). Bariatric surgery for morbid obesity. *N Engl J Med*, 356(21), 2176-2183.

Dixon, J.B., O'Brien, P.E., Playfair, J. Adjustable gastric banding and conventional therapy for type 2 diabetes: a randomized controlled trial. *JAMA*. 299(3), 316-323.

SOE/PE/E-202 THEORY OF SPORTS AND GAMES

Course Outcomes:

- The students will be able to understand about the basic rules and regulations and historical development of various games.
- The students will know about dimensions and measurements of the courts/grounds invarious games.
- The students will learn about marking used in different games and sports.
- The students will know about conducting conditioning program and exercises used in it.
- The students will be able to know about application of Physics in sports world and its rolein Sports Management.

Course Specific Outcomes:

The program content will make the students to get the detailed knowledge about games like Athletics, Badminton, Basketball, Cricket, football, Hockey, Handball and Volleyball. They will also understand the techniques and procedure of marking different playfields, important rules- regulations, officiating signals and infrastructural facilities required for organising any game. Thiscourse will allow the students to get the idea of science involved in sports through topics like Motion and its types, Force, Equilibrium, lever, and Training Load etc.

Unit-I Introduction of games and sports

- General Introduction of specialized games and sports-
- Athletics,
- Badminton,
- Basketball
- Cricket
- Each game or sports to be dealt under the following heads
- History and development of the Game and Sports
- Ground preparation, dimensions and marking
- Standard equipment and their specifications
- Ethics of sports and sportsmanship

Unit-II -Games and sports

- General Introduction of specialized games and sports
- Football
- Hockey,
- Handball,
- Volleyball
- Each game or sports to be dealt under the following heads
- History and development of the Game and Sports
- Ground preparation, dimensions and marking
- Standard equipment and their specifications
- Ethics of sports and sportsmanship

Unit-III Scientific Principles of coaching: (particular sports and game specific)

- Motion Types of motion and Displacement, Speed, Velocity, Acceleration, Distanceand Newton's Law of motions.
- Force–Friction, Centripetal and Centrifugal force, Principles of force.
- Equilibrium and its types
- Lever and its types
- Training load–Components, Principles of load, Over Load (causes and symptoms).

Unit-IV Conditioning exercises and warming up.

- Concept of Conditioning and warming up.
- Role of weight training in games and sports.
- Teaching of fundamental skill & their mastery (technique, tactic and different phases of skill acquisition).
- Recreational and Lead up games
- Strategy–Offence and defense, Principles of offence and defense.

References:

Bunn, J. W. (1968). *The art of officiating sports*. Englewood cliffs N.J. Prentice Hall. Bunn,
J. W. (1972). *Scientific principles of coaching*. Englewood cliffs N. J. Prentice Hall. Dyson,
G. H. (1963). *The mechanics of athletics*. London: University of London Press Ltd. Lawther,
J.D. (1965). *Psychology of coaching*. New York: Pre. Hall.
Singer, R. N. (1972). *Coaching, athletic &psychology*. New York: M.C. Graw Hill.

Semester – III

SOE/PE/C-301 BASIC PRINCIPLES OF SPORTS TRAINING

Course Outcomes:

- The students will know about the meaning, aim and objective of Sports Training.
- The students will learn about basic principles of Sports Training.
- The students will understand the concept of Adaptation and Supercompensation in SportsTraining.
- The students will be able to learn the methods of developing fitness components.
- The students will get idea of planning, its types and principles used in Sports Training and concept of Periodisation.

Course Specific Outcomes:

The program will enable the students to know about meaning and significance of Sports Trainingin Sports. The students will learn about important methods applied for development of fitness components like: Speed, Strength, Endurance, Flexibility and Co-ordinative abilities. It also provides opportunity to know about Load dynamics, overload, technique and tactics; their importance in Sports Training. Planning and Periodization will make the student aware about practical aspect of Sports Training.

Unit – I Introduction to Sports Training

- Meaning and Definition of Sports Training
- Aim and Objective of Sports Training
- Principles of Sports Training
- Adaptation and Super compensation

Unit – II Training Components

- Strength–Means and Methods of Strength Development
- Speed–Means and Methods of Speed Development
- Endurance Means and Methods of Endurance Development
- Flexibility- Means and Methods of Flexibility Development
- Coordinative abilities- Means and Methods of Development

Unit – III Training Process

- Training Load & Recovery- Definition and Types of Training Load
- Overload- Causes, Symptoms and Remedial Measures
- Technique- Meaning and Phases of Technique Training
- Tactics-Meaning, types and importance in sports performance

Unit – IV Training programming and planning

- Planning- Meaning, Need and Importance of Planning and its Principles
- Types of Training Plans- Macro, Meso, and Micro cycle Plans
- Periodization–Meaning and types of Periodization
- Aim and Content of Training Periods–Preparatory, Competition, Transitional etc.

References:

Dick, W. F. (1980). *Sports training principles*. London: Lepus Harre, D.(1982).*Principles of sports training*. Berlin: Sporulated.

Matvyew, L.P. (1981). *Fundamental of sports training*. Moscow: Progress Publishers.Singh, H. (1984). *Sports training, general theory and methods*. Patiala: NSNIS. Uppal, A.K., (1999). *Sports Training*. New Delhi: Friends Publication

SOE/PE/C-302 ATHLETE'S CARE AND REHABILITATION

Course Outcomes:

- The students will learn about Rehabilitation and its significance for a sportsperson.
- The students will able to understand about the causes, prevention and treatment of Sportsinjuries.
- The students will know about First aid and various types of therapies used for treatment of injuries in Sports.
- The students will know the history and different types of massage their indications and contraindications.
- The students will be able to learn about various types of therapeutic exercises and their significance for Sports person.

Course Specific Outcomes:

The program provides opportunity to understand the concept of Rehabilitation and Athlete's Care and its importance in modern days of Sports performance. It allows the students to know about use of First aid, bandages, therapies like Electrotherapy, Short wave, Diathermy, Cryo therapy, Steamand Sauna bath etc. It makes the students to know about various therapeutic exercises and significance in their training program.

Unit-I: - Sports Medicine:

- Athletes Care and Rehabilitation: Contribution of Physical Education Teachers and Coaches.
- Need and Importance of the study of sports injuries in the field of Physical Education
- Prevention of injuries in sports-Common sports injuries-Diagnosis-
- First Aid Treatment Laceration Blisters Contusion Strain Sprain Fracture Dislocation and Cramps Bandages Types of Bandages trapping & supports
- PRICE.

Unit-II: Physiotherapy

- Definition Guiding principles of physiotherapy,
- Importance of physiotherapy,
- Introduction and demonstration of treatments Electrotherapy infrared rays
- Introduction and demonstration of treatments -Ultraviolet rays -short wavediathermy ultrasonic rays.

Unit-III: Hydrotherapy

- Introduction and demonstration of treatments of Cryo therapy, Thermo therapy, ContrastBath,
- Introduction and demonstration of treatments of Whirlpool Bath, Steam Bath, SaunaBath, Hot Water Fomentation
- Massage: History of Massage Classification of Manipulation (Swedish System)
- Physiological Effect of Massage.

Unit-IV: Therapeutic Exercise

- Definition and Scope Principles of Therapeutic Exercise
- Classification, Effects and uses of Therapeutic exercise
- Passive Movements (Relaxed, Forced and passive stretching) active movements (concentric, Eccentric and static) application of the therapeutic exercise:
- Free Mobility Exercise Shoulder, Elbow Wrist and Finger Joints Hips, Knee, ankleand Foot joints Trunk, head and neck exercises.

References:

Christine, M. D., (1999). *Physiology of sports and exercise*.USA: Human Kinetics. David, R. M. (2005).*Drugs in sports*, (4th Ed). Routledge Taylor and Francis Group.Jayprakash, C. S., Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.

Pandey, P.K., (1987). *Outline of sports medicine*, New Delhi: J.P. BrothersWilliams, J. G. P. (1962). *Sports medicine*. London: Edward Arnold Ltd.

SOE/PE/C-303 KINESIOLOGY

Course Outcomes:

- The students will be able to learn the meaning and importance of Kinesiology of Physical Education teacher.
- The students will know about various types of joints and movements in Human body.
- The students will understand the application of Physics to the Sports setting.
- The students will learn about Newton's laws of Motion and its application in the field of Physical Education and Sports.
- The students will be able to know about kinematics and kinetics of Human movement.

Course Specific Outcomes:

The program will provide opportunities to the students to learn about the Kinesiology and its application in Sports. It will allow them to know about Physical principles and concept applied in Sports and role of Kinetics and Kinematics in Human movement.

Unit – I Introduction to Kinesiology

- Meaning and Definition of Kinesiology.
- Importance of Kinesiology to Physical Education Teacher
- Terminology of Fundamental Movements
- Fundamental concepts of following terms Axes and Planes, Centre of Gravity, Line of Gravity, Equilibrium, its types and principles of equilibrium

Unit - II Fundamental Concept of Anatomy basis

- Classification of Joints and Muscles
- Types of Muscle Contractions
- Posture–Meaning, Types and Importance of good posture.
- Fundamental concepts of following terms- Angle of Pull, All or None Law, Reciprocal Innovation

Unit – III Mechanical Concepts

- Force & Power- Meaning, definition, types and its application to sports activities
- Lever Meaning, definition, types and its application to human body.
- Newton's Laws of Motion–Meaning, definition and its application to sports activities.
- Projectile–Factors influencing projectile trajectory.

Unit – IV Kinematics and Kinetics of Human Movement

- Linear Kinematics–Distance and Displacement, speed and velocity, Acceleration
- Angular kinematics Angular Distance and Displacement, Angular Speed and velocity, Angular Acceleration.
- Linear Kinetics–Inertia, Mass, Momentum, Friction.
- Angular Kinetics-Moment of inertia, Couple, Stability & factors affecting stability.

References:

Hay, J. G. & Reid, J. G. (1982). The anatomical and mechanical basis of human motion.

Englewood Cliffs, N.J.: prentice Hall Inc.

Hay, J. G. & Reid, J. G. (1988). *Anatomy, mechanics and human motion*. Englewood Cliffs, N.J.: prentice Hall Inc.

SOE/PE/E-301 COMPUTER APPLICATIONS IN PHYSICAL EDUCATION

Course Outcomes:

- The students will know about meaning and importance of ICT to the Physical EducationTeacher.
- The students will understand about the concept of MS Word and its functioning.
- The students will know about making MS Excel sheets and working on it.
- The students will learn to prepare Power point presentation by using various types of designs and combinations.

Course Specific Outcomes:

The program content will enable the students to learn about MS Word, MS Excel and Power pointand make use of it for effective presentation and teaching purpose in Physical Education.

Unit – I: Introduction to Computer

- Meaning, need and importance of information and communication technology (ICT). Application of Computers in Physical Education
- Components of computer, input and output device
- Application software used in Physical Education and sports

Unit – II: MS Word

- Introduction to MS Word
- Creating, saving and opening a document
- Formatting Editing features Drawing table
- page setup, paragraph alignment, spelling and grammar check printing option, insertingpage number, graph, footnote and notes

Unit – III: MS Excel

- Introduction to MS Excel
- Creating, saving and opening spreadsheet
- creating formulas
- Format and editing features adjusting columns width and row height understanding charts.

Unit – IV: MS Power Point

- Introduction to MS Power Point
- Creating, saving and opening a ppt. file
- format and editing features slide show, design, inserting slide number
- picture ,graph ,table
- Preparation of Power point presentations

References:

Irtegov, D. (2004). Operating system fundamentals. Firewall Media.

Marilyn, M.& Roberta, B.(n.d.).*Computers in your future*. 2nd edition, India: Prentice Hall.Milke, M.(2007). *Absolute beginner's guide to computer basics*. Pearson Education Asia.Sinha, P. K. &Sinha, P. (n.d.).*Computer fundamentals*.4th edition, BPB Publication.

SOE/PE/E-302 EDUCATION AND EDUCATIONAL TECHNOLOGY

Course Outcomes:

- The students will be able to understand the meaning and importance of EducationTechnology in the field of Physical Education.
- The students will know about various commissions and their reports on Education reforms in the country.
- The students will be explained about Micro teaching and Simulation teaching- Steps andits types.

Course Specific Outcomes:

The program will provide the understanding of Education technology and various types of Education prevail in contemporary society. The students will learn about Policy framework in Education sector, various commissions in Pre and Post Independence period. The content of the program will also educate the students about meaning and significance of Micro and Simulation teaching in actual teaching.

Unit – I Introduction

- Education and Education Technology- Meaning, Definitions and Origin
- Types of Education- Formal, Informal and Non- Formal education.
- Educative Process
- Importance of Devices and Methods of Teaching.

Unit – II Policy Framework

- Overview of Education reformation in the Pre-independence: Macaulay minutes, Wood &Despatch, Hunter commissions.
- Education in Post Independence: Mudaliar commission, Education commission, Right toeducation act, Knowledge commission
- Learning without burden-1993, Justice Verma commission-2012
- Pandit Madan Mohan Malaviya National Mission on Teachers & Training.

Unit – III Understanding the Learner

- Dimension of difference in psychological attributes: Cognitive abilities, interest, aptitude, creativity, personality & self esteem.
- Understanding learners from the perspective of multiple intelligence, Gardner's theory & Emotional intelligence
- Understanding differences based on range of cognitive abilities: learning difficulties, slow learner & dyslexics.

Unit – IV Understanding Teaching

- What is meant by teaching (teaching as a practice, activity & performance).
- Is teaching a profession (Basic characteristics of teaching qualifying it as a profession).
- Teacher Autonomy & Accountability.
- Micro Teaching–Meaning, Types and steps of micro teaching.
- Simulation Teaching Meaning, Types and steps of simulation teaching.

References:

Bhardwaj, A. (2003). *New media of educational planning*. New Delhi: Sarup of Sons. Sampath, K., Pannirselvam, A. & Santhanam, S. (1981). *Introduction to educational technology*. New Delhi: Sterling Publishers Pvt. Ltd.

Semester-IV

SOE/PE/C-401 TEST AND MEASUREMENT IN PHYSICAL EDUCATION

Course Outcomes:

- The students will learn about concept of Test, Measurement and Evaluation and their significance in the Physical Education teaching and Research.
- The students will be able to know about test construction and various technical standardsrelated to it.
- The students will understand the duties of a tester- pre, during and post test.
- The students will know about various fitness tests prevalent in the field of PhysicalEducation.
- The students will also get idea of conducting skill test in various games.

Course Specific Outcomes:

The program provides opportunity to the students to understand the importance of Test, Measurement and Evaluation in Physical Education. It also enables the students to know about various tests, their construction procedure, administration and utilization in the field of Physical Education.

Unit- I Introduction to Test, Measurement & Evaluation

- Meaning of Test, Measurement & Evaluation in Physical Education
- Need & Importance of Test, Measurement & Evaluation in Physical Education
- Principles of Evaluation

Unit-II Criteria: Classification and Administration of test

- Criteria of good Test
- Criteria for selection of a tests, scientific authenticity (reliability, objectivity, validity and availability of norms), Economy of tests,
- Type and classification of Test
- Administration of test, advance preparation–Duties during testing–Duties after testing.

Unit- III Physical Fitness, Motor Fitness & General motor Educability Tests & Other Tests

- AAHPER youth fitness test,
- JCR test, Indiana Motor Fitness Test
- Kraus-Weber muscular test
- Methney & Johnson General motor Educability test.
- Stork Balance Test,
- Yo-Yo Test

Unit- IV Sports Skill Tests

- Lockhart & McPherson badminton test, Miller wall volley test
- Johnson basketball test, Knox test
- McDonald soccer test, Johnson soccer test
- Brady volleyball test, Russel Lange volleyball test
- Harbans Singh Hockey test, Henry Friedel Field Hockey test

References:

Barrow, H. M., &McGhee, R. (1997). *A practical approach to measurement in physical education*. Philadelphia: Lea and Febiger.

Kansal, D.K. (1996).*Test and measurement in sports and physical education*. New Delhi: D.V.S. Publications.

Mathews, D.K., (1973). *Measurement in physical education*, Philadelphia: W.B. SoundersCompnay.

Phillips, D. A., & Hornak, J. E. (1979). *Measurement and evaluation in physical education*. NewYork: John Willey and Sons.

SOE/PE/C-402 SPORTS PSYCHOLOGY AND SOCIOLOGY

Course Outcomes:

- The students will know about meaning and importance of Sports Psychology for Physical Education Teacher.
- The students will be able to learn about various vital issues like Motivation, Personality, Learning, Anxiety and Stress.
- The students will be able to understand the concept of Socialisation and its significance in the field of Physical Education.
- The students will understand the impact of culture, custom and folkways on people lifestyle.

Course Specific Outcomes:

The program content provides the understanding of Sports Psychology and its significance in the field of Physical Education. It will also educate the students about impact of various Psychologicalissues on Sports performance and methods of controlling them. The social aspect of human behaviour and its consequences will make students aware about inter personal relationship in Physical Education.

Unit -I: Introduction

- Meaning, Importance and scope of Educational and Sports Psychology
- General characteristics of Various Stages of growth and development
- Types and nature of individual differences: Factors responsible -Heredity and environment
- Psycho-sociological aspects of Human behavior in relation to physical education and sports

Unit-II: Sports Psychology

- Nature of learning, Plateau in Learning; & transfer of training
- Meaning and definition, characteristics of personality,
- Dimension of personality, Personality and Sports performance
- Nature of motivation: Factors influencing motivation; Motivation and techniques and itsimpact on sports performance.
- Meaning and nature of stress; Types of stress, Anxiety, Arousal and their effects on sportsperformance

Unit-III: Relation between Social Science and Physical Education.

- Orthodoxy, Tradition and Physical Education.
- Festivals and Physical Education.
- Socialization through Physical Education, Group dynamics
- Social Group life, Social conglomeration and Social group, Primary group and Remotegroup.

Unit-IV Society & Culture: Meaning and Importance

- Features of society, class, culture, Custom & folkways
- Importance of society, culture.
- Effects of culture on people life style, Gender & Gender bias.
- Social stratification: forms & function, caste & class

References:

Ball, D. W. & Loy, J. W. (1975). Sport and social order; Contribution to the sociology of sport.

London: Addison Wesley Publishing Co., Inc. Cratty, B. J.(1968). *Psychology and physical activity*. Eaglewood Cliffs. Prentice Hall.

Kamlesh, M.L. (1998). Psychology inphysical education and sport. New Delhi: MetropolitanBook Co.

Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1981). Sports culture and society. Philadelphia: Lea & Febiger.

William, F. O. & Meyer, F. N. (1979). A handbook of sociology. New Delhi: Eurasia PublishingHouse Pvt Ltd.

SOE/PE/C-403 BASICS STATISTICS INPHYSICAL EDUCATION

Course Outcomes:

- The students will be able to understand the meaning, need and importance of Statistics inPhysical Education.
- The students will know about various statistical techniques and their use in the field of Physical Education.
- The students will be able to understand about normal curve.
- The students will know about the application of descriptive and inferential statistics and their use in Physical Education.

Course Specific Outcomes:

The program will provide the understanding of Statistics, its use and importance in Physical Education. Study of central tendencies and Measure of variability will allow the students to interpret and various graphs will make data presentation more effective and meaningful.

Unit-I Introduction to Statistics

- Definition of Statistics
- Need and importance of Statistics in Physical Education and Sports.
- Scope of Statistics in Physical Education & Sports.
- Classification of Statistics
- Intervals: Raw Score, Continuous and Discrete Series, Class Distribution, Construction offrequency tables

Unit-II Basics of Statistical Analysis

- Graphical Presentation of Class Distribution: Histogram, Frequency Polygon, FrequencyCurve. Cumulative Frequency Polygon, Ogive, Pie Diagram
- Measures of Central Tendency: Mean, Median and Mode-Meaning, Definition, Importance, Advantages, Disadvantages and Calculation from Group and Ungrouped data
- Measures of Variability: Meaning, importance, computing from group and ungroup data
- Range, Standard deviation, Quartiles & Percentiles.

Unit- III The Normal Distribution & Correlation

- Introduction, probability of an event, Binomial distribution
- Normal curve: Introduction, characteristics, Skewness, Kurtosis.
- Correlation: Meaning, type, merits.
- Product-moment correlation, Rank order method

Unit- IV Significant of Test

- Small sample: Introduction, Student t distribution,
- student t-test (independent)
- Paired t-test (dependent)
- Large sample : Z- test

References:

Garrett, H.E. (1981). Statistics in psychology and education. New York: Vakils Feffer and SimonLtd.

Thomas, J.R., Nelson, J.K. & Silverman, S.J. (2011). Research method in physical activity. U.S.A: Champaign, IL: Human Kinetics Books.

Verma, J. P. (2000). A text book on sports statistics. Gwalior: Venus Publications.

SOE/PE/E-401 FOUNDATION AND PRINCIPLES OF PHYSICAL EDUCATION

Course Outcomes:

- The students will be able to understand the goal, aim and objectives of Education and Physical Education.
- The students will learn about the Growth and Development and various types of age and its consideration for sports activities.
- The students will be able to understand the concept of Posture- types and disadvantages of bad posture, remedial measures to overcome it.
- The students will know about various Education philosophies and their relevance in the field of Physical Education.
- The students will also understand about Psychological and Sociological issues related to human behaviour.

Course Specific Outcomes:

The students will be provided understanding of various aspects- Biological, Philosophical and Psychological foundations of Physical Education. The students will also learn about different Philosophies given by great Philosophers and its relevance and significance in modern Physical Education. They will also be explained about different biological aspects like age, sex, body types and their relationship to Physical Education activities.

Unit – 1: Introduction to Physical Education

- Concept basic to the nature & meaning of Physical education
- What is an Aim? What are objectives? What are Outcomes?
- Goal of Education, Aim & objectives of Education
- Aim, Objectives & Goal of Physical education
- The Physically educated person.

Unit-2 – Biological Foundation

- Growth & Development: factors affecting, difference between boys and girls
- Age & sex difference in relation to physical activities & sports
- Chronological, Anatomical & Physiological age.
- Posture: Meaning, type & disadvantages of bad posture.
- Body type, sheldon's classification of body type.
- Hypokinetic diseases

Unit- 3- Philosophical Foundation of Physical Education

- Idealism and Physical education.
- Pragmatism and Physical education.
- Naturalism and Physical education.
- Existentialism and Physical education.
- Sports for all and its role in the maintenance and promotion of fitness.

Unit-4- Psychosocial Foundation

- Learning
- Introduction of learning
- Theories of learning
- ➤ Laws of learning
- > Motor learning
- Social bases
 - ➢ Social organisation
 - Socialization through sports
 - Social group, social change, social value

References:

Bucher, C. A. Foundation of physical education. St. Louis: The C.V. Mosby Co.

Deshpande, S. H. (2014). *Physical Education in Ancient India*. Amravati: Degree college of Physical education.

Sharman, J. R. (1964). *Introduction to physical education*. New York: A.S. Barnes & Co. William, J. F. (1964). *The principles of physical education*. Philadelphia: W.B. Saunders Co.

SOE/PE/E-402 YOGA EDUCATION

Course Outcomes:

- The students will be able to know about meaning, origin, aim and objectives of Yoga.
- The students will know about the importance of Yoga in Physical Education.
- The students will learn about the parts of Ashtanga Yoga.
- The students will also understand the difference between Yogic practices and PhysicalExercises.

Course Specific Outcomes:

The program content will provide the understanding of Yoga- its origin, meaning and relevance to Physical Education field. It will also educate about the parts of Ashtanga Yoga, various types of Asanas, Meditative posture, Bandhas, Mudras, Kriyas, and its impact on human body.

Unit – I Introduction

- Meaning and Definition of Yoga
- Aims and Objectives of Yoga
- Yoga in Early Upanisads
- The Yoga Sutra: General Consideration
- Need and Importance of Yoga in Physical Education and Sports

Unit - II Foundation of Yoga

- The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana andSamadhi
- Yoga in the Bhagavadgita Karma Yoga, Raja Yoga, Jnana Yoga and Bhakti Yoga

Unit - III Asanas

- Effect of Asanas and Pranayama on various system of the body
- Classification of asanas with special reference to physical education and sports
- Influences of relaxtive, meditative posture on various system of the body
- Types of Bandhas and mudras
- Type of kriyas

Unit – IVYoga Education

- Basic, applied and action research in Yoga
- Difference between yogic practices and physical exercises
- Yoga education centers in India and abroad
- Competitions in Yogasanas

References:

Brown, F. Y.(2000). *How to use yoga*. Delhi:Sports Publication. Shankar,G.(1998). *Holistic approach of yoga*. New Delhi:Aditya Publishers.Shekar,K. C. (2003). *Yoga for health*. Delhi: KhelSahitya Kendra.

Part – B Practical Courses

Semester – I SOE/PE/P– 101

Football: Fundamental Skills

- Kicks-Inside kick, Instep kick, Outer instep kick, lofted kick
- Trapping-trapping rolling the ball, trapping bouncing ball with sole
- Dribbling-With instep, inside and outer instep of the foot.
- Heading-From standing, running and jumping.
- Throw in
- Feinting-With the lower limb and upper part of the body.
- Tackling-Simple tackling, Slide tackling.
- Goal Keeping-Collection of balls, Ball clearance-kicking, throwing and deflecting.

SOE/PE/P-102

Hockey: Fundamental Skills

- Player stance & Grip, Rolling the ball, Dribbling, Push, Stopping, Hit, Flick & Scoop
- Passing–Forward pass, square pass, triangular pass, diagonal pass, return pass,
- Reverse hit
- Dodging
- Goal keeping–Hand defence, foot defence .
- Positional play in attack and defence.
- Rules and their interpretations and duties of officials.
- Rules and their interpretations and duties of officials.
- Ground Marking.

SOE/PE/P-103

Volleyball: Fundamental Skills

- Players Stance-Receiving the ball and passing to the team mates,
- The Volley (Over-head pass),
- The Dig (Under hand pass).
- Service-Under Arm Service, Side Arm Service, Tennis Service, Round Arm Service.
- Spiking & Blocking
- Rules and their interpretations and duties of officials.

SOE/PE/PE-101

Hand Ball:

- Fundamental Skills-Catching, Throwing, Ball Control, Goal Throws-Jump Shot, Centre Shot, Dive Shot, Reverse Shot, Dribbling-High and Low, Attack and Counter Attack, Simple Counter Attack, Counter Attack from two wings and centre, Blocking, Goal keeping, Defense.
- Rules and their interpretations and duties of officials.

SOE/PE/PE-102

Basketball:

- Fundamental Skills
- Player stance and ball handling
- Passing-Two Hand chest pass, two hands Bounce Pass, One Hand Baseball pass, Side ArmPass, Over Head pass, Hook Pass.
- Receiving-Two Hand receiving, one hand receiving, receiving in stationary position, receiving while jumping, receiving while running.
- Dribbling-How to start dribble, how to drop dribble, High dribble, Low dribble, Reversedribble, rolling dribble.
- Shooting-Layup shot and its variations, one hand set shot, one hand jump shot, Hook shot, and Free throw.
- Rebounding-Defensive rebound, Offensive rebound, Knock out, Rebound Organization.
- Individual Defensive-Guarding the man with the ball and without the ball.
- Pivoting.
- Rules and their interpretations and duties of the officials.

Semester-II

SOE/PE/P-201

Track and Field: Running Event

- Starting techniques: Standing start, Crouch start and its variations, Proper use of blocks.
- Finishing Techniques: Run, Through, Forward lunging, Shoulder Shrug
- Ground Marking, Rules and Officiating
 - · Hurdles:
 - · Fundamental Skills- Starting, Clearance and Landing Techniques.
 - Types of Hurdles
 - Ground Marking and Officiating.

Relays: Fundamental Skills

- Various patterns of Baton Exchange
- Understanding of Relay Zones
- Ground Marking
- Interpretation of Rules and Officiating.Jumping

Events

Long Jump- Approach Run, Take-off, Action in the air and Landing Triple Jump-Approach Run, Hop, Step, Jump and Landing High Jump- Approach Run, Take-off, Bar Clearance and landing

SOE/PE/P- 202

Cricket:

Fundamental Skills

- Batting-Forward and backward defensive stroke
- Bowling-Simple bowling techniques
- Fielding-Defensive and offensive fielding
- Catching-High catching and Slip catching.
- Stopping and throwing techniques
- Wicket keeping techniques

SOE/PE/PE-201

Badminton: Fundamental Skills

- Racket parts, Racket grips, Shuttle Grips.
- The basic stances.
- The basic strokes-Serves, Forehand-overhead and underarm, Backhand-overhead andunderarm
- Drills and lead up games
- Types of games-Singles, doubles, including mixed doubles.
- Rules and their interpretations and duties of officials.

SOE/PE/PE-202

Table Tennis: Fundamental Skills

- The Grip-The Tennis Grip, Pen Holder Grip.
- Service-Forehand, Backhand, Side Spin, High Toss.
- Strokes-Push, Chop, Drive, Half Volley, Smash, Drop-shot, Balloon, Flick Shit, LoopDrive.
- Stance and Ready position and foot work.
- Rules and their interpretations and duties of officials.

SOE/PE/T - 201

Teaching practices: 10 teaching practice lessons out of which 5 lessons in Mass Demonstration activities.5 Skill lessons on team games, Racket sports and Indigenous Sports.

Mass Demonstration activities

Dumbells, Wands, Hoop, Umbrella, Flag, Lezium, Pom-Pom and March Past

- Apparatus and Light apparatus Grip
- Attention with apparatus and Light apparatus
- Stand-at-ease with apparatus and light apparatus
- Exercise with verbal command, whistle and drum,
- Whistle and music Two count, four count, eight count and sixteen count.
- Standing Exercise
- Jumping Exercise
- Moving Exercise
- Combination of above all

Semester-III

SOE/PE/P-301

Yoga:

- Surya Namaskara,
- Pranayams
- Corrective Asanas
- Kriyas
- Asanas-Sitting, Standing, Laying Prone Position and Laying Spine Position

Gymnastics: Floor Exercise

- Forward Roll, Backward Roll, Sideward Roll, different kinds of scales, Leg Split, Bridge, Dancing steps, Head stand, Jumps-leap, scissors leap.
- Approach Run, Take off from the beat board, Cat Vault, Squat Vault.

Parallel Bar:

- Mount from one bar
- Straddle walking on parallel bars.
- Single and double step walk
- Perfect swing
- Shoulder stand on one bar and roll forward.
- Roll side
- Shoulder stand
- Front on back vault to the side(dismount)

SOE/PE/P-302

Track and Fields (Throwing Events)

Discus Throw, Javelin, Hammer throw, shot-put

- Basic Skills and techniques of the Throwing events
- Grip
- Stance
- Release
- Reserve/ (Follow through action)
- Ground Marking / Sector Marking
- Interpretation of Rules and Officiating.

Rules and their interpretations and duties of officials

SOE/PE/PE-301

Kabaddi: Fundamental Skills

- Skills in Raiding-Touching with hand, various kicks, crossing of baulk line, Crossing ofBonus line, luring the opponent to catch, Pursuing.
- Skills of Holding the Raider-Various formations, Catching from particular position, Different catches, Luring the raider to take particular position so as to facilitate catching,
- Catching formations and techniques.
- Additional skills in raiding-Bringing the antis in to particular position, escaping from various hold, Techniques of escaping from chain formation, Combined formations in offence and defense.
- Ground Marking, Rules and Officiating

SOE/PE/PE-302

KhoKho:

- General skills of the game-Running, chasing, Dodging, Faking etc.
- Skills in chasing-Correct Kho, Moving on the lanes, Pursuing the runner, Tapping the inactive runner, Tapping the runner on heels, Tapping on the pole, Diving, Judgment in giving Kho, Rectification of Foul.
- Skills in Running-Zigzag running, Single and double chain, Ring play, Rolling in the sides, Dodging while facing and on the back, fakes on the pole, fake legs, body arm etc, Combination of different skills.
- Ground Marking
- Rules and their interpretations and duties of officials.

SOE/PE/T - 301

Teaching practices: 10 lessons of Track and Field, Team games, Yoga and Gymnastics.

Semester-IV

SOE/PE/P-401

Sports Specialization: Skill proficiency (any one games& Sports)

Note: - Games specialization will be given in following Games and sports: Athletics, badminton, basketball, cricket, football, handball, hockey, kabaddi, kho-kho, table-tennis, volleyball and yoga.Student will select one Game specialization.

SOE/PE/P-402

Sports Specialization: Tactics and training (any one games & Sports)

SOE/PE/T-401

Sports Specialization: Skill (5 Lessons)

.

SOE/PE/T-402

· · · ·

Sports Specialization: Tactics and training (5 Lessons)

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT – M.TECH. (CSE)</u>



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

- 1. Set Theory & Algebra: Sets; Relations; Functions; Compositions of functions and relations, Group: Partial Orders; Boolean Algebra.
- 2. Theory of Computations: Finite Automata and Regular Expressions, on determinism and NFA, Properties of Regular Sets, Context free grammar: Chomsky Normal Form (CNF), Griebach Normal Form (GNF), Push-down automata, Moore and mealy Machines, Turing machines.
- 3. Digital Logic: Number representations and computer arithmetic (Fixed and floating point), Logic functions, Minimizations, Design and synthesis of combinational and sequential circuits, A/D AND D/A CONVERTERS.
- 4. Computer Organization and Architecture: Machine instructions and addressing modes, ALU and data-path, CPU control design, memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage.
- 5. Microprocessors and interfacing: Instructions sets, addressing modes, Memory interfacing. interfacing peripheral devices, Interrupts. Microprocessor architecture, Instructions set and Programming (8085), Microprocessor applications, DMA, Interrupt and Timer.
- 6. Programming and Data Structures: Programming in C; Functions, Recursion, Parameter passing, and Definition of data structure. Arrays, Stacks, Queues linked lists, trees, priority queues and heaps, Binary search trees
- 7. Algorithm: Algorithm concepts, Analyzing and design, asymptotic notations and their properties. Worst and average case analysis, Design: Greedy approach, Dynamic programming, Divide and conquer, Tree and graph transversals, Spanning trees, shortest paths: Hashing, Sorting Searching.
- Operating System: Main functions of operating systems, Processes, Threads, Interprocess communication, concurrency, Synchronization, Deadlock, CPU scheduling, I/O scheduling, Resource scheduling. Deadlock and scheduling algorithms, banker's algorithm for deadlock handling. Memory management and virtual memory. File Systems, I/O systems, DOS, UNIX and Windows.
- Computer Networks: OSI Model, TCP/IP model, LAN technologies (Ethernet, Token ring), Transmission media twisted pair, coaxial cables liber-optic cables, Flow and error control techniques, Routing algorithms, Congestion control, IP (v4), Application layer protocols (icmp, dns, smtp, pop, ftp, http); Sliding window protocols: Internetworking: Switch Hub, Bridge, Router, Gateways, Concatenated virtual circuits, Firewalls: Network Security; Cryptography public key, secret key. Domain Name System (DNS)-Electronic Mail and World Wide Web (WWW).
- 10. Artificial Intelligence: Basic concepts of Al; Intelligent agents, solving problems by searching -Uniformed search, Informed search, Logical agents; first order logic; knowledge representations.
- 11. Cryptography & Network security: Computer & network security concepts, Classical encryption techniques: Symmetric cipher model, Caesar Cipher, Playfair Cipher, Hill Cipher.
- 12. Data Science: Basic concepts, data, types of data-structured, unstructured; data representation, machine learning algorithmssupervised, unsupervised, reinforcement, clustering, classification and regression problems, data preprocessing, normalization, smoothing, visualization.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

<u>SUBJECT(S) –</u>

- 1. MCA
- 2. M.SC. INFORMATION TECHNOLOGY
- **3. M.SC. COMPUTER SCIENCE**



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

Entrance Test Syllabus-MCA/M.Sc (IT)/M.Sc CS

Mathematics: (40 questions)

1. Algebra: Fundamental operations in Algebra, expansion, Factorization, quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations, Determinants & Matrices.

2. Set Theory: Sets and subsets, operations on sets, sequences, properties of integers, relations and functions.

3. Co-ordinate Geometry: Rectangular Cartesian co-ordinates, equations of a line, midpoint, intersections etc., equations of a circle, distance formulae, pair of straight lines, parabola, ellipse and hyperbola.

4. Calculus: Limit of functions, continuous functions, differentiation of functions, Tangents and normal, simple examples of maxima and minima, Integration of function by parts, by substitution and by partial fraction.

5. Vector: Position vector, addition and subtraction of vectors, scalar and vector products and their application to simple geometric problems and mechanics.

6. Trigonometry: Simple identities, trigonometric equations, properties of triangles, solution of triangles, height and distance.

7. Probability and Statistics: Basic concepts of probability theory, Averages, Dependentand independent events, frequency distributions, and measures of dispersions, skewness and kurtosis, random variable and distribution functions, mathematical expectations, Binomial, Poisson, normal distributions, curve fitting, and principle of least squares, correlation and regression.

8. Linear Programming: Formulation of simple linear programming problems, basic concepts of graphical and simplex methods,

revised simplex method, transportation and assignment problems, duality and integer programming. Analytical Ability and Logical Reasoning: (30 questions)

Questions in this section will contain

- 1. Number Series
- 2. Verbal Classification
- 3. Analogies
- 4. Verbal Reasoning
- 5. Statement and Assumption
- 6. Statement and Conclusion
- 7. Cause and Effect
- 8. Logical Deduction
- 9. Letter and Symbol Series
- 10. Visual-Spatial Reasoning

Computer Awareness: (30 questions)

1. Computer Basics: Organization of a computer, Central Processing Unit (CPU), Structure of instructions in CPU, input/output devices, computer memory, memory organization backup back-up devices.

2. Data Representation: Representation of characters, integers, and fractions, binary and hexadecimal representations, Binary Arithmetic: Addition, subtraction, division, multiplication, single arithmetic, and two complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

3. Computer Architecture: Block structure of computers, communication between the processor and I/O devices.

4. Flow chart and Algorithm, Fundamentals of Operating System and Basics of Internet & Social Media tools.

UNIVERSITY ENTRANCE EXAMINATION (UET) [P.G. 2025-26]

SYLLABUS FOR P.G. ENTRANCE EXAMINATION SESSION 2025-26

SUBJECT – PHARMACEUTICAL SCIENCES



HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY (A CENTRAL UNIVERSITY) SRINAGAR (GARHWAL) UTTARAKHAND

SYLLABUS FOR ENTRANCE IN POST GRADUATE COURSES IN PHARMACEUTICAL SCIENCES

Pharmaceutical Impurities

Impurities in pharmaceutical substances, sources, types & effects of impurities. Limit tests for heavy metals like lead, iron, arsenic, mercury & for chloride & sulphate as per Indian Pharmacopoeia [I. P.].

Isotopes

Isotopes- stable & radioactive, mode & rate of decay. Types & measurement of radioactivity. Radiopharmaceuticals & their diagnostic & therapeutic applications in pharmacy & medicine such as ¹²⁵I, ³²P, ⁵¹Cr, ⁶⁰Co, ⁵⁹Fe, ⁹⁹Tc-M. Radiocontrast media, use of BaSO₄ in medicine.

Therapeutic classes of drugs

The following topics should be dealt with covering nomenclature [including stereochemical aspects], biological activity [including side & toxic effects], mode of action, structure activity relationship [where ever applicable] & syntheses of reasonable molecules.

- 1. Dentifrices, desensitizing agents, & anticaris agents.
- 2. General anesthetics.
- 3. Local anesthetics.
- 4. Antiseptics, disinfectants, sterilants, & astringents.
- 5. Diagnostic agents.
- 6. Coagulants, anticoagulants & plasma expanders.

Drug metabolism

Introduction to drug metabolism based on the functional groups.

Various classes of therapeutic agents

A detailed study of the following classes with respect to drug nomenclature, classification, physicochemical properties, mode of action [MOA], structure activity relationships [SAR], wherever applicable, synthesis of simple & prototype molecules,

drug metabolism, therapeutic uses & side effects. Drug resistance, wherever applicable, should be covered in respective classes of drugs.

- a. Antibacterial sulpha drugs [only].
- b. Antifungal agents.
- c. Thyroid & anti thyroid drugs.
- d. Antiallergic agents.
- e. Antiulcer agents & Proton Pump Inhibitors.
- f. Hypoglycemic agents.
- g. Antimalerials

Different classes of therapeutic drugs

A detailed study of the following classes with respect to drug nomenclature, classification, physicochemical properties, mode of action [MOA], structure activity relationships [SAR], wherever applicable, synthesis of simple & prototype molecules, drug metabolism, therapeutic uses & side effects. Drug resistance, wherever applicable, should be covered in respective classes of drugs.

- a) Sedative-hypnotics
- b) Antiepileptic agents.
- c) Anti-anxiety drugs.
- d) Diuretics.
- e) Antibiotics. Penicillins, cephalosporins & other beta- lactam antibiotics like imipenam & aztreonam. Beta-lactamase inhibitors such as clavulanic acid & sulbactum. Chloramphenicol. Tetracyclines. Aminoglycoside antibiotics. Macrolide antibiotics. Lincomycins. Polypeptide antibiotics. Anticancer antibiotics.

Different classes of therapeutic drugs

A detailed study of the following classes with respect to drug nomenclature, classification, physicochemical properties, mode of action [MOA], biosynthesis, structure activity relationships [SAR], wherever applicable, synthesis of simple & prototype molecules, drug metabolism, therapeutic uses & side effects. Drug resistance, wherever applicable, in respective classes of drugs.

- a) Narcotic [centrally acting] analgesics [analgetics]. Morphine & all its structural modifications [peripheral & nuclear]. Narcotic agonists & antagonists [dual & pure]. Non-narcotic analgesics [NSAIDS]. Difference between narcotic & non-narcotic agents.
- b) Adrenergic drugs. Neurotransmitters & their role. General & specific adrenergic agonists & antagonists [up to alpha-2 & beta-2 only].
- c) Cholinergic agents. Muscarinic & nicotinic cholinergic agonists & antagonists [up to M₂ & N₂]. Neuronal [transmission] blockers.
- d) Asymmetric synthesis. Chirality, chiral pool, sources of various naturally available chiral compounds. Eutomers, distomers, eudismic ratio. Enantioselectivity & enantiospecificity. Enantiomeric & diasteriomeric excess. Prochiral molecules. Asymmetric synthesis of captopril & propranolol.
- e) Combinatorial chemistry. Introduction & basic terminology. Databases & libraries. Solid phase synthesis technique. Types of supports & linkers, Wang, Rink, & dihydropyran derivatized linkers. Reactions involving these linkers. Manual parallel & automated parallel synthesis. Houghton's tea bag method, micromanipulation, recursive deconvolution. Mix & split method for the synthesis of tripeptides. Limitations of combinatorial synthesis. Introduction to throughput screening.

Introduction to Pharmaceuticals

Definition, importance of pharmaceuticals, areas concerned, scope of Pharmaceutics, history and development of profession of Pharmacy and Pharmaceutical industry in India. A brief review of present Indian Pharma. Industry in global perspective.

Introduction to dosage form

Definition of drug. New drug and dosage form. The desirable properties of a dosage form, the need of dosage form. Ideas about available type of dosage forms and new drug delivery system.

Route of administration

Route of administration with respect to dosage form design, physiological consideration for various routes of administration.

ADME

Scheme of fate of dosage form after its administration. Definition and introduction to concept of absorption, distribution, biotransformation and elimination of drug. Introduction to bioavailability and various equivalences referring plasma time profile of drug.

Sources of drug information

Introduction to Pharmacopoeia with reference to IP, BP, USP and International Pharmacopeia. Study of structure / features (index) general notice and compartment of monographs of excipients, drug and drug product. Other sources. Textbooks, journals, internet (drug information system, online database, patient/ consumer information and non- print material. Classification of information, primary, secondary and tertiary. Nomenclature of drug.

Allopathic dosage form

Merits / demerits, importance, formulation development - vehicles / excipients with examples for the dosage form: liquid dosage form: monophasic liquid dosage form. Aromatic waters, syrup, elixir, linctus, lotion, liniment, glycerites, solutions, spirits, ENT preparations, mixtures, paints, mouthwash.

Ayurvedic system of medicine

Theory, basic concept, diagnosis, various branches of treatment in ayurveda, types of drug formulation in Ayurveda and important Ayurvedic drugs and their uses, formulation of asavas, arishtas, watika, churna, tailas, ghruta, lep.

Biological products

Absorbable and non-absorbable material types, sutures and ligatures, processing, manufacturing, sterilization, packing, QC tests of materials like catgut and nylon.

Dosage Form Necessities and Additives

Antioxidants, preservatives, coloring agents, flavoring agents and diluting agents, emulsifying agents, suspending agents, ointment bases, solvents, and others.

Powders

Advantages and limitations as dosage form, manufacturing procedure and equipment, special care and problems in manufacturing powders, powders of IP, effervescent granules and salts.

Capsules

Hard gelatin capsules, shell formulation and manufacturing, capsule sizes, storage, filing, cleaning process general formulation contents and evaluation. Soft gelatin capsules, shell formulation, formulation contents, filing, sealing and storage. Microencapsulation, advantages, encapsulation materials, methods of microencapsulation, I.P. formulations

Tablets

Types, ideal requirement, classification, granulation methods, general formulation, compression machines, different types of tooling's, difficulties in tableting, trouble shooting aspects, evaluation, sugar coating, compression coating, film coating, problems in tablet coatings and their trouble shooting aspects. IP formulations.

Parenterals - product requiring sterile packaging

Definition, types advantages and limitations, general formulation, vehicles, production procedure, production facilities, controls, tests, selected IP injections, sterile powders, implants, emulsions, suspensions.

Suspensions

Formulation of deflocculated and flocculated suspension, manufacturing procedure, evaluation methods, IP suspensions.

Emulsions

Types, emulsifying agents, general formulation, manufacturing procedure, evaluation methods, IP emulsions.

Suppositories

Ideal requirements, bases, manufacturing procedure, evaluation methods, IP products.

Semisolids

Definitions, bases, general formulation, manufacturing procedure, evaluation methods, IP products.

Liquids (solutions, syrups, elixirs, spirits, aromatic water, liquid for external uses)

Definition, types, general formulation, manufacturing procedure, evaluation methods, IP products.

Pharmaceutical Aerosols

Definition, propellants, general formulation, manufacturing and packaging methods, pharmaceutical applications. Impacts of propellants on environment.

Ophthalmic preparations

Requirement, formulation, methods of preparation, containers, evaluation, IP products.

Radio Pharmaceuticals

Therapeutic uses, diagnostic uses, facilities and work area, preparation of radio pharmaceuticals, radio pharmaceuticals used in medicines.

Stability of formulated products

Requirements, drug regulatory aspects, pharmaceutical products stability, self life, overages, containers, closures.
Novel Drug delivery system

Critical fluid technology, transdermal drug delivery system, controlled drug delivery system, multiple emulsion, nano particles, targeted drug delivery system, aerosols, inhalation & new products reported etc.

Cosmetics

Formulation and preparation of dentifrices, hair creams, lipsticks, face powders, shaving preparations, skin creams, shampoos, hair dyes, depilatories, manicure preparations etc.

General Pharmacology

Introduction to Pharmacology- Definition, scope and source of drugs, dosage form and routes of drug administration. Pharmacodynamics-Mechanism of drug action, Receptors, classification and drug receptors interaction, combined effect of drugs, factors modifying drug action.

Pharmacokinetics-Mechanism and principle of Absorption, Distribution, Metabolism and Excretion of drugs. Principles of basic and clinical pharmacokinetics. Pharmacogenetics. Adverse drug reactions.

Discovery and development of new drugs-Preclinical and clinical studies.

Pharmacology of peripheral nervous system

Neurohumoral transmission (Autonomic and somatic).

Parasympathomimetics, Parasympatholytics, Sympathomimetics, Sympatholytics, Ganglionic stimulants and blockers. Neuromuscular blocking agents and skeletal muscle relaxants (peripheral).

Local anesthetic agents. Drugs used in Myasthenia Gravis.

Pharmacology of cardiovascular system

Introduction of hemodynamic and Electrophysiology of heart.

Anti-hypertensive drugs, Anti-anginal agents, Anti-arrhythmic drugs.

Drugs used in congestive heart failure. Anti-hyperlipidemic drugs.

Drugs used in the therapy of shock.

Haematinics, anticoagulants and haemostatic agents.

Fibrinolytics and antiplatelet drugs.

Blood and plasma volume expanders.

Drugs acting on urinary system

Diuretics and anti-diuretics.

Drugs acting on Respiratory system

Anti-asthmatic drugs, Mucolytics and nasal decongestants, Anti-tussives and expectorants. Respiratory stimulants

Pharmacology of central nervous System

Neurohumoral transmission in the C.N.S with special emphasis on Pharmacology of various neurotransmitters. General anesthetics. Alcohols and disulfiram. Sedatives, hypnotics and centrally acting muscle relaxants, Psychopharmacological agents: Antipsychotics, antidepressants, antianxiety agents, anti-manics and hallucinogens.

Anti-epileptic drugs. Anti-parkinsonism drugs. Nootropics.

Narcotic analgesics, drug addiction, drug abuse, tolerance and dependence.

Pharmacology of Endocrine system

Basic concepts in endocrine pharmacology. Hypothalamic and pituitary hormones. Thyroid hormones and ant thyroid drugs, Parathormone, Calcitonin and vitamin-D. Insulin, oral hypoglycemic agents and glucagon. ACTH and corticosteroids. Androgens and anabolic steroids. Estrogens, progesterone and oral contraceptives. Drugs acting on the uterus.

Chemotherapy

General principals of chemotherapy. Sulphonamides and co-trimoxazole.

Antibiotics- Penicillins, cephalosporins, chloramphenicol, Macrolides, quinolines and fluoroquinolins, quinolones. Tetracyclines. Aminoglycosides and miscellaneous antibiotics. Chemotherapy of tuberculosis, leprosy, fungal diseases, viral diseases, AIDS, protozoal diseases, worm infections, urinary tract infections and sexually transmitted diseases. Chemotherapy of malignancy.

Pharmacology of drug acting on the gastrointestinal tract

Antacids, anti-secretary and antiulcer drugs.

Laxatives and antidiarrheal drugs. Appetite stimulants and suppressants. Digestants and carminatives. Emetics and antiemetics.

Peptides and proteins as mediators

General Principal of peptide pharmacology Biosynthesis and regulation of peptides Peptide antagonists. Protein and peptide as drugs.

Nitric oxide

Biosynthesis of nitric oxide and its physiological role.

Therapeutic use of nitric oxide and nitric oxide donors. Clinical condition in which nitric oxide may play a part.

Vitamins & Minerals

Vitamin deficiency diseases and their management. Role of minerals in health & diseases.

Principles of toxicology

Definition of poison. General principles of treatment of Poisoning. Treatment of poisoning due to Heavy metals, insecticides, opioids and other addict forming drugs. Study of acute, sub-acute and chronic toxicity as per OECD guidelines. Genotoxicity, Carcinogenicity, teratogenicity and mutagenicity studies.

Introductory Pharmacognosy

Historical development, modern concept and scope of Pharmacognosy. Significance of Pharmacognosy in various systems of medicine practiced in India *viz:* Ayurveda, Unani, Homeopathic and Siddha.

Classification of crude drugs

Based on alphabetical, morphological, pharmacological, chemical, taxonomical and chemotaxonomic methods: organized and unorganized drugs: official and unofficial drugs.

Sources of crude drugs

Plants, animals and minerals: marine products: plant tissue culture.

Factors influencing quality of crude drugs

Exogenous factors: temperature, rainfall, daylight, altitude and soil. Endogenous factors: Mutation, polyploidy, & hybridization in medicinal plants. Production factors including collection, drying, storage and transport methods.

Study of morphological and histological characters of crude drugs, Ergastic cell inclusions, anatomical structures of both monocot and dicot stems, leaves and roots: barks, fruits and seeds.

Techniques in microscopy

Details of mountants, clearing agents, chemomicroscopic (microchemical) reagents.

Pharmaceutical aids

Biological sources, chemical constituents, adulterants and uses of: Starches, acacia gum, tragacanth, sterculia, guar gum, pectin, arachis oil, castor oil, sesame oil, cotton seed oil, olive oil, cotton, silk, wool, regenerated fibers, asbestos, kaolin, prepared chalk. kieselghur.

Enzymes

Biological sources, preparation, characters and uses of: diastase, papain bromalain, ficin, yeast, pancreatin, urokinase, pepsin, trypsin, pencillinase, hyaluronidase and stryptokinase.

Natural pesticides and insecticides

Introduction to herbicides, fungicides, fumigants and rodenticides tobacco, pyrethrum, & neem.

Adulteration and evaluation of crude drugs

Different methods of adulteration: Evaluation of drugs by organoleptic, microscopic, physical, chemical and biological methods. Deterioration of herbal drugs by insects.

Quantitative microscopy

Definition and determination of stomatal index, stomatal number, palisade ratio, vein islet number, vein termination number, lycopodium spore method. Micrometers and measurement of microscopic characters.

Carbohydrates & lipids

Biological sources, salient morphological features, chemical constituents, and uses of: Plantago, shark liver oil, cod liver oil, guggul lipids.

Tannins

Biological sources, morphology, chemical constituents, chemical test and uses of: Pale catechu, black catechu, nutgalls, *Terminalia belerica, Terminalia chebula, Terminalia arjuna.*

Volatile oils

Biological sources, morphology, chemical constituents, adulterants and uses of: Black pepper, turpentine, mentha, coriander, cardamom, cinnamon, cassia, lemon grass, caraway, dill, spearmint, clove, anise, fennel, nutmeg, eucalyptus, sandal wood.

Resinous drugs

Classification, formation, sources, chemical constituents, identification test, adulterants and uses of: benzoin, peru balsam, tolu balsam, asafoetida, ginger, turmeric, capsicum, podophyllum.

Glycosides

Nature and classification. Biological sources, morphology, chemical constituents, adulterants and uses of: Digitalis, strophanthus, aloe, rhubarb, senna, quassia, dioscorea, quillaia, glycyrrhiza, ginseng, gentian, withania, bitter almond. Biosynthesis of cardiac and anthraquinone glycosides.

Alkaloids

Nature, classification, biological sources, morphology, chemical constituents, adulterants and uses of: Areca nut, belladonna, hyoscymous, stramonium, duboisea, coca, coffee, tea, cinchona, opium, ipecac, nux vomica, ergot, rauwolfia, vinca, kurchi, ephedra, colchicum, vasaca, pilocarpus, aconite, *Solanum xanthocarpum*. Biosynthesis of tropane, cinchona and opium alkaloids.

Extraction and Isolation Techniques

General methods used for the extraction, isolation and identification of alkaloids, lipids, glycosides, flavonoids, saponins, volatile oils and resins. Application of column, paper and thin layer chromatographic techniques, for the isolation of phytopharmaceuticals.

Phytopharmaceuticals

Isolation, identification and estimation of: caffeine, eugenol, digoxin, piperine, tannic acid, diosgenin, hesperidine, berberine, calcium sennosides, rutin, glycyrrhizin, menthol, ephedrine, quinine, andrographolides and guggul lipids.

Quality control and Standardization of herbal drugs

Quality control of herbal drugs as per WHO, AYUSH and Pharmacopeial guidelines-Extractive values, ash values, chromatographic techniques (TLC, HPTLC and HPLC) for determination of chromatographic markers. Determination of heavy metals, insecticides, pesticides and microbial load in herbal preparations.

Herbal formulations

Principals involved in Ayurveda, Sidha, Unani, Chinese and Homeopathic systems of medicines. Preparation of Ayurvedic formulations like aristas, asava, ghutika, tailia, churna, avaleha, ghrita and bhasmas: Unani formulations like majooms, Safoofs. Determination of alcohol contents in arishtas & asavas.

Plant Biotechnology

History and scope of plant tissue culture, growth media, plant growth regulators: callus and suspension culture, Biotransformation, immobilization, hairy root culture. Transgenic plants and their applications, plant tissue culture as source of secondary metabolites.

Herbal cosmetics

Importance of herbals as shampoos (soapnut), conditioners and hair darkeners, (amla, henna, hibiscus, tea), skin care (aloe, turmeric, lemon peel, vetiver).

Traditional herbal drugs

Common names, sources, morphology, active constituents and uses (traditional, folklore), pharmacological and clinical uses of: *punarnava (Boerhaviadiffusa)*, shankhpushpi (Convolvulus *microphylla*), lehsun (*Allium sativum*), guggul(*Commiphora mukul*), kalmegh (*Andrographis peniculata*), tulsi (*Ocimum sanctum*), valerian (*Valerian*)

officinalis), artemisia (Artemisia annua), chirata (Swertia chirata), ashoka (Saraca indica).