

Pharmaceutical Chemistry

DEGREE STANDARD

UNIT I

- 1) Atomic structure and valency, Radioactivity, Radio isotopes and Pharmaceutical applications of Radio Pharmaceuticals.
- 2) Sources of impurities in Pharmaceutical substances.
- 3) A systematic study of inorganic compounds for their preparation, assay and use like oxygen, Sulphur, Halogens, Nitrogen, Phosphorous, Boron, Calcium, Barium and lead.

UNIT II

- 1) Official compounds of Sodium, Potassium, Copper, Silver, Gold, Magnesium, Zinc Mercury, Iron and Aluminum.
- 2) Methods of preparation and use of Chemical reagents in Pharmaceutical Analysis.
- 3) Theory of Co-ordination Compounds with special reference to application in Pharmaceutical Analysis via EDTA, Dimercaprol, Pencillamine.

UNIT III

- 1) Physiochemical properties of gasses, liquids and solids. Density, Surface tension, Viscosity and physical properties.
- 2) Osmosis, osmotic pressure, vapour pressure, Raoult's law, Ostwalds dilution law, Molecular weight determination by osmotic pressure.
- 3) Law of mass action, effect of temperature and pressure on Chemical equilibrium, Energy of activation.

UNIT IV

- 1) Gases in liquids, liquids in liquids, partially miscible, completely miscible and completely immisible liquids.
- 2) Thermochemistry: Heat of reaction, heat of solution, heat of formation and heat of neutralization and Hess law.
- 3) Phase rule and its application to one component system hydration and dehydration and effervescence.
- 4) Theory of catalyst and its application in Pharmacy.

UNIT V 1) Electronic configuration, Chemical bounds of organic chemistry.

- 2) General methods of preparation of alkanes, alkenes, alkynes and dienes.
- 3) Alicyclic hydrocarbons, ring formation, stability, Bayer's strain theory and Diel's Alder reaction.

PAPER -II

UNIT I

1. Aromatic character, concept of resonance, Nucleophilic, Electrophilic substitution reaction, Elimination reactions.

Pharmaceutical Chemistry

2. Optical isomerism and Geometrical isomerism.

3. Stereo Chemistry of Diphenyl and Nitrogen compounds. Skeleton structure of medically important compounds belonging to the above series.

UNIT II

1. Classification, Chemical structure, Synthesis, assay and therapeutic uses of organic synthetic drugs like, Antidepressants, General anesthetics, Sedatives and hypnotics, Narcotic analgesics, Anti-histaminics, Antimalarials.

UNIT III

1. Structural elucidation of natural products - General methods.

2. Structure, chemistry, methods of estimation, uses of Alkaloids, Carbohydrates, Vitamins and Proteins.

3. Chemistry, methods of estimation of Steroids, Glycosides and Antibiotics.

UNIT IV

1. Study of separations and determination involving chromatography and electrophoresis techniques.

2. Colorimetry, UV and Visible spectrophotometry: Principle, Beer Lambert's law, study of the working principle of one cell and two cell colorimeters.

3. Theory and principles separation techniques involving Ultra centrifuge, HPLC and Gel filtration.

UNIT V

1. Conductometric titrations, basic concepts different types Conductometric titrations, application in pharmaceutical analysis

2. Assay procedure from IP for Non-aqueous titration, Redox reaction, diazotization and complexometric methods.

3. A preliminary introductory of NMR, MS, IR spectroscopy.