

Syllabus for Ph.D. Admission Test Pharmacy

Section A: Organic and Medicinal Chemistry

Basic organic chemistry regarding synthesis and reactions of the main organic functional groups, organic stereochemistry, substitution (free radical, nucleophilic, electrophilic); elimination reactions; addition reactions; rearrangement reactions, General pathways of drug metabolism, Basic concepts and application of prodrug design, Chemistry, structure activity relationship and synthesis of anticancer, NSAIDs, anti-infective, antihistaminic, anxiolytics, sedatives, hypnotics, anticonvulsants, adrenergic antagonists and general anaesthetics.

Section B: Basic Pharmacology and Pharmacognosy

Types of receptors, drug-receptor interaction including signal transduction, mechanism, drug action, side effects, contraindications of drugs acting on central nervous system, autonomous nervous system, anticancer agents, NSAIDs, anti-infective and antihistaminic, general pathway of biosynthetic studies and basic metabolic pathways, General methods of extraction, isolation, purification with preliminary and phytochemical screening methods, factors affecting cultivation, collection, processing and storage of crude drugs, pharmacognostic study of drugs under carbohydrate, lipid, volatile oils, glycosides, alkaloids and tannins.

Section C: Pharmaceutics and drug delivery

Classification and definition of dosage forms, Physical, chemical and therapeutic incompatibilities, instabilities of emulsions and suspensions, biopharmaceutical aspects of dosage form design, open one compartment, two compartment & three compartment models & their limitations, factors influencing bio-availability, evaluation of bioavailability, bio-equivalence, dosage regimens, repetitive dosing and dose adjustments in renal and hepatic failure, individualization of dosage regimen, Concept of total quality management, requirements of GMP, GLP, GCP, regulatory requirements of drugs and pharmaceuticals.