Swami Rama Himalayan University, 
Swami Ram Nagar, Jolly Grant, Dehradun-248016

Subject Code: PHDPH110
Subject Name: Advances in Pharmacology & Therapeutics 100 Marks

TIME: 3 HRS

Unit I

General Pharmacology:
- Pharmacology –history and development
- Pharmacokinetics
- Pharmacodynamics
- Adverse drug reactions
- Drug interactions and iatrogenic disorders
- Pharmacogenetics & genomics

Autonomic nervous system: 6 hours
- Anatomical and physiological considerations of the autonomic nervous system
- Cholinergic system- Cholinergic agonists, Anticholinesterases and Antimuscarinic drugs
- Adrenergic system- Adrenergic drugs, Alpha adrenergic blocking agents, Beta adrenergic blocking agents
- Pharmacotherapy of glaucoma
- Recent advances in ANS Pharmacology

Autacoids & related drugs 5 hours
- Histamine & antihistaminics
- Pharmacology of serotonin & drug therapy of migraine
- Prostaglandins & prostaglandin analogues
- Analgesics-NSAIDs
- Pharmacotherapy of rheumatoid arthritis & gout

Unit II 7 hours

Nervous system- peripheral & central:
- Physiology and pharmacology of neurohumoral transmission in the central nervous system
• Drugs used in anaesthesia
  - Skeletal muscle relaxants - peripherally & centrally acting
  - Local anaesthetics
  - General anaesthetics
• Opioids and related drugs
• Psychopharmacology - Antipsychotics & antimanic; Antidepressant & Antianxiety drugs
• Pharmacotherapy for Parkinson’s disease
• Sedative-hypnotics
• Antiepileptics
• CNS stimulants & cognition enhancers & recent advances in CNS Pharmacology

Cardiovascular system 7 hours
• Basic physiology of cardiovascular system including electrophysiology of the heart, mechanics of myocardial contraction and RAAS system
• Anti hypertensive agents including diuretics
• Antiarrhythmic drugs
• Drugs for CHF
• Angina pectoris & MI
• Hypolipidemic drugs
• Drugs acting on coagulation system
• Antiplatelet drugs
• Recent advances in CVS Pharmacology

Endocrinology: 7 hours
• Anterior pituitary hormones
• Antidiabetic drugs
• Thyroid and anti thyroid drugs
• Corticosteroids
• Sex Steroids & related drugs
• Drugs affecting calcium homeostasis
• Drugs acting on uterus
• Recent advances in Endocrine Pharmacology

UNIT III 7 hours

Chemotherapy
• Introduction to mechanism of action and principles of anti microbial therapy
• Antimicrobial agents
  - Antibacterial agents
  - Antifungal agents
• Antiviral agents
• Antimycobacterial agents
• Antimalarial agents
• Antiamoebic and antihelminthic agents
• Antineoplastic agents & immunomodulators
• Recent advances in antimicrobial and antineoplastic pharmacology

Respiratory Pharmacology 3 hours
• Respiratory physiology in relation to pharmacological actions of drugs & drug targets
• Drugs used in Bronchial Asthma
• Drugs used in the treatment of cough

GIT Pharmacology
• Physiology of GI system in relation to pharmacological actions of drugs & drug targets
• Antiulcer drugs
• Antiemetics & prokinetics
• Drugs used in diarrhea & constipation

Unit IV 6 Hours

Clinical & Applied Pharmacology
• Clinical pharmacokinetics, concentration effect relationship, pharmacokinetic parameters, target concentration strategies, plateau principle and population pharmacokinetics
• Bioavailability & Bioequivalence studies
• Therapeutic drug monitoring
• ADR monitoring and prevention
• Pharmacoeconomics and pharmacoepidemiology
• Principles of rational drug therapy with emphasis on antimicrobial chemotherapy
• Concept of essential drugs
• Drug therapy in extremes of age (Neonatal/Geriatric)
• Drug therapy in pregnancy and lactation
• P drug & P-medicine
• Prescription auditing and critical evaluation of research papers, promotional materials / drug advertising materials etc.
• Evidence based medicine

Unit V 4 Hours

Research Methods in Pharmacology
• Keeping and breeding of laboratory animals
• Drug regulations
Bioassay and its importance
Drug development (Pre clinical and clinical)
Drug discovery & evaluation through pharmacological assays
Screening methods in pharmacology for evaluation of drug activities
Acute/subacute and chronic toxicity studies on animals
Clinical trials
  - Design, implementation and evaluation
  - Phase 0, I, II, III, IV
  - Ethical and legal aspects in clinical trials and drug therapy
Basic Biostatistics
Research protocol and thesis writing, offline and online literature search and basics of MS-PowerPoint

REFERENCES
5. Sharma HL, Sharma KK. Principles of Pharmacology: Jaypee publishers. 3rd ed./2017