Heterocyclic chemistry: Introduction to their nomenclature, Structure, Reactivity and orientation of furan, thiophene, pyrrole and pyridine.

Stereochemistry: Chirality, Conventions used in stereochemistry, Specifications of absolute configuration, Conformational isomerism, Geometrical isomerism, Resolution of racemic mixture by salt formation, Resolution of racemic mixture by chromatographic methods, TLC, HPLC, GC, Asymmetric synthesis using chiral auxiliaries and catalysis.

Reaction mechanisms: Oxidations - Oppenauer, KMnO₄, Osmium tetroxide and related, Reductions - LiAlH₄, NaBH₄ and Birch, Mechanism and industrial applications of Aldol condensation, Beckmann, Claisen and Cope rearrangement.


Biomolecules: A brief account of lipids, Carbohydrates, Proteins and Nucleic acids, Biopolymers, Enzyme and co-enzymes, Catabolism of carbohydrates and fats, Citric acid cycle.

Chromatographic Techniques for organic compounds: Basic principles of column, thin layer, paper, gas and high-performance liquid chromatography, Principles of the detectors used in GC and HPLC, Application of chromatographic techniques, Basic principle of electrophoresis and gel permeable chromatography.


Laboratory Work: Purification techniques- Distillations, TLC, Column chromatography, Sublimation and crystallization, Synthesis of organic compounds, Extraction of natural products, Determination of minimum inhibitory concentration (MIC) of a known antibacterial, DNA isolation, Biomed cache and chemdraw software.

Text Books

Reference Books