

Pharmaceutical Chemistry D. Pharm 1st Year Syllabus 2022-23**Pharmaceutical Chemistry D. Pharm 1st Year Syllabus**

The Pharmaceutical Chemistry course is designed to gain basic knowledge about the chemical structure, storage conditions and medicinal uses of organic and inorganic chemical substances used as drugs and pharmaceuticals along with the impurities, and quality control aspects of chemical substances used in pharmaceuticals.

Chapter 1: (A) Introduction to Pharmaceutical chemistry

- Scope and Objective of Pharmaceutical Chemistry

Chapter 1: (B) Sources and types of errors

- Accuracy
- Precision
- Significant Figures

Chapter 1: (C) Impurities in Pharmaceuticals

- Source of impurities in Pharmacopoeial substances
- effect of impurities in Pharmacopoeial substances
- Importance of Limit Test
- Procedures and Principle of Limit tests for Chlorides
- Limit tests for Sulphates
- Principle and Procedures of Limit tests for Iron
- Principle and Procedures of Limit tests for Heavy Metals and Arsenic

Chapter 2: (A) Volumetric Analysis

- Fundamentals of Volumetric Analysis
- Acid-Base Titration
- Non-Aqueous Titration
- Precipitation Titration
- Complexometric Titration
- Redox Titration

Chapter 2: (B) Gravimetric Analysis

- Principle and Method of Gravimetry Analysis

Chapter 3: (A) Haematinics

- Market Preparations, Pharmaceutical formulations, use and storage conditions of Ferrous sulphate, Ferrous ascorbate, Ferrous fumarate, Carbonyl iron and Ferric ammonium citrate.

Chapter 3: (B) Gastrointestinal Agents

- Market Preparations, Pharmaceutical formulations, use and storage conditions of **Antacids:** Magnesium hydroxide, Aluminium hydroxide gel, Calcium Carbonate, Adsorbents, Cathartics, Aluminium hydroxide gel, Magaldrate, Adsorbents, Sodium bicarbonate

Chapter 3: (C) Topical agents

- Market Preparations, Pharmaceutical formulations, use and storage conditions of Ionic Silver, Hydrogen peroxide, Boric acid, Potassium permanganate, Silver Nitrate, Chlorhexidine Gluconate.

Chapter 3: (D) Dental products

- Market Preparations, Pharmaceutical formulations, use and storage conditions of Sodium fluoride, Denture adhesives, Calcium carbonate, Denture cleaners, Mouthwashes

Chapter 3: (E) Medicinal Gases

- Market Preparations, Pharmaceutical formulations, use and storage conditions of nitrous oxide, Carbondioxide, oxygen.

Chapter 4:

- Nomenclature of Organic Systems

Chapter 5: Drugs Acting on Central Nervous System

- **Anaesthetics:** Ketamine Hydrochloride, Thiopental Sodium, Propofol
- **Sedatives and Hypnotics:** Alprazolam, Phenobarbital, Diazepam, Nitrazepam
- **Antipsychotics:** Haloperidol, Sulpiride, Quetiapine, Chlorpromazine Hydrochloride, Risperidone, Olanzapine, Lurasidone
- **Anticonvulsants:** Carbamazepine, Valproic Acid, Topiramate, Lamotrigine, Phenytoin, Clonazepam, Gabapentin, Vigabatrin
- **Anti-Depressants:** Imipramine Hydrochloride, Venlafaxine, Sertraline, Escitalopram, Paroxetine, Amitriptyline Hydrochloride, Fluoxetine, Duloxetine, Citalopram, Fluvoxamine

Chapter 6: Drugs Acting on Autonomic Nervous System

- **Sympathomimetic Agents:**
 - **Direct Acting:** Epinephrine, Dopamine, Salbutamol, Tetrahydrozoline, Nor-Epinephrine, Phenylephrine, Terbutaline, Naphazoline.
 - **Indirect Acting Agents:** Pseudoephedrine, Hydroxy Amphetamine
 - **Agents With Mixed Mechanism:** Metaraminol, Ephedrine
- **Adrenergic Antagonists:**
 - **Alpha Adrenergic Blockers:** Phentolamine, Tolazoline, Prazosin, Phenoxybenzamine
 - **Beta-Adrenergic Blockers:** Atenolol, Propranolol, Carvedilol
- **Cholinergic Drugs and Related Agents:**
 - **Direct Acting Agents:** Carbachol, Acetylcholine, Pilocarpine
 - **Cholinesterase Inhibitors:** Edrophonium Chloride, Pralidoxime Chloride, Neostigmine, Echothiopate Iodide, Pralidoxime Chloride, Tacrine Hydrochloride

- **Cholinergic Blocking Agents:** Ipratropium Bromide, Atropine Sulphate
- **Synthetic Cholinergic Blocking Agents:** Cyclopentolate Hydrochloride, Dicyclomine Hydrochloride, Tropicamide, Clidinium Bromide

Chapter 7: Drugs Acting on Cardiovascular System

- **Anti-Arrhythmic Drugs:** Procainamide Hydrochloride, Phenytoin Sodium, Lorcaïnide Hydrochloride, Sotalol, Quinidine Sulphate, Verapamil, Lidocaine Hydrochloride, Amiodarone
- **Anti-Hypertensive Agents:** Captopril, Methyldopate Hydrochloride, Hydralazine Hydrochloride, Propranolol, Ramipril, Clonidine Hydrochloride, Nifedipine
- **Antianginal Agents:** Isosorbide Dinitrate

Chapter 8: Diuretics

- Frusemide, Chlorthalidone, Metolazone, Spironolactone, Acetazolamide, Bumetanide, Benzthiazide, Xipamide

Chapter 9: Hypoglycemic Agents

- Metformin, Glimepiride, Repaglinide, Gliptins, Insulin and Its Preparations, Glibenclamide, Pioglitazone, Gliflozins.

Chapter 10: Analgesic and Anti-Inflammatory Agents

- Narcotic Antagonists, Morphine Analogues
- Nonsteroidal Anti Inflammatory Agents (NSAIDs): Diclofenac, Piroxicam, Mefenamic Acid, Aceclofenac, Aspirin, Ibuprofen, Celecoxib, Paracetamol

Chapter 11: Anti-Infective Agents

- Antifungal Agents: Griseofulvin, Ketoconazole, Fluconazole, Amphotericin-B, Miconazole, Itraconazole, Naftifine Hydrochloride
- **Urinary Tract Anti-Infective Agents:** Ciprofloxacin, Moxifloxacin, Norfloxacin, Ofloxacin
- **Anti-Tubercular Agents:** Ethambutol, Pyrazinamide, Bedaquiline, Pretomanid, INH, Para Amino Salicylic Acid, Rifampicin, Delamanid
- **Antiviral Agents:** Idoxuridine, Foscarnet, Ribavirin, Favipiravir, Amantadine Hydrochloride, Acyclovir, Zidovudine, Remdesivir
- **Antimalarials:** Chloroquine Phosphate, Mefloquine, Pyrimethamine, Quinine Sulphate, Primaquine Phosphate, Cycloguanil
- **Sulfonamides:** Sulfadiazine, Sulfacetamide, Cotrimoxazole, Sulfanilamide, Sulfamethoxazole, Mafenide Acetate, Dapsone

Chapter 12: Antibiotics

- Amoxicillin, Streptomycin, Penicillin G, Cloxacillin
- Tetracyclines: Minocycline, Doxycycline
- Macrolides: Azithromycin, Erythromycin
- Miscellaneous: Clindamycin, Chloramphenicol

Chapter 13: Anti Neoplastic Agents

- Busulfan, Fluorouracil, Dactinomycin, Vinblastine Sulphate, Dromostanolone Propionate,

Cyclophosphamide, Mercaptopurine, Methotrexate, Doxorubicin Hydrochloride, Cisplatin

