

Organic Chemistry-III (15PH405)

THEORY 3 hours/week

UNIT-I

Heterocyclic Compounds Containing Two Hetero Atoms

Nomenclature, Synthesis, reaction and medicinal uses of following compounds Pyrazole, Benzimidazole, Oxazole, thiazole, pyrimidine, purine and phenothiazine.

UNIT-II

Carbohydrates: Classification, reducing and non-reducing sugars, chemistry (Excluding structure elucidation) of glucose, fructose, starch and cellulose, Lipids (Fats and Oils): Classification and structure, physical and chemical properties (saponification, Hydrogenation, oxidation) analysis of (acid value, iodine value, saponification value, Reichert-Meissl value).

UNIT-III

Amino acids and Proteins: Structure of commonly occurring amino acids, Synthesis of amino acids and their physical properties and some characteristic chemical reactions, classification of proteins, physical properties, purification of proteins, concept of polypeptides. Nucleic acids: Nucleic acids and their components(DNA & RNA bases, Nucleosides, Nucleotides), structure of RNA & DNA.

UNIT-IV

Study the following reactions with mechanism. Benzoin condensation reaction, Reformatsky reactions, Beckmann rearrangement, Michael addition, Mannich reaction, Oppenaur oxidation, Claisen condensation, Knoevenagel condensation, Perkin reactions and their applications.

UNIT-V

Pericyclic Reaction :

Electrocyclic: Pericyclic rearrangement, Thermal reactions of HOMO and LUMO

Cycloaddition: Woodward–Hoffmann rules for electrocyclic reactions, Diels – Alder

reaction. Sigmatropic reactions: Cope rearrangements, Claisen rearrangements

RECOMMENDED BOOKS:

1. Organic Chemistry by R.T. Morrison and R.N.Boyd.(Prentice Hall of India, New Delhi)
2. Advanced Organic Chemistry by B.S.Bahl and Arun Bahl.(S.Chand, New Delhi)
3. Bentley and Driver's Text Book of Pharmaceutical Chemistry.(Oxford University Press, New Delhi)
4. Organic Chemistry – Reactions and Reagents by O. P.Agarwal.
5. Organic Chemistry by I.L. Finar Vol. I & Vol. II.(Longman, Singapore)
6. Advanced Organic Chemistry: Reactions and Mechanisms, by M.S. Singh, Dorling Kindersley (India)