|  |  |  |
| --- | --- | --- |
| **Pharmacy** | | |
| **Sr. No.** | **Core Areas** | **Percentage** |
| 1. | Pharmaceutics | 20% |
| 2. | Pharmaceutical Chemistry | 20% |
| 3. | Pharmacology and Therapeutics | 20% |
| 4. | Pharmacognosy | 20% |
| 5. | Pharmacy Practice | 20% |
|  | **Total** | **100%** |

|  |  |  |
| --- | --- | --- |
| **Pharmacy (Detailed)** | | |
| **Sr. No.** | **Core Areas** | **Percentage** |
| **1.** | **PHARMACEUTICS:**  **1. Pharmaceutical Principles and Drug Dosage Forms\_\_\_\_\_\_\_\_\_\_5%**  **Solutions;** Solvents, Solutes, Electrolytes, Non-electrolytes  **Colligative Properties:**  Lowering of vapor pressure, Elevation of boiling point, Depression of freezing point, Osmosis and Osmotic pressure  **Buffers and buffer capacity:**  Buffers, Buffer action, and Buffer capacity  **Dispersed Systems:**  **Chemical Kinetics and Drug Stability:**  Reaction rates and orders of reaction  **Modes of pharmaceutical Degradation:**  Hydrolysis, Oxidation, Photolysis  **2. Pharmaceutical Dosage Forms\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5%**  Basics of Dosage forms; Modified Release Dosage Forms and Novel Drug Delivery Systems  **3. Biopharmaceutics and Pharmacokinetics \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5 %**  Drug Dissolution, Drug Solubility, Particle size and surface area, Partition coefficient and extent of ionization, Salt formation, Polymorphism, Chirality, Hydrates, Complex formation.  Zero order and first order Kinetics, Models and compartments, Drug Absorption, Distribution, Metabolism and Excretion (ADME).  Bioavailability and Bioequivalence; Relative and Absolute bioavailability, AUC, Cmax, Tmax, Half-life  **4. Industrial Processes and Techniques \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5 %**  Heat & mass transfer, clarification & filtration, evaporation, mixing, compression & compaction. Microencapsulation and coating techniques. | **20 %** |
| **2.** | **PHARMACEUTICAL CHEMISTRY:**  **1. Introduction to organic chemistry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3%**  Introduction and application of Carhoxylic acids, Phenols, Alcohols, Aldehyde and Ketones Free Radical studies.  **2. Chemistry of Biomolecules\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6%**  Introduction, Biological and pharmaceutical importance of Carbohydrates, Proteins, Lipids, Vitamins, Enzymes and Hormones  **3. Principles of Medicinal Chemistry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5%**    Structure Activity Relationship;  Structurally non-specific drugs,  Structurally specific drugs  SAR of NSAIDS drugs  SAR of Beta-Lactam Antibiotics  SAR of local and general anasthetic drugs  Receptor-site theory, Receptor-site Binding,  Stereochemistry (optical isomers, geometric isomers and conformational isomers)  **4.** **Instrumentation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6 %**  Basic Principle, instrumentation and Pharmaceutical applications of following techniques; HPLC, UV-spectrophotometery, IR, Mass-spectroscopy and NMR column chromatography, TLC and paper chromatography | **20 %** |
| **3.** | **PHARMACOLOGY AND THERAPEUTICS :**  **1. General Pharmacology\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_07 %**  **Pharmacokinetics:**  Drug absorption, distribution, metabolism, elimination and factors influencing.  Route of drug administration, merits and demerits.  Biological half life, volume of drug distribution, clearance, area under curve, bioavailability.  **Pharmacodynamics:**  Mechanism of drug action.  Concept of drug receptors, types and properties.  Agonists, antagonists, partial agonists and inverse agonists.  Antagonisms and types.  Dose and factors affecting dose.  Dose-response relationship and types.  ED:50, LD:50, TD:50 and therapeutic index.  **2. Systemic Pharmacology: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_13 %**  Classification, mode of action, pharmacokinetics, organ/system effects, indications and adverse effects of the following classes of drugs:  **Drugs acting on autonomic nervous system**  Sympathomimetics and sympatholytics.  Parasympathomimetics and parasympatholytics.  **Drugs acting on cardiovascular system**  Antihypertensive.  Antianginal and antiarrythmics.  Diuretics.  Drugs use in congestive cardiac failure.  **Autacoids and antagonists**  **Analgesics, antipyretics and anti-inflammatory.**  **Drugs used in central nervous system disorders**  Antidepressants.  Sedatives, hypnotics including anxiolytics.  Antiepileptics.  Drugs used in Parkinson’s disease.  Antipsychotics.  Central nervous system stimulants.  **Drugs used in respiratory system diseases**  Antiasthmatics.  Antitussive.  **Anesthetics (local and general)**  **Hormones and antagonists**  **Chemotherapeutic agents**  Antineoplastics (anticancer)  Antimicrobials.  **Drugs used in gastrointestinal diseases**  **Poisoning and principles of treatment** | **20 %** |
| **4.** | **PHARMACOGNOSY:**  **1. General introduction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_7 %**  Classification of Crude Drugs with Special Emphasis to Chemical and Therapeutical Systems of Classification  **Terminologies used in Pharmacognosy;**  Pharmacognosy, crude drugs, Preparation of Crude Drugs for Commercial Market, Methods of Cultivation, Drying, Storage. Preservation, Packing, Deterioration and Adulteration of Crude Drugs. Identification Standardization and Evaluation of Crude Drugs (Organoleptic, Microscopic, Physical, Chemical and Biological). Natural toxicants, Standardized extracts.  **2. Study of Natural Constituents\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7 %**    Photo- and phyto-components found in nature (Plant animal and mineral), Plant Constituents (Alkaloid, Glycoside, Steroides), Carbohydrates Proteins fixed and volatile oils, tannins and resins  **3. Separation, Isolation and Characterization of plant constituents\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6 %**  An introduction to chromatography and chromatographic techniques e.g. Adsorption Chromatography and Partition Chromatography and other advance techniques.  Spectroscopic technique (Mass IR, UV, NMR) for elucidation of Plant constituents | **20 %** |
| **5.** | **PHARMACY PRACTICE:**  **1.Clinical Pharmacy\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_7 %**    General introduction to clinical pharmacy  Clinical trials of drug substances  Clinical therapeutics and disease management  **2.Community Pharmacy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5 %**    Community Pharmacy practice  Patient education and counseling  Pharmacovigilance  **3.Hospital Pharmacy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5 %**    Rational use of drugs and essential drugs  Safe use of medication in the hospital  Drug utilization evaluation & drug utilization review (DUE/DUR)  **4.Social Pharmacy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3 %**  Health system research  Utilization of clinical drug literature  Pharmaceutical ethics: management & marketing | **20 %** |
|  | **Total** | **100%** |