

PHARMACY: SECTION II
SYLLABUS AND MARKS DISTRIBUTION

Section- II

PHARMACEUTICAL CHEMISTRY

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| A. | Pharmaceutical Chemistry – I | ----- 20 Questions |
| B. | Pharmaceutical Chemistry – II | ----- 15 Questions |
| C. | Bio-chemistry and Clinical Pathology | ----- 15 Questions |

PHARMACEUTICAL CHEMISTRY-I

1. General discussions on the following inorganic compounds including important physical and chemical properties, medical and pharmaceutical uses, storage conditions and chemical incompatibility.
 - (A) Acids, bases and buffers Boric Acid, Hydrochloric acid, strong ammonium hydroxide. Calcium hydroxide. Sodium hydroxide and official buffers.
 - (B) Antioxidants – Hypo phosphorous acid, Sulphur dioxide, Sodium bisulphate, Sodium metabisulphite, Nitrogen and Sodium Nitrite.
 - (C) Gastrointestinal agents:-
 - I. Acidifying agents Dilute hydrochloric acid.
 - II. Antacids-sodium bicarbonate, Aluminium hydroxide gel, Aluminium phosphate, Calcium carbonate, Magnesium carbonate, Magnesium trisilicate, Magnesium Oxide, Combinations of antacid preparations
 - III. Protectives and Adsorbents-Bismuth subcarbonate and Kaolin.
 - IV. Saline Cathartics-Sodium Potassium tartate and Magnesium sulphate.
 - (D) Topical Agents:-
 - I. Protectives-Talc, Zinc Oxide Calamine, Zinc stearate , Titanium dioxide, silicone polymers.
 - II. Antimicrobials and Astringents-Hydrogen peroxide, Potassium permanganate, Chlorinated lime, Iodine, Solutions of Iodine, Povidone-Iodine, Boric acid, Borax, Silver nitrate, Mild silver proein, Mercury, Yellow mercuric oxide, Ammoniated mercury.
 - III. Sulphur and its compounds-Sublimed sulphur precipitated sulphur, seleniumsulphide.
 - IV. Astringents:- Alum and Zinc Sulphate.
 - (E) Dental Products-Sodium Fluoride, Stannous Fluoride, Calcium carbonate, Sodium metaphosphate, Dicalcium phosphate, Strontium chloride, Zinc chloride.
 - (F) Inhalants-Oxygen, Carbon dioxide, Nitrous oxide.
 - (G) Respiratory stimulants-Ammonium carbonate
 - (H) Expectorants and emetics – Ammonium chloride, potassium iodide, Antimony potassium tartrate.
 - (I) Antidotes-Sodium nitrate
2. Major intra and Extracellular electrolytes:-
 - (A) Electrolytes used for replacement therapy-Sodium chloride and its preparation. Potassium chloride and its preparation.
 - (B) Physiological acid-base balance and electrolytes used-Sodium acetate, Potassium acetate, Sodium bicarbonate injection, Ammonium chloride and its injection.
 - (C) Combination of oral electrolyte Powder and Solutions.
3. Inorganic Official compounds of iron, Iodine, and Calcium Ferrous Sulphate and Calcium gluconate.
4. Radio pharmaceuticals and Contrast media-Radio activity-Alpha, Beta and Gamma Radiations, Biological effects and Radiations Measurements of radio activity, G.M

Counter Radio isotopes their uses, storage and precautions with special reference to the official preparations.

5. Quality control of Drugs and Pharmaceuticals-Importance of quality control, significance efforts, methods used for quality control, sources of impurities in pharmaceuticals. Limit tests for Arsenic Chloride, sulphate, Iron and Heavy Metals.
6. Identification tests for cations and anions as per Indian pharmacopeia.

PHARMACEUTICAL CHEMISTRY - II

1. Introduction to the nomenclature of organic chemical systems with particular reference to heterocyclic system containing upto 3 rings.
2. The Chemistry of following Pharmaceutical organic compounds. Covering their nomenclature, chemical structure, uses and the important Physical and Chemical Properties. (Chemical structure of on those compounds marked with asterisk. (*)
The stability and storage conditions and the different type of Pharmaceutical formulations of these drugs and their popular brand names.
Antiseptics and Disinfectants – Proflavine * Benzal - koniumchloride, cetrimide, chlorocresol * Chloroxylene, Formaldehyde solution, Hexachlorophene, Liquefied phenol, Nitrofurantoin
Sulfonamides – Sulfadiazine Sulfaguandine*
Phthalylsulfathiazole, Succinylsulfathiazole. Sulfadimethoxazole, Cotrimoxazole, Sulfacetamide* Antileprotic Drugs – Clofazime, Thaimbutosine, Dapsone* Solapsone. Anti – tubercular Drugs – Isoniazid * PAS*, Streptomycin, Rifampicin, Ethambutol* Thiacetazone, Ethionamide, Cycloserine, Pyrazinamide*.
Antiamoebic and Anthelmintic Drugs –Emetine, Metronidazole* Halogenated hydroxyquinolines, diloxanidefuroate, paramomycin Piperzine* Mebandazole, D.E.C..*
Antibiotics – Benzyl Pencillin*, Phenoxy methyl Pencillin*, Benzathine Pencillin, Ampicillin*, Cloxacillin, Carbencillin, Gentamicin, Neomycin, Erythromycin, Tetracycline, Cephalexin, Cephaloridine, Cephalothin, Griseofuvin, Chloramphenicol.
Antifungal agents – Undecylenic acid, Tolnaftate, Nystain, Amphoteracin Hamycin
Antimalarial Drugs – Chloroquine, Amodiaquine, Primaquine, Triflu Perazine, Thiothixene, Haloperidol. Triperidol, Oxypertine, Chlordiazepoxide, Diazepam, Lorazepam, Meprobamate.
Hypnotics:- Phenobarbitone, butobarbitone, Cyclobarbitone, Nitrazepam, Gluthethimide*, Methypylone, Paraldehyd, Triclofos sodium, General Anaesthetics – Halothane*, Cyclopropane*, Diethlether*, Methohexital sodium, Thiopental sodium Trichloroethylene.
Antidepressant Drugs -Amitriptyline, imipramine* pheneizine, Tranlycypromine.
Analeptics-Theophyline, Caffeine*, Coramine*, Coramine*, Dextroamphetamine Adrenergic Drugs- Adrenaline*, Noradrenaline, Isoprenaline*, Phenylephrine, Salbutamol, Terbutaline, Ephedrine*, Pseudoephedrine. Adrenergic Antagonist – Tolazoline, Propranolol*, Practolol.
Cholinergic Drugs-Neostigmine*, Pyridostigmine, Pralidoxime, Pilocarpine, Physostigmine*. Cholinergic antagonists-Atropine*, Hysocine, Homatropine, Propantheline*, Benztropine, Tropicamide, Biperiden*, Diuretic Drugs- Furosemide*, Chlorothiazide, Hydrochlorothiazide*, Benzthiazide, Urea*, Mannitol*, Ethacrynic Acid.
Cardiovascular Drugs- Ethyl nitrite*, Glyceryl Trinitrate, Alpha methyl dopa, Guanethidine, Chlorpropamide*, Tolbutamide, Glibencalmide, Phenformine*, Metformin.
Coagulants and Anti-Coagulants-Heparin, Thrombin, Menadione,*, Bishydroxycoumarin, warfarion sodium. Local Anesthetics lignocaine procaine, Benzocaine Histamine And – histaminic Agents – Histamine, Diphenhydramine*, Promethzine Cyproheptadine, Mepyramine, Pheniramine, Chlorpheniramine*.
Analgesics and Anti-pyretics-Morphin, Pethidine*, Codeine, Methadone, Aspirin*, Paracetamol*, Analgin, Dextropropoxyphene. Pentazocine. Non-steroidal anti –inflammatory Agents-indomethacin*, Phenyl butazone oxyphenbutazone Ibuprofen Thyroxineand Antithyroids-Thyroxine, Methimazole Methylthiouracil, Propylthiouracil Diagnostic

Agents-Iopanoic Acid, Propylidone Sulfobromophthalein, Sodium indigotindisulfonatae, indigo Carmine, Evansblue, Congo Red Fluorescein Sodium.

*Anticonvulsants, cardiac glycosides antiarrhythmic antihypertensives & vitamins.

Steroidal drugs –Betamethazone, Cortisone, Hydrocortisone Prednisolone, Progesterone, Testosterone, Oestadiol, Nandrolone Anti-Neoplastic Drugs-Actinomycines, Azathioprine, Busulphan, Chloarambucil. Cisplatin Cyclophosphamide, Daunorubicin, hydrochloride Flurouracil, Mercaptopurine, Methotrexate, Mytomycin,

BIO-CHEMISTRY AND CLINICAL PATHOLOGY

1. Introduction to biochemistry.
2. Brief chemistry and role of proteins, polypeptides and amino acids, classifications, Quantitative tests, Biological value, Deficiency diseases.
3. Brief Chemistry and role of carbohydrates, Classification qualitative tests, Diseases related to carbohydrate metabolism.
4. Brief Chemistry and role of Lipids, Classification, Qualitative tests, Diseases related to lipid metabolism.
5. Brief Chemistry and role of vitamins and Coenzymes.
6. Role of minerals and water in life processes
7. Enzymes; Brief concept of enzymic action. Factors affecting it. Therapeutic and pharmaceutical importance.
8. Brief concept of normal and abnormal metabolism of proteins, carbohydrates and lipids.
9. Introduction to pathology of blood and urine.
 - (a) Lymphocytes and Platelets, their role in health and disease.
 - (b) Erythrocytes Abnormal cells and their significance.
 - (c) Abnormal constituents of urine and their significance in diseases.

ANNEXURE III

MODEL QUESTIONS FOR PHARMACY

1. Ball mill works on the principle of
 - 1) Impact
 - 2) Attrition
 - 3) Crushing
 - 4) Compactin
2. B.C.G. Vaccine contains
 - 1) Living culture
 - 2) Non-living culture
 - 3) Natural culture
 - 4) Artificial culture
3. Acacia is not used as
 - 1) Diluent
 - 2) Suspending agent
 - 3) Emulsifying agent
 - 4) Binder