PHARMACY

Syllabus for PhD Entrance Test (Pharmacy - Faculty of Technology)

1. Chemistry, tests, isolation, characterization and estimation of phytopharmaceuticals belonging to the group of Alkaloids, Glycosides, Terpenoids, Steroids, Bioflavanoids, Purines, lipids. Pharmacognosy of crude drugs that contain the above constituents. Standardization of raw materials and herbal products. Quantitative microscopy including modern techniques used for evaluation.

2. General pharmacological principles including Toxicology. Drug interaction. Structure, nomenclature, classification, synthesis, SAR, metabolism and pharmacology of drugs acting on Central nervous system, Cardiovascular system, Autonomic nervous system.

3. Preformulation studies. Micromeritics. Coarse dispersions. Colloids. Development, manufacturing standards Q.C. limits, labeling, as per the pharmacopoeial requirements. Storage of different dosage forms. Optimization techniques in pharmaceutical formulation and processing. Biopharmaceutics and Pharmacokinetics and their importance in formulation. Bioavailability and bioequivalence. Formulation principles and preparation of cosmetics. Pharmaceutical calculations. Controlled and novel drug delivery systems. Stability in pharmaceuticals and study of stability kinetics.

4. Requirements of GMP, cGMP, GLP, USFDA, WHO and ICH guidelines and ISO 9000 Series. Drugs and Cosmetics Act and rules. Pharmacy Act. New Drug Approval. Intellectual Property Rights.

5. Principles, instrumentation and applications of the following: Absorption spectroscopy (UV, visible & IR). Fluorimetry, Flame photometry, Potentiometry. Conductometry and Polarography. Pharmacopoeial assays. Principles of NMR, ESR, Mass spectroscopy. X-ray diffraction analysis and different chromatographic methods.

6. Biochemical role of hormones, Vitamins, Enzymes, Nucleic acids, Bioenergetics. General principles of immunology. Metabolism of carbohydrate, lipids, proteins. Methods to determine, kidney & liver function. Lipid profiles.

7. Principles and methods of microbiological assays of the Pharmacopoeia. Methods of preparation of official sera and vaccines. Serological and diagnostics tests. Applications of microorganisms in Bioconversions and in pharmaceutical industry.

8. Genetics and genetic engineering: gene manipulation, engineering genes, constructing recombinant DNA molecules, gene cloning techniques, vectors for gene delivery. Tissue culture. Immobilization techniques and its applications.

9. Therapeutic Drug Monitoring. Dosage regimen. Renal and hepatic impairment. Drug - drug interactions and drug-food interactions, Adverse drug reactions.