Unit – I - Basic and clinical Pharmacology
- Pharmacology- History & Development.
- Structure activities, relationships & its significance.
- Chemical nomenclature as used in PHARMACOLOGY.
- Passage of drug across biological membranes.
- Absorption and Distribution of drugs: Binding of drugs to Plasma proteins.
- Biotransformation, Excretion of Drugs & Factors affecting these.
- Mechanism of action.
- Drug-Drug interactions& Iatrogenic Disorder.
- Pharmacogenetics.
- Drug addiction and its management.
- Teratogenicity and Carcinogenicity including methods for their study.
- Drug Resistance.

Unit – II - Autonomic Nervous System
- Anatomical and Physiological consideration of A.N.S.
- Cholinergic Agonists and Anti-cholinergic Drugs.
- Neuromuscular blocking agents, Screening of Neuromuscular blocking and Ganglionic blocking agents.
- Anticholinesterases agent and Anticholinesterases Reactivators.
- Receptor mechanism, Adrenergic receptor and their Pharmacological characterization.
- Catecholamine biosynthesis, release and factors affecting these.
- Catecholamine, their Pharmacology and Therapeutics.
- Non Catecholamine Sympathomimetic agents.
- Alfa & Betadrenergic blocking agents.

Unit – III – CNS & Peripheral Nervous System
- Physiology and Pharmacology of nuerohormonal transmission in CNS.
- Pathophysiology and Management of Parkinsonism and other neurodegenerative disorders.
- Preanaesthetic medication and stages of anaesthesia.
- General Anaesthetic agents.
- Local anaesthetic and their screening.
- Opioid receptors Enkephalins and Endorphins.
- Opioid Analgesics and their antagonists.
- Analgesics, Anti pyretics and anti-inflammatory agents.
- Antidepressants drugs.
- Antipsychotics drugs and Lithium.
- Sedative & Hypnotics.
- Anti-anxiety drugs.
- Centrally acting muscle relaxants and their screening methods.
- Alcohol.
- CNS Stimulants and cognition enhancers.
- Drug Abuse.
- Antiepileptic drugs.

**Unit – IV - Cardiovascular System**
- Pathophysiology and treatment of Cardiac Arrhythmias.
- Pathophysiology and treatment of Cardiac failure.
- Pathophysiology and treatment of Ischamic Heart Diseases.
- Antihypertensive drugs and treatment of HT.
- Drugs for peripheral vascular disease.

**Unit – V - Antimicrobial Agents**
- Introduction mechanism of action and principles of Antimicrobials therapy
- Sulphonamides
- Beta-lactams antibiotics
- Tetracyclines and Chloramphenicol
- Aminoglycosides
- Macrolides
- Quinolones and treatment of Urinary tract Infections.
- Antiamoebic Drugs.
- Antimalarial agents
- Anti-Tubercular Drugs
- AntiLeprotic Drugs
- Antifungal agents
- Antiviral agents
- Antihelmintics
- Antineoplastic Agents
- Miscellaneous antimicrobials.

**Unit - VI - Endocrinology**
- Androgens and anabolic steroids.
- Adrenal steroids, Sex hormones & Anti-fertility agents.
- Hypothalamic and pituitary hormones.
- Pancreatic hormones.
- Anti-diabetic agents.
- Thyroid and Anti-thyroid drugs.
- Calcium Metabolism & Drugs affecting bone mineralization.
- Drugs acting on the Uterus.
Unit – VII - Renal System
- Diuretics and Antidiuretics.

Unit – VIII - Autacoids
- Histamine and Anti-Histaminics.
- 5-HT, its Agonists and Antagonists. Treatment of Migraine.
- Prostaglandins, Leukotrienes and Platelets Activating Factors.
- Ergot alkaloids.

Unit – IX - Respiratory System
- Treatment of Cough, Bronchial Asthma and COPD.

Unit – X - Gastrointestinal System
- Treatment of acid peptic diseases.
- Emetics and Antiemetics.
- Drugs for constipation, Diarrohea and Inflammatory Bowel Diseases.

Unit – XI - Blood
- Haematinics, Erythropoietin.
- Coagulants and anti-coagulants, Antiplatelets & Thrombolytics.
- Hypolipidemic drugs.
- Plasma expanders and Pharmacotherapy of shock.

Unit – XII - Miscellaneous Topics
- Antineoplastic agents.
- Immunotherapy.
- Gene Therapy.
- Chelating Agents.
- Vitamins, Vaccines,Sera, Immunoglobulin.
- Dermatological Pharmacology.
- Antiseptics and Disinfectants.

Unit – XIII - Applied Pharmacology
- Vasoactive peptides.
- Pharmacoeconomics.
- Pharmacogenetics.
- Pharmacoepidemiology.
- Drugs in sports and Doping test.
- Pharmacogenomics.
- Microdosing.
- Alternatives to Animal experiments.
- Role of biotechnology in recent drug development.
- Role of free radical in health and disease.
- Newer drug delivery system.
• Noble laureates in Pharmacology.
• Pharmacovigilance

Unit – XIV – Biochemical Pharmacology
• Analytical methods in Pharmacology and Toxicology.
• Principals involved in identification and quantification of substances by - Chromatography – Spectrophotometry - Flame photometry - Spectro fluorophotometry -HPLC and Gas chromatography - Mass Spectrometry.
• Principles of immunological assays including Radioimmunoassay and their importance.
• Tracer techniques using radioactive substances and measurements.

Unit – XV – Clinical Pharmacology
• General principles of clinical Pharmacology i.e. dynamics, kinetics, ADR, and factors modifying drug effects.
• Clinical pharmacokinetics concentration effect relationship&parameter , Target concentration strategies, Plateau principles, population pharmacokinetics.
• Therapeutic drug monitoring.
• A.D.R. monitoring and prevention.
• Bioavailability and bioequivalence studies.
• Placebo.
• Designs and implementation of clinical trials.
• Clinical drug developmental studies(Phase 1,2,3,4).
• Drug therapy in extremes of age (Neonate, Elder,Old).
• Drug therapy in pregnancy and lactation.
• Iatrogenic disorder.
• Prescription auditing and critical evaluation of research papers, promotional material etc.
• Ethical and legal aspect in clinical trials and drug therapy.

Unit – XVI - Research Methodology
• Keeping and breeding laboratory animals.
• Regulatory guidelines (CPCSEA) and alternatives to animal experiments.
• Drug development(preclinical and clinical).
• Drug regulations. Preclinical in ‘vitro and in vivo.
• Bioassay and its importance.
• Screening methods in Pharmacology for evaluation of drug activities on A- A.N.S.
  B- C.N.S (sedatives, hypnotics, psychotropics, anxiolytics, antidepressant, anti-convulsants, local anaesthetics, anti parkinsonian drugs, NSAIDS, OPIOIDS).
  C- Respiratory system drugs.
  D- C,V,S (Anti-anginal, anti-hypertensive, anti-arrhythmic, drugs used in CHF).
  E- Diuretic screening.
F- G.I.T Drugs (Peptic ulcer, emetics and anti-emetics, anti-diarrhoeal agents).
G- Oxytocin and tocolytics.
H- Hormones (Oral hypoglycemics, screening of fertility and anti-fertility agents).
- Toxicities studies- Acute/sub/chronic toxicity studies in animals.
- Protocol designing and writing of thesis.
- Writing of papers, reports, review of scientific journals.

**Unit - XVII – Biostatistics**
- Normal distribution, random numbers.
- Mean mode, median, standard Deviation, Standard Error.
- Z Test and P Values.
- Student t test (paired and unpaired), chi-square test.
- Non parameter test for one, two and K sample problems.
- ANOVA.
- Correlation, simple linear regression and multiple linear regression.
- Epidemiological statistics.

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Note :- Pattern of Question Paper
1. Objective type paper
2. Maximum Marks : 180
3. Number of Questions : 180
4. Duration of Paper : Three Hours
5. All questions carry equal marks.
6. There will be Negative marking.

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