

18BP017 PHARMACEUTICAL ORGANIC CHEMISTRY - I

Hours Per Week :

L	T	P	CP	CL
3	1	4	2	4

Total Hours :

L	T	P	WA/RA	SSH/HS	CS	SA	S	BS
45	1	60						

SCOPE:

This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs	PSOs
1	Write the structure, name and the type of isomerism of the organic compound	1	2
2	Write the reaction, name the reaction and orientation of reactions	1	2
3	Account for reactivity / stability of compounds	1	2
4	Identify / confirm the identification of organic compound	1	2
5	Apply the knowledge to synthesize various organic compounds	1	1,2

General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained. To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

UNIT-I**07 HOURS**

CLASSIFICATION, NOMENCLATURE AND ISOMERISM: Classification of Organic Compounds, Common and IUPAC systems of nomenclature of organic compounds (up to 10 Carbons open chain and carboxylic compounds), Structural isomerisms in organic compounds.

UNIT-II**10 HOURS**

ALKANES*, ALKENES* AND CONJUGATED DIENES*: sp^3 hybridization in Alkanes, Halogenation of Alkanes, uses of paraffin. Stabilities of alkenes, sp^2 hybridization in alkenes. E_1 and E_2 reactions – kinetics, order of reactivity of alkyl halides, re arrangement of carbo cations, Saytzeffs orientation and evidences. E_1 versus E_2 reactions, Factors affecting E_1 and E_2 reactions. Ozonolysis, electrophonic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation. Stability of conjugated dyes, Diels-Alder, electrophonic addition, free radical addition reactions of conjugated dyes, allylic rearrangement.

UNIT-III**10 HOURS**

ALKYL HALIDES : SN_1 and SN_2 reactions - kinetics, order of reactivity of alkyl halides, stereo chemistry and re-arrangement of carbocations. SN_1 versus SN_2 reactions, Factors affecting SN_1 and SN_2 reactions. Structure and uses of ethyl chloride, Chloroform, trichloro ethylene, tetrachloro ethylene, dichloromethane, tetrachloro methane and iodo form.

ALCOHOLS: Qualitative tests, Structure and uses of Ethyl alcohol, Methyl alcohol, chloral butanol, Cetosteryl alcohol, Benzyl alcohol, Glycerol, Propylene glycol.

UNIT-IV**10 HOURS**

CARBONYL COMPOUNDS* (ALDEHYDE AND KETONE): Nucleophilic addition, Electromeric effect, aldol condensation, Crossed Aldol condensation, Cannizaro reaction, Crossed Cannizaro reaction, Benzoin condensation, Perkin condensation, qualitative tests, Structure and uses of Formaldehyde, Paraldehyde, Acetone, Chloral hydrate, Hexamine, Benzaldehyde, Vanillin, Cinnamaldehyde.

UNIT-V**08 HOURS**

CARBOXYLIC ACIDS: Acidity of carboxylic acids, effect of substituents on acidity, inductive effect and qualitative tests for carboxylic acids, amide and ester. Structure and Uses of Acetic acid, Lactic acid, Tartaric acid, Citric acid, Succinic acid. Oxalic acid, Salicylic acid, Benzoic acid, Benzyl benzoate, Dimethyl phthalate, Methyl salicylate and Acetyl salicylic acid.

ALIPHATIC AMINES: Basicity, effect of substituent on Basicity. Qualitative test, Structure and uses of Ethanolamine, Ethylene diamine, Amphetamine.

