

## Chemistry Outlines

- Separation of Mixtures and Purification of Substances: pure and impure substances, boiling and melting points, elements, compounds and mixtures, chemical and physical changes, separation processes (evaporation, distillation, sublimation, filtration, crystallization, chromatography, magnetization, decantation)
- Chemical Combination: stoichiometry, laws of definite and multiple proportions, law of conservation of matter, Gay Lussac's law of combining volumes, Avogadro's law, chemical symbols, formulae, equations and their uses, relative atomic mass, mole concept and Avogadro's number
- Kinetic Theory of Matter and Gas Laws: kinetic theory of matter, changes of state, gas laws (Boyle's, Charles', Graham's, Dalton's), ideal gas equation, relationship between vapor density and molecular mass
- Atomic Structure and Bonding: atomic structure, electron configuration, atomic number, mass number, isotopes, shapes of s and p orbitals, periodic table and periodicity
- Acids, Bases and Salts: properties of acids and bases, types of acids and bases, pH and pOH scale, acid-base titrations, hydrolysis of salts
- Oxidation and Reduction: oxidation and reduction reactions, electrolysis, Faraday's laws
- Organic Chemistry: hydrocarbons (alkanes, alkenes, alkynes), functional groups, nomenclature, isomerism, polymers
- Environmental Chemistry: air pollution, water pollution, green chemistry
- Chemical Industries: cement, soap, glass, fertilizer production