

August: Structure and bonding: localized and delocalized bond, resonance effect and its application.

Stereochemistry: Types of isomerism, optical isomerism, element of symmetry, molecular chirality, optical activity, chiral and achiral molecules with two stereogenic centres, diastereomers.

Relative and absolute configurations, Geometrical isomerism.
Mechanism of Organic Rxns: Homolytic and heterolytic bond breaking, Types of reagents and types of reactions. Reactive intermediates - Carbocations, Carbanions, free radicals,

September Cycloalkanes: nomenclature and synthesis of cycloalkanes, dehalogenation of α, ω -dihalides.

Gaseous states: Maxwell's distribution of velocities and energies, Deviation of ideal gas, Van der Waals Equation of state, Boyle's temperature, Significance of van-der Waals Equation.

Critical Phenomenon: - critical temp, pressure, volume, their determination, PV isotherms of real gas, isotherms of Van der Waals equation, Law of corresponding states, liquefaction of gases.

Liquid states: properties of liquids - surface tension, viscosity and their determination.

October: Solid State: liquid crystals, types of liquid crystals, applications.

Atomic Structure: de Broglie matter waves, Heisenberg's uncertainty principle, atomic orbitals, quantum no. radial and angular wave function, probability distribution curves, shapes of orbitals, electronic configuration, effective nuclear charge.

Covalent Bonds: Valence bond theory and its applications, types of hybridization, VSEPR theory to NH_3 , H_3O^+ , SF_4 , ClF_3 , ICl_2^- . MO Theory of (CO and NO) diatomic molecules, bond strength, percentage ionic character.

November Assignment

Test