

SYLLABUS

SC - 108

ANDHRA UNIVERSITY

PAPER-III: ORGANIC CHEMISTRY (Pre) (COMMON)

UNIT-I:

Structure and reactivity-localised and delocalised covalent bond-concept of resonance and aromaticity-Huckel's rule for aromaticity in benzenoid and non-benzenoid compounds, anti-aromaticity and homo-aromaticity. Nature of Organic reaction energy and kinetic considerations-types of Organic reactions-reagents-reactive intermediates, their formation and stabilisation-inductive and mesomeric effects.

Stereochemistry and stereoisomerism-conformational isomerism and analysis in acyclic and simple cyclic systems-substituted ethanes, cyclopentane, cyclohexane, cycloheptane, cyclooctane and decalins, Optical isomerism-optical activity molecular dissymmetry and chirality-elements of symmetry.

Fisher's projection-D.L. and R.S. configurations relative and absolute configuration-optical isomerism due to asymmetric carbon atoms optical isomerism in biphenyls, allenes and spirans optical isomerism of nitrogenous compounds, racemisation and resolution-geometrical isomerism and E.Z. configurations, properties of geometrical isomers.

UNIT-II:

Aromatic substitution reactions-electrophilic, nucleophilic and through benzyne-radical substitution of arenes-orientation of Nucleophilic substitution at a saturated carbon, S_N1, S_N2, S_Ni reaction-effect of structure nucleophile, leaving group solvent and C=O double bond. Additions involving electrophiles, nucleophiles and free radicals.

Elimination reactions-E1, E1cB, E2 reactions-elimination versus substitution reactions.

Mechanisms of some name reactions-aldol, Perkin, Benzoin Cannizzaro, Wittig, Grignard, Reformatsky, Wagner, Meerwein Hofmann, Claisen and Favorsky rearrangements-Hydroboration-Oppenauer Oxidation, Clemmensen reduction, Wolf-Kischer reduction-Meerwein-Ponndorf and Verley and Birch reductions. Mechanisms of name reactions-stroke enamine reactions, Michael addition, Mannich reaction, Diels-Alder reaction, ene-reaction, Baeyer-Villiger reaction.

UNIT-III:

Chemistry of heterocyclic compounds, synthesis and reactivity of the following systems-pyridine, quinoline, isoquinoline, indole, benzofuran, benzothiophene-pyrazole, imidazole, oxazole, isoxazole, thiazole, isothiazole, phridazone pyrimidine and Pyrazine.

Spectra and structure-application of Organic Spectroscopy