



SDGI GLOBAL UNIVERSITY (SGU)

(Established under the Uttar Pradesh Act No. 12 of 2019 & Recognized Under Section 2(f) of UGC Act, 1956, 2019)

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SYLLABUS FOR Ph.D. ENTRANCE EXAMINATION 2024-25 PHARMACEUTICAL SCIENCES

PHARMACEUTICS

BCS classification of drugs & its significance, Different pharmaceutical dosage forms. Study of drug stability and ICH guidelines. Pharmaceutical packaging materials and their evaluation parameters, Brief introduction of pharmacokinetic parameters -biological half-life, volume of distribution, dissociation constant, area under the curve (AUC), clearance, bioavailability and bioequivalence. Compartment model, approaches and concepts of controlled drug delivery systems. Different polymers used as carrier in the development of drug formulation, approaches to design Targeted Drug Delivery Systems (TDDS), introduction to liposomes, niosomes, nanoparticles, monoclonal antibodies, Optimization techniques in pharmaceutical formulations.

PHARMACEUTICAL CHEMISTRY

Basic aspects of Organic Chemistry- Organic intermediates, reaction mechanisms, Elimination reactions, SN1 and SN2) reactions. Stereochemistry aspects and their role in drug action. Green approach for synthesis and its significance. Name reactions: Mechanism, and synthetic application in drugs. Synthetic Reagents & their applications in drug synthesis. Heterocyclic Chemistry: Nomenclature, Synthesis and synthetic applications. Protecting groups and their applications in organic synthesis. Retrosynthesis approach and its applications. Structural Elucidation of organic and natural compounds. Prodrug Design and its applications. Medicinal Chemistry aspects of the following class of drugs with their synthesis, mechanism of action and SAR study- Narcotic analgesics, Nonsteroidal anti-inflammatory drugs, Anticonvulsant drugs, H1 & H2 receptor antagonist, Antipsychotic drugs, Chemotherapeutic agents, Antibiotics, Antiviral, Antihypertensive agents etc.

PHARMACOLOGY

Pharmacokinetic and pharmacodynamics parameter of drugs, Drugs acting on Autonomic Nervous System and Central Nervous System, Drugs acting on gastrointestinal tract, renal, blood and cardiovascular system, Hormones and hormone antagonist, Principles of pharmacological and clinical evaluation of drugs,

PHARMACOGNOSY AND PHYTOCHEMISTRY

Cultivation and standardization of medicinal plants, Plant tissue culture techniques and its application in relation to phytopharmaceuticals, Natural sources, extraction, purification, isolation and characterization of Alkaloids, Glycosides, Terpenoids, tannins etc., Study of some herbal formulation as drug and cosmetics.

PHARMACY PRACTICE

Clinical trials and its implementation, Brief introduction of community and hospital pharmacy, adverse drug reactions and clinical laboratory tests.

MODERN ANALYTICAL TECHNIQUES (MAT)

Theory, Principle and Pharmaceutical applications of the UV-Visible spectroscopy, Atomic Absorption Spectroscopy, NMR spectroscopy, Mass Spectroscopy etc. Chromatography- Theory and its applications.