

## Syllabus for Lecturer in Pharmacy (Paper-1)

### HUMAN ANATOMY AND PHYSIOLOGY

1. Introduction to human body.
2. Cellular level of organization.
3. Integumentary system
4. Skeletal system
5. Joints
6. Body fluids and blood
7. Lymphatic System
8. Peripheral nervous system
9. Special Senses

### PHARMACEUTICAL ANALYSIS

1. Definition, Scope, Techniques of Analysis.
2. Acid base titration
3. Non-aqueous Titration
4. Precipitation titrations
5. Complexometric titration
6. Redox titrations

### PHARMACEUTICS

1. Dosageforms
2. Prescription
3. Posology
4. Pharmaceutical calculations
5. Powders
6. Liquid dosage forms
7. Monophasic liquids

### PHARMACEUTICAL INORGANIC CHEMISTRY

1. Impurities in Pharmaceutical substances Acids, Bases and Buffers
2. General methods of preparation of Acids, Bases and Buffers
3. Dental Products
4. Major extra and intracellular electrolytes

### PHARMACEUTICAL ORGANIC CHEMISTRY

1. Classification, nomenclature and isomerism
2. Alkanes, Alkenes and Conjugated dienes
3. Alkyl halides
4. Alcohols
5. Carbonyl compounds (Aldehyde and ketones)
6. Carboxylic acids
7. Aliphatic amines

1. Benzene and its derivatives
2. Phenols
3. Aromatic amines
4. Aromatic acids
5. Fats and Oils
6. Polynuclear Hydrocarbon
7. Cycloalkanes

## **BIOCHEMISTRY**

1. Biomolecules
2. Bioenergetics
3. Carbohydrate metabolism
4. Biological Oxidation
5. Lipid metabolism

## **PATHOPHYSIOLOGY**

1. Basic principles of Cell injury and Adaptation
2. Basic Mechanism involved in process of inflammation and repair
3. Cardiovascular System
4. Haematological Diseases
5. Endocrine system
6. Nervous system
7. Gastro intestinal system

## **PHYSICAL PHARMACEUTICS**

1. Solubility of drugs
2. States of Matter and properties of matter
3. Physico Chemical Properties of drug molecules
4. Surface and interfacial phenomenon
5. pH, buffers and isotonic solution
6. Colloidal dispersion

## **MEDICINAL CHEMISTRY**

Physicochemical Properties in relation to biological action

Drug metabolism

Drugs acting on Autonomic Nervous System

Adrenergic Neurotransmitters:

Sympathomimetic agents: SAR of Sympathomimetic agents

Adrenergic Antagonists

Alpha adrenergic blockers

Beta adrenergic blockers

Cholinergic neurotransmitters

Drugs acting on Central Nervous System

Antibiotics

Antimalarials

Anti-tubercular Agents

Urinary tract anti-infective agents, antineoplastic agents

## PHARMACOLOGY

### General Pharmacology

1. Pharmacology of drugs acting on peripheral nervous system
2. Pharmacology of drugs acting on central nervous system
3. Pharmacology of drugs acting on cardiovascular system
4. Pharmacology of drugs acting on urinary system
5. Autocoids and related drugs
6. Chemotherapy

## PHARMACOGNOSY AND PHYTOCHEMISTRY

1. Introduction to Pharmacognosy
2. Classification of drugs
3. Cultivational, Collection, Processing and storage of drugs of natural origin.
4. Quality control of Drugs of Natural Origin
5. Plant Products
6. Primary metabolites
7. Carbohydrates
8. Proteins and Enzymes
9. Lipids (Waxes, fats, fixed oils)
10. Marine Drugs
11. Metabolic pathways in higher plants and their determination
12. Alkaloids
13. Phenyl propanoid and Flavonoids
14. Steroids, Cardiac Glycosides & Triterpenoids
15. Volatile oils
16. Tannins
17. Resins: Glycosides
18. Iridoids, Other terpenoids & Naphthaquinones

## PHARMACEUTICAL JURISPRUDENCE

1. Drugs and Cosmetics Act, 1940 and its rules 1945
2. Narcotic Drugs and Psychotropic substances Act-1985 and Rules
3. Medicinal and toilet preparations act-1955
4. Drugs and magic remedies act and its rules
5. Prevention of cruelty to animals

## PHARMACEUTICAL QUALITY ASSURANCE

1. Quality Assurance and Quality Management concepts
2. Total Quality management
3. ICH Guidelines:
4. Quality by design (QbD): ISO 9000 & ISO14000: NABL accreditation
5. Organization and Personnel
6. Equipment and raw materials

## **PHARMACY PRACTICE**

1. Hospital pharmacy and its organization
2. Adverse drug reaction
3. Community Pharmacy
4. Drug distribution system in a hospital
5. Hospital formulary
6. Therapeutic drug monitoring
7. Medication adherence
8. Patient medication history interview
9. Community pharmacy management
10. Pharmacy and therapeutic committee
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17. Pharmacy and therapeutic committee

## **INDUSTRIAL PHARMACY**

1. Preformulation studies of drug substances
2. Tablets
3. Liquid orals
4. Capsules

## **BIO PHARMACEUTICS AND PHARMACOKINETICS**

1. Introduction to biopharmaceutics
2. Eliminations
3. Bio availability and bio equivalence

## **PHARMACEUTICAL BIOTECHNOLOGY**

1. Introduction
2. Enzyme biotechnology
3. Biosensors
4. Study of Cloning vectors
5. Recombinant and DNA technology
6. Application of DNA technology
7. Immunity


### **Instrumental methods of Analysis**

1. UV visible spectroscopy
2. fluorimetry
3. IR spectroscopy
4. Flame photometry
5. Atomic absorption spectroscopy

### **Novel drug delivery System**

1. Targeted delivery
2. Ocular drug delivery system
3. Intrauterine drug delivery system

### **Bio Statistics and Research Methodology**

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2. Biostatistics
  3. Frequency distribution
  4. Measures of central tendency
  5. Measures of dispersion
  6. Correlation

### **Social and preventive Pharmacy**

1. National Health Programme, its objective and outcome
2. Community Services in rural urban and school health
3. Function of PHC

### **Pharma Marketing Management**

1. Pharmaceutical Market
2. Product decision
3. Promotion

### **Pharmaceutical regulatory Science**

### **Pharmacovigilance**

### **Quality Control and Steandardization of Herbals**

### **Computer aided drug design**

1. Introduction to drug discovery and development
2. QSAR

### **Cosmetic Science**

1. Classification of Cosmetics
2. Cosmetics Excipients
3. Principles of formulations and building blocks of skin care products
4. Antiperspirants and deodorants
5. Hair Care Products

### **Pharmacological Screening methods**

### **Dietary Supplements and nutraceuticals**

### **Pharmaceutical product development**

UNIT

# Syllabus for Lecturer in Pharmacy (Paper II)

## HUMANAN ANATOMY AND PHYSIOLOGY

- Special senses
- Cardio vascular system
- Nervous system
- Endocrine system
- Introduction to genetics
- Dygestive System
- Energetics
- Respiratory System
- Urinary System
- Reproductive System

## PHARMACEUTICAL ANALYSIS

- Gravimetry
- Electrochemical methods of analysis
- Conductometry
- Polarography
- Potentiometry

## PHARMACEUTICS

- Suspensions
- Emulsions
- Suppositories
- Pharmaceutical incompatibilities
- Semisolid Dosage forms

## INTRODUCTION TO BIOPHARMACEUTICS

- *Multi compartment models*
- Pharma cokinetics
- Nonlinear Pharma cokinetics Controlled drug delivery systems Polymers Targeted drug Delivery
- Controlled drug delivery System

## PHARMACEUTICAL IN ORGANIC CHEMISTRY

- Gastrointestinal agents
- Miscellaneous compounds
- Radio Pharmaceuticals

## PHARMACEUTICAL ORGANIC CHEMISTRY

- Stereoisomerism

Optical isomerism  
Geometrical isomerism  
Heterocyclic compounds

### BIOCHEMISTRY

- Amino acid metabolism
- Nucleic acid metabolism and genetic information transfer
- Enzymes

### PATHOPHYSIOLOGY

- Disease of bones and joints
- Principles of cancer
- Sexually transmitted diseases
- Infectious diseases

### PHYSICAL PHARMACEUTICS

- Complexation and protein binding
- Rheology
- Drug stability
- Deformation of solids
- Coarse dispersion
- Micromeritics

### PHARMACOLOGY

- Immunopharmacology
- Principle toxicology
- Chronopharmacology

### PHARMACOGNOSY AND PHYTO CHEMISTRY

- Basics of Phytochemistry
- Biodynamic Agriculture
- Metabolic Pathways in higher plants and their determination
- Herbs as raw materials
- Indian Systems of Medicine
- Nutraceuticals
- Herbal Cosmetics
- Herbal Excipients
- Herbal formulations
- Evaluation of Drugs
- Patenting and Regulatory requirements of natural products:
- Regulatory Issues
- Herbal drug technology
- Schedule T-Good manufacturing practice of Indian system of medicine

### PHARMACEUTICAL JURISPRUDENCE

- Pharmacy Act-1948:
- National Pharmaceutical Pricing Authority
- Code of Pharmaceutical ethics

- Pharmaceutics legislations.
- Medical termination of pregnancy act
- Right to information act
- Introduction to intellectual property rights

#### **PHARMACEUTICAL QUALITY ASSURANCE**

- Quality Control
- Good Laboratory Practices
- Calibration and Validation
- Warehousing
- Complaints
- Document maintenance in pharmaceutical industry

#### **PHARMACY PRACTICE**

- Drug information services
- Patient counseling
- Education and training program in the hospital
- Prescribed medication order and communication skills
- Budget preparation and implementation
- Clinical Pharmacy
- Over the counter (OTC) sales
- Drug store management and inventory control
- Interpretation of Clinical Laboratory Tests
- Investigational use of drugs

#### **MEDICINAL CHEMISTRY**

- Diuretics
- Antihypertensive agents
- Antiarrhythmic drugs
- Antihyperlipidemic agents
- Coagulants and anticoagulants
- Drugs used in congestive heart failure

#### **INDUSTRIAL PHARMACY**

- Regulatory affairs
- Regulatory requirement for drug approval
- Quality management system
- Indian regulatory requirements

#### **NOVEL DRUG DELIVERY SYSTEMS**

- Controlled drug delivery systems
- Microencapsulation
- Transdermal drug delivery system

#### **INDUSTRIAL PHARMACY**

- Parental products
- Ophthalmic preparations
- Cosmetics

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- Pharmaceutical aerosols
- Packaging material science

#### **BIO PHARMACEUTICS AND PHARMACOKINETICS**

- Pharmacokinetics
- Multi compartment models
- Non Linear Pharmacokinetics

#### **BIO TECHNOLOGY**

- Immuno blotting technique
- Microbial genetics
- Mutation
- Fermentation
- Blood products

#### **METHODS OF INSTRUMENTAL ANALYSIS**

- Introduction to chromatography
- Gas chromatography
- Ion exchange
- Gel exchange

#### **BIO STATISTICS AND RESEARCH METHODOLOGY**

- Regression
- Parametric test
- Non Parametric test
- Introduction to research

#### **SOCIAL AND PREVENTIVE PHARMACY**

- Concept of health
- Hygiene and health
- Preventive medicine

#### **ENVIRONMENTAL SCIENCES**

- Natural resources
- Eco systems
- Enviornmental pollution