

CHEMISTRY

I PUC

Unit 1 Some Basic Concepts of Chemistry

RETAINED PORTION	DELETED PORTION
1.1 Importance of Chemistry 1.3 Properties of Matter and their Measurement 1.4 Uncertainty in Measurement 1.7 Atomic and Molecular Masses 1.8 Mole Concept and Molar Masses 1.9 Percentage Composition 1.10 Stoichiometry and Stoichiometric Calculations	1.2 Nature of matter, 1.5 Laws of chemical combination, 1.6 Dalton's atomic theory

UNIT 2 STRUCTURE OF ATOM

RETAINED PORTION	DELETED PORTION
2.3 Developments Leading to the Bohr's Model of Atom 2.4 Bohr's Model for Hydrogen Atom 2.5 Towards Quantum Mechanical Model of the Atom 2.6 Quantum Mechanical Model of Atom	2.1 Discovery of Subatomic Particles 2.2 Atomic Models

UNIT 3 CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

RETAINED PORTION	DELETED PORTION
3.3 Modern Periodic Law and the present form of the Periodic Table 3.4 Nomenclature of Elements with Atomic Numbers > 100 3.5 Electronic Configurations of Elements and the Periodic Table 3.6 Electronic Configurations and Types of Elements: <i>s</i> -, <i>p</i> -, <i>d</i> -, <i>f</i> Blocks 3.7 Periodic Trends in Properties of Elements	Significance of classification, brief history of the development of periodic table.

Unit 4 Chemical Bonding and Molecular Structure

RETAINED PORTION	DELETED PORTION
4.1 Kössel- Lewis Approach to Chemical Bonding 4.2 Ionic or Electrovalent Bond 4.3 Bond Parameters 4.4 The Valence Shell Electron Pair Repulsion (VSEPR) Theory 4.5 Valence Bond Theory 4.6 Hybridisation 4.7 Molecular Orbital Theory 4.8 Bonding in Some Homonuclear Diatomic Molecules 4.9 Hydrogen Bonding	Nil

Unit 5 States of Matter

RETAINED PORTION	DELETED PORTION
5.1 Intermolecular Forces 5.2 Thermal Energy 5.3 Intermolecular Forces vs Thermal Interactions 5.4 The Gaseous State 5.5 The Gas Laws 5.6 Ideal Gas Equation 5.8 Kinetic Molecular Theory of Gases 5.9 Behaviour of Real Gases: Deviation from Ideal Gas Behaviour	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)

Unit 6 Thermodynamics

RETAINED PORTION	DELETED PORTION
6.1 Thermodynamic Terms 6.2 Applications 6.3 Measurement of ΔU and ΔH : Calorimetry 6.4 Enthalpy Change, ΔH of a Reaction Reaction Enthalpy 6.5 Enthalpies for Different Types of Reactions 6.6 Spontaneity	Heat capacity and specific heat capacity, Criteria for equilibrium

Unit 7 Equilibrium

RETAINED PORTION	DELETED PORTION
7.1 Equilibrium in Physical Processes 7.2 Equilibrium in Chemical Processes – Dynamic Equilibrium 7.3 Law of Chemical Equilibrium and Equilibrium Constant 7.4 Homogeneous Equilibria 7.5 Heterogeneous Equilibria 7.6 Applications of Equilibrium Constants 7.7 Relationship between Equilibrium Constant K , Reaction Quotient Q and Gibbs Energy G 7.8 Factors Affecting Equilibria 7.9 Ionic Equilibrium in Solution 7.10 Acids, Bases and Salts 7.11 Ionization of Acids and Bases 7.12 Buffer Solutions 7.13 Solubility Equilibria of Sparingly Soluble Salts	hydrolysis of salts (elementary idea), Henderson Equation

Unit 8 Redox Reactions

RETAINED PORTION	DELETED PORTION
8.1 Classical Idea of Redox Reactions, Oxidation and Reduction Reactions 8.2 Redox Reactions in Terms of Electron Transfer Reactions 8.3 Oxidation Number	Applications of redox reactions

Unit 9 Hydrogen

RETAINED PORTION	DELETED PORTION
9.1 Position of Hydrogen in the Periodic Table 9.5 Hydrides 9.6 Water 9.8 Heavy Water, D ₂ O 9.9 Dihydrogen as a Fuel	Preparation, properties and uses of hydrogen, hydrogen peroxide-preparation, reactions and structure and use;

Unit 10 The s Block Elements

RETAINED PORTION	DELETED PORTION
10.1 Group 1 Elements: Alkali Metals 10.2 General Characteristics of the Compounds of the Alkali Metals 10.3 Anomalous Properties of Lithium 10.6 Group 2 Elements : Alkaline Earth Metals 10.7 General Characteristics of Compounds of the Alkaline Earth Metals 10.8 Anomalous Behaviour of Beryllium 10.9 Some Important Compounds of Calcium Ca(OH) ₂ , CaSO ₄	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.

Unit 11 The p Block Elements

RETAINED PORTION	DELETED PORTION
11.1 Group 13 Elements: The Boron Family 11.2 Important Trends and Anomalous Properties of Boron 11.4 Uses of Boron and Aluminium and their Compounds 11.5 Group 14 Elements: The Carbon Family 11.6 Important Trends and Anomalous Behaviour of Carbon 11.7 Allotropes of Carbon	Some important compounds: Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalis, uses. Carbon: uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.

Unit 12 Organic Chemistry – Some Basic Principles and Techniques

RETAINED PORTION	DELETED PORTION
12.1 General Introduction	methods of purification, qualitative and

12.2 Tetravalence of Carbon: Shapes of Organic Compounds 12.3 Structural Representations of Organic Compounds 12.4 Classification of Organic Compounds 12.5 Nomenclature of Organic Compounds 12.6 Isomerism 12.7 Fundamental Concepts in Organic Reaction Mechanism	quantitative analysis
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Unit 13 Hydrocarbons

RETAINED PORTION	DELETED PORTION
13.1 Classification 13.2 Alkanes 13.3 Alkenes 13.4 Alkynes 13.5 Aromatic Hydrocarbon 13.6 Carcinogenicity and Toxicity	Free radical mechanism of halogenation, combustion and pyrolysis.

Unit 14 Environmental Chemistry

RETAINED PORTION	DELETED PORTION
Nil	Entire Unit deleted

Practical

The following portion to be retained

1. Introduction:

2. Basic- laboratory techniques

- a) Cutting of glass tube and glass rod
- b) Bending of a glass tube.
- c) Drawing out a Jet
- d) Boring a cork
- e) Heating solution in a test tube
- f) Heating solution in a beaker or a flask
- g) Filtration.
- h) Measuring volume of liquids.
3. Preparation of 250 ml of 0.1 M Standard solution of oxalic acid.
4. Purification of sample of any one of the following potash alum, CuSO₄ or benzoic acid by crystallization.
5. Determination of melting point of a solid organic compound.
6. Determination of boiling point of a liquid organic compound
7. Systematic Qualitative Analysis
To detect one cation and one anion in the given salt.
8. 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.

9. Comparing the pH of solutions of strong and weak acids of some concentration.
10. Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing / decreasing the concentration of either of the ions.
11.
 - a. Determination of the concentration of a given sodium hydroxide solution by titrating it against a standard solution of oxalic acid
 - b. Preparation of standard solution of sodium carbonate.
 - c. Determination of the strength of a given solution of dil.HCl by titrating it against Standard solution of sodium carbonate

The following portion to be deleted

C. Experiments based on pH

- a) 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

Study the shift in equilibrium between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.

