

Admission to M.E./ M.Tech./ M.Arch./ M.Pharm./M.M.D. Programmes under FET and FISLM for the session 2024-25

SYLLABUS FOR WRITTEN ADMISSION TEST 2024-25

- **Name of the Department/school: Department of Pharmaceutical Technology**
- **Name of the programme: M. Pharm.**
- **Written test for: Sponsored √/ Self sponsored**
- **Syllabus**

Pharmacology: General Pharmacology, Principles of toxicology, Drugs acting on urinary system, Pharmacology of peripheral nervous system, Pharmacology of central nervous System, Pharmacology of cardiovascular system, Immunopharmacology, Drugs acting on Respiratory system, Pharmacology of Endocrine system, Neurohumoral transmission in autonomic and central nervous system, Vitamins & Minerals, Chemotherapy, Autacoids and their Antagonists, Pharmacology of drug acting on the gastrointestinal tract, Chronopharmacology.

Composition & physical states of matter

Physical Chemistry: Refractive index, Solutions, Electrochemistry, Kinetics, Colligative Properties, Thermodynamics, Ionic equilibrium.

Physical Pharmacy: Buffer, Solubility, Matter, properties of matter, Viscosity and rheology, Surface and interfacial phenomenon, Dispersion systems, Complexation, Micromeritics and powder rheology.

Organic Chemistry: General principles, Pericyclic reactions, Aromaticity & chemistry of aromatic compounds, Different classes of compounds, Amino acids & proteins, Different aromatic classes of compounds, Polycyclic aromatic hydrocarbons, Stereochemistry, Carbohydrates, Carbonyl Chemistry, Heterocyclic Chemistry, Protection & deprotection of groups, Bridged rings, Kinetic & thermodynamic control.

Dispensing and Hospital Pharmacy: Introduction to laboratory equipment, weighing methodology, handling of prescriptions, labelling instructions for dispensed products, Posological calculations involved in the calculation of dosage for infants, Study of current patent and proprietary products, generic products and selected brand products, indications, contraindications, adverse drug reactions, available dosage forms and packing, Compounding and dispensing of following prescriptions, Reading and counselling of prescriptions from the clinical practice, Enlarging and reducing formula, displacement value, Preparations of formulations involving allegation, alcohol dilution, isotonic solution.

Pharmaceutical Chemistry: Pharmaceutical Inorganic Chemistry, Dentifrices, desensitizing agents, & anticaries agents, Pharmaceutical Impurities, Isotopes, Monographs, Medicinal

Chemistry, Various classes of therapeutic agents, Different classes of therapeutic drugs, Therapeutic classes of drugs, Different classes of therapeutic drugs.

Pharmaceutical Jurisprudence: Narcotic Drugs and Psychotropic Substances Act, and Rules thereunder, Factory Act, Shops and Establishment Act, Introduction to Intellectual Property Rights and Indian Patent Act 1970, An Introduction to Standard Institutions and Regulatory Authorities such as BIS, ASTM, ISO, TGA, USFDA, MHRA, ICH, WHO, Minimum Wages Act 1948, Prevention of Food Adulteration Act 1954 and Rules, Industrial Development and Regulation act 1951, Drugs and Magic Remedies (Objectionable Advertisements) Act 1954, Medicinal and Toilet Preparations (Excise Duties) Act 1955, Rules 1976, Historical background Drug legislation in India, Code of Ethics for Pharmacists, The Pharmacy Act 1948, Drugs and Cosmetics Act 1940, Rules 1945, including New Drug applications, Consumer Protection Act, Indian Pharmaceutical Industry- An Overview, Medical Termination of Pregnancy Act 1970 and Rules 1975, Prevention of Cruelty to Animals Act 1960, Drug (Price Control) Order.

Pharmaceutics: Pharmacy Profession & Introduction to Pharmaceuticals, Introduction to dosage form, Biological products, Pharmaceutical Plant, location, layout, Ophthalmic preparations, Pre formulation, Packaging Materials, Cosmetics, Pilot plant scale-up techniques, Dosage Form Necessities and Additives, Powders, Sources of drug information, Tablets, Parenteral - product requiring sterile packaging, Suspensions, Emulsions, Suppositories, Stability of formulated products, Prolonged Action Pharmaceuticals, Novel Drug delivery system, GMP and Validation, Semisolids, Allopathic dosage form, Crude extract and Allergenic extract, Capsules, Liquids(solutions, syrups, elixirs, spirits, aromatic water, liquid for external uses), Pharmaceutical Aerosols.

Pharmacognosy: Introductory Pharmacognosy, Classification of crude drugs, Factors influencing quality of crude drugs, Principles of plant classification, Introduction to phytoconstituents, Plant products, Animal products, Toxic drugs, Enzymes, Techniques in microscopy, Quantitative microscopy, Pharmaceutical aids, Natural pesticides and insecticides, Adulteration and evaluation of crude drugs, Biogenetic pathways, Carbohydrates, Lipids, Tannins, Volatile oils, Resinous drugs, Alkaloids, Glycosides, Extraction and isolation techniques, Phytopharmaceuticals, Quality control and standardization of herbal drugs, Herbal formulations, Worldwide trade of crude drugs and volatile oils, Herbal cosmetics, Traditional herbal drugs, Plants based industries and research institutes in India, Patents, Ayurvedic system of medicine, Homeopathic system of medicine.

Pharmaceutical Analysis: Importance of quality control in pharmacy, Titrations (acid base, non-aqueous, oxidation reduction, complexometric, precipitation), Gravimetry, Potentiometry, Extraction techniques, Miscellaneous methods of analysis, Calibration, General principles of spectroscopy, Ultraviolet-visible, Spectrofluorimetry, Flame photometry & atomic absorption spectrometry, Infrared spectrometry, Proton nuclear magnetic resonance spectrometry, Mass spectrometry, Polarography, Chromatography, Nephelometry and turbidimetry, An introduction to electrophoresis. An introduction to lasers & masers.

Statistical treatment of experimental data. Sampling techniques & applications in the pharmaceutical industry.

Biochemistry: Cell, Carbohydrates, Proteins, Lipids, Vitamins, Enzymes, Nucleic acids, Biological oxidations & reductions.

Biotechnology: Processes and applications, Plant Cell and Tissue Culture, Animal cell culture, Fermentation Technology and Industrial Microbiology, Recombinant DNA technology basic concepts.

Microbiology: Introduction to microbiology, Microscopy and staining technique, Biology of microorganisms, Fungi and viruses, Aseptic technique, Sterilization and disinfection, Microbial spoilage, Vaccines and sera, Microbial assay.

Pathophysiology: Basic principles of cell injury and adaptation, Basic mechanisms of inflammation and repair, Disorders of fluid, electrolyte and acid-base balance, Disorders of homeostasis: white blood cells, lymphoid tissues, and red blood cells related diseases, Immunopathology including amyloidosis, Infectious diseases, Neoplastic diseases, Pathophysiology of common diseases, Laboratory tests for liver function tests and kidney function tests.

Biopharmaceutics and Pharmacokinetics: Bio-pharmaceutics, Bio-availability and bio-equivalence, Biopharmaceutical statistics.

Human Anatomy and Physiology: Cell physiology, The blood, Gastrointestinal tract, Respiratory system, Autonomic nervous system, Sense organs, Skeletal system, Central nervous system, Urinary system, Endocrine glands, Reproductive system, Cardiovascular system, Lymphatic system.

Pharmaceutical Engineering: Fluid flow, Heat transfer, Evaporation, Distillation, Drying, Size reduction and size separation, Extraction, Mixing, Crystallization, Filtration and centrifugation, Dehumidification and humidity control, Refrigeration and air conditioning, Material of constructions, Automated process control systems, Industrial hazards and safety precautions.

Pharmaceutical Management: Introduction to management, Planning and forecasting, Organization, Research management, Inventory management, Communication, Marketing research, Leadership and motivation, Human resource and development (HRD), Gatt, World trade organization (WTO) and trade-related intellectual property rights (trips), Standard institutions and regulatory authorities.