

FCYE208	Chemistry -II	3-0-0	3
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Nomenclature of Organic molecules: Brief revision, Nomenclature of polycyclic compounds including bridged, spiro and other special structures. **[2hrs]**

Structure and Bonding: Nature of bonding in aliphatic, aromatic compounds; Aromaticity in benzenoid and non-benzenoid compounds. Inductive and Field effects, Resonance; hyperconjugation, structural effect on acidity and basicity. **[3hrs]**

Types of reagents-Electrophiles, nucleophiles, Reactive Intermediates-Carbocations; carbanions; free radicals, radical anions and cations; (Introduction to structure, stability, and reactions). **[3hrs]**

Stereochemistry: Conformational analysis of acyclic systems and cyclohexane systems, axial and equatorial bonds, conformation of monosubstituted cyclohexane, Introduction of terminology such as erythro, threo, exo, endo, epimers, etc. Optical isomerism (in compounds containing more than one chiral centre, in biphenyls, allenes and spiro compounds.), resolution of enantiomers, inversion, racemisation and retention

Relative and absolute configuration, sequence rule, D, L and R, S systems of nomenclature

Geometric isomerism: determination of configuration (cis, trans and E, Z), oximes and alicyclic compounds. **[5hrs]**

Reaction mechanism: Substitution reaction: Aliphatic substitutions: SN1, SN2, reactions; Free radical substitutions, electrophilic aromatic substitution (idea only); addition reaction (addition of H₂, X₂, HX type), Markovnikov and anti-Markovnikov addition, Eliminations: E1, E2, **[6hrs]**

Chemical Kinetics and catalysis: Rates of reactions, factors influencing rates of reaction-conc., temp, press, solvent, light, catalyst. (Arrhenius eqn. concept of activation energy), collision theory of reaction rates, Order and molecularity, mathematical characteristics of simple chemical reactions-zero order, first order, second order, pseudo order, half and mean life. Determination of the order of reaction (differential method, half life period method, method of isolation and integration)

Catalysis: characteristic of catalysed reactions, classification of catalysis

[10hrs]