## CHEMISTRY (043)

## Class XI

| S No | Unit | Portion to be Reduced |
|---|---|---|
| 1 | Some Basic Concepts of Chemistry | Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. |
| 2 | Structure of Atom | Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations |
| 3 | Classification of Elements and Periodicity in Properties | Significance of classification, brief history of the development of periodic table, |
| 4 | Chemical Bonding and Molecular Structure | -- |
| 5 | States of Matter: Gases and Liquids | liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea), Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations) |
| 6 | Chemical Thermodynamics | Heat capacity and specific heat capacity, Criteria for equilibrium |
| 7 | Equilibrium | hydrolysis of salts (elementary idea), Henderson Equation |
| 8 | Redox Reactions | applications of redox reactions |
| 9 | Hydrogen | Preparation, properties and uses of hydrogen, hydrogen peroxide - preparation, reactionsand structure and use; |
| 10 | s -Block Elements | Preparation and Properties of Some Important Compounds: Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogen carbonate, Biological importance of Sodium and Potassium. Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium. |
| 11 | Some p -Block Elements | Some important compounds: Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalies, uses.<br>Carbon: uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses. |
| 12 | Organic Chemistry: Some basic Principles and Techniques | methods of purification, qualitative and quantitative analysis |
| 13 | Hydrocarbons | free radical mechanism of halogenation, combustion and pyrolysis. |
| 14 | Environmental Chemistry | Entire chapter |

## Practical

The following portion to be deleted

**C.** Experiments based onpH

a) Any one of the following experiments:

- Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator.
- Comparing the pH of solutions of strong and weak acids of same concentration.
- Study the pH change in the titration of a strong base using universal indicator.

b) Study the pH change by common-ion in case of weak acids and weak bases.

**D.** Chemical Equilibrium

One of the following experiments:
a) Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either of theions.

b) Study the shift in equilibrium between [Co(H2O)6]2+ and chloride ions by changing the concentration of either of theions.

## CLASS -XII

| S No | Unit | Portion to be Reduced |
|---|---|---|
| 1 | Solid State | Electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and n and p type semi conductors. |
| 2 | Solutions | Abnormal molecular mass, Van't Hoff factor |
| 3 | Electrochemistry | Lead accumulator, fuel cells, corrosion, law of electrolysis (elementary idea), dry cell- electrolytic cells and Galvaniccells, |
| 4 | Chemical Kinetics | Concept of collision theory (elementary idea, no mathematical treatment), activation energy, Arrhenius equation. |
| 5 | Surface Chemistry | emulsion - types of emulsions, catalysis: homogenous and heterogeneous, activity and selectivity of solid catalysts; enzyme catalysis, |
| 6 | General Principles and Processes of Isolation of Elements | Entire unit |
| 7 | p-Block Elements | Preparation and properties of Phosphine, Sulphuric Acid: industrial process of manufacture, Oxides of Nitrogen (Structure only); Phosphorus - allotropic forms, compounds of Phosphorus: Preparation and properties of Halides and Oxo acids (elementary idea only). |
| 8 | d and f Block Elements | Chemical reactivity of lanthanoids, Actinoids -Electronic configuration, oxidation states and comparison with lanthanoids. Preparation and properties of $KMnO_4$ and $K_2Cr_2O_7$ |
| 9 | Coordination Compounds | Structure and stereoisomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological system). |
| 10 | Haloalkanes and Haloarenes | Uses and environmental effects of -dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT. |
| 11 | Alcohols, Phenols and Ethers | uses with special reference to methanol and ethanol. |
| 12 | Aldehydes, Ketones and Carboxylic Acid | --- |
| 13 | Amines | Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry. |

| | | |
|---|---|---|
| 14 | Biomolecules | Oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen), importance of carbohydrates. Vitamins– classification and functions. Enzymes. Hormones - Elementary idea excluding structure. |
| 15 | Polymers | entire chapter |
| 16 | Chemistryin Everydaylife | entire chapter |

**Practical**

Following portions should be considered deleted.

A. Surface Chemistry

a. Preparation of one lyophilic and one lyophobic sol Lyophilic sol - starch, egg albumin and gum Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.

b. Dialysis of sol-prepared in (a)above.

c. Study of the role of emulsifying agents in stabilizing the emulsion of different oils.

B. Chemical Kinetics

a. Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.

b. Study of reaction rates of any one of the following:

i) Reaction of Iodide ion with Hydrogen Peroxide at room temperature using different concentration of Iodideions.

ii) Reaction between Potassium Iodate, (KIO3) and Sodium Sulphite: (Na2SO3)using starch solution as indicator (clock reaction).

C. Thermo chemistry Any one of the following experiments

i) Enthalpy of dissolution of Copper Sulphate or Potassium Nitrate.

ii) Enthalpy of neutralization of strong acid (HCI) and strong base(NaOH).

iii) Determination of enthaply change during interaction (Hydrogen bond formation) between Acetone and Chloroform.

D. Electrochemistry Variation of cell potential in Zn/Zn 2+|| Cu2+/Cu with change in concentration of electrolytes (CuSO4 or ZnSO4) at room temperature.

G. Preparation of Organic Compounds Preparation of any one of the following compounds

i) Acetanilide

ii) Di-benzal Acetone

iii) p-Nitroacetanilide

Aniline yellow or 2 - Naphthol Anilinedye