

RBSE Class 11 Chemistry Reduced Portion 2021



Board of Secondary Education Rajasthan, Ajmer

Revised Syllabus for Examination 2021

Subject: CHEMISTRY

Subject Code: 41

Class: 11

Examination	Time (in hours)	Marks for the paper	Maximum Marks
Theory	3.15	70	100
Practical	4	30	

Syllabus Chemistry- Theory

Unit No.	Subject Topics	Marks
Unit I	Some Basic Concepts of Chemistry General Introduction: Importance and scope of Chemistry. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.	05
Unit II	Structure of Atom Concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half- filled and completely filled orbitals.	05
Unit III	Classification of Elements and Periodicity in Properties Modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity, valency.	05
Unit IV	Chemical Bonding and Molecular Structure Ionic bond, covalent bond, bond parameters, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization involving s, p and d orbitals and shapes of some simple molecules, Hydrogen bond.	08

Unit No.	Subject Topics	Marks
Unit V	States of Matter: Gases and Liquids Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation.	04
Unit VI	Thermodynamics Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, measurement of ΔU and ΔH , Hess 's Law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation. Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes.	06
Unit VII	Equilibrium Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, solubility product, common ion effect (with illustrative examples).	05
Unit VIII	Redox Reactions Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number.	04
Unit IX	Hydrogen Position of hydrogen in periodic table, occurrence, isotopes. Preparation, properties and uses of hydrogen; physical and chemical properties of water, hydrogen as a fuel	03
Unit X	s-Block Elements (Alkali and Alkaline Earth Metals) Group 1 and Group 2 Elements: General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses.	04
Unit XI	Some p-Block Elements General Introduction to p-Block Elements: Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, Boron - physical and chemical properties. Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity. Carbon-catenation, allotropic forms, physical and chemical properties.	05

Unit No.	Subject Topics	Marks
Unit XII	Organic Chemistry -Some Basic Principles and Techniques General introduction, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions; electrophiles and nucleophiles. Methods of Purification of Organic compounds: Sublimation, crystallization, Distillation and chromatography.	08
Unit XIII	Hydrocarbons Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes - Nomenclature, isomerism, chemical reactions including free radical mechanism of halogenation. Alkenes - Nomenclature, geometrical isomerism, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.	08