

TRIPURA CHEMICAL SOCIETY
SYLLABUS FOR CHEMISTRY APTITUDE TEST

Stage – II
(Effective from 2017)

Unit – I: Chemical reactions – significance & limitations, types of chemical reactions, chemical equation and balancing.

Unit – II: Acid, Base & salt – neutralization, acid base indicator, concept of pH & pH scale, importance of pH, preparation, nature & uses of – sodium hydroxide, baking soda, washing soda, bleaching powder, plaster of Paris.

Unit – III: Metals & non-metals – physical properties, reactions of metals with air, water, acid & base, reactions of non-metals with oxygen, hydrogen, water and chlorine; uses of metals and non-metals, reactions of metals with other salt solutions; application of activity series; formation of ions – cations, anions; ionic bond- definition, formation; covalent bond – definition, formation; properties of ionic and covalent compounds.

Unit – IV: Occurrence of metals – ore, minerals; basic metallurgical processes – concentration, calcinations, roasting, reductions, refining of crude metals – thermal & electro refining; corrosion & its prevention.

Unit – V: Alloys and amalgam – preparation & advantages of using alloy; composition and uses of brass, bronze, german silver, duralumin, common solder, stainless steel.

Unit – VI: Carbon and its compounds – versatile nature of carbon, bonding in organic compounds, classification of organic compounds, differences between organic and inorganic compounds, catenation, homologous series; hydrocarbon – saturated, unsaturated, alkane, alkene, alkyne; 1^o, 2^o, 3^o and 4^o carbon atoms; functional groups – hydroxyl, aldehyde, ketone, carboxyl, halogen (Cl, Br, I) etc; isomerism, nomenclature of aliphatic organic compounds (upto 5-carbon chain with maximum two functional groups), laboratory preparation, chemical properties, and uses of methane, ethylene and acetylene their identification by chemical tests. Polymerisation - structural formula and uses of polythene, Teflon, PVC. Properties and uses of ethanol and ethanoic acid, soaps & detergents.

Unit – VII: Periodic classification of elements – need for classification; achievements and limitations of Mendeleev's periodic table, modern periodic table, gradation in properties – atomic size, valency, atomic number, metallic & non-metallic character; position of hydrogen in periodic table.

Unit – VII: Practical based- action of metal (zinc, iron, aluminium, copper) on zinc sulphate, iron sulphate, copper sulphate, aluminium sulphate solutions. Test of carbonate, nitrate, sulphide, sulphate and chloride ions.

Unit – IX: Conservation and management of natural resources - judicious uses of natural resources, management of sustainable agriculture, water harvesting, waste water management, conservation of forest and wild life, peoples' participation for conservation of natural resources, coal & petroleum's - conservation and their judicious uses.