

**PHARMACEUTICAL CHEMISTRY-III
(Organic Chemistry-II)**

THEORY

3 hours/ week

UNIT -I

Stereochemistry:

Isomerism: Different types of isomerism, their nomenclature and associated physicochemical properties, Structural Isomerism: Chain isomerism, Positional isomerism, Functional isomerism and Metamerism, Keto-Enol tautomerism.

Conformational Isomerism: Conformations of Ethane and Butane.

Geometrical Isomerism: Cis-Trans Isomers and E-Z Isomers, Physical and Chemical properties, Stability of Cis and Trans Isomers.

UNIT -II

Optical Isomerism:

Optical activity, Specific rotation, Asymmetric carbon, Chirality, Fischer projection, Enantiomerism, Diastereoisomerism.

Specification of configuration:

Absolute and Relative configuration (D, L system and R, S system).

External and Internal compensation, Racemic mixture and Resolution of racemic mixture, Racemization, Walden inversion.

Stereoselective and stereospecific reactions

UNIT -III

Benzene and its homologues: Structure of benzene, Resonance, Aromatic character, Huckel Rule. General methods of preparation, Physical properties, Chemical properties: Electrophilic substitution reactions, Friedel crafts reaction, Catalytic hydrogenation.

Orientation of aromatic substitution in mono-substituted benzene

Phenols: General methods of preparation, Physical and Chemical properties

UNIT -IV

Polynuclear Aromatic Hydrocarbons: Preparation and chemical reactions of anthracene and phenanthrene.

Heterocyclic compounds: Nomenclature, preparation and some important reaction of- Furan, Pyrrole, thiophen, indole, imidazole, pyridine, isoquinoline.

UNIT -V

Organic reagents used in drug synthesis e.g, Aluminium tert-butoxide, Lithium Aluminium Hydride, N-Bromo-succinimide (NBS), Diazomethane.