MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – VIII

CBSE

Exam	Concepts
Quarterly **August 2022**	1. Periodic Table a. Atomic Structure and Periodic Table b. Trends in the Periodic Table 2. Structure, Bonding, and the properties of matter a. Chemical bonds b. Simple and giant structure c. Density
Half Yearly **November 2022**	3. Chemical Changes a. Changes in chemical reactions b. Word and Symbol Equations c. Methods for making salts d. Displacement reactions e. Rate of Reaction.
Finals **March 2023**	4. Revision 5. Complete syllabus till Half yearly.

MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – IX

CBSE

Exam	Concepts
Periodic Assessment I July 2022	**Matter in Our Surroundings** 1. Matter-Nature and Behaviour Definition of matter; solid, liquid and gas; characteristics - shape, volume, density; change of state 2. Melting (absorption of heat), 3. Freezing, 4. Evaporation (cooling by evaporation), 5. Condensation, 6. Sublimation.
Periodic Assessment II September 2022	**Is Matter Around us Pure** 1. Nature of matter: Elements, compounds and mixtures. 2. Heterogeneous and homogenous mixtures, colloids and suspensions. 3. Physical and chemical changes (excluding separating the components of a mixture).
Periodic Assessment III November 2022	**Atoms and Molecules** 1. Particle nature and their basic units: Atoms and molecules, 2. Law of Chemical Combination, 3. Chemical formula of common compounds, 4. Atomic and molecular masses. **Structure of Atom** 5. Electrons, protons and neutrons, 6. Valency, 7. Atomic Number and Mass Number, 8. Isotopes and Isobars. 9. Electrons, protons and neutrons, 10. Valence 11. Atomic Number and Mass Number, 12. Isotopes and Isobars.
Finals February 2023	**Whole Syllabus of chemistry from chapter 1 to chapter 4**

MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – IX

IGCSE

Exam	Concepts
Periodic Assessment I July 2022	**1. Chemical Reaction** a. Physical and Chemical Change b. Chemical Equation and Balancing c. Types of chemical Reaction d. Redox Reactions
Periodic Assessment II September 2022	**2. Chemical Reactions** a. Electrolysis **3. Acids, Bases, and Salts** a. The major acids b. The pH scale and Indicator c. Chemical Reaction of Acids d. Alkali and Bases e. Acids and Alkali in chemical analysis f. Salts 4 **. Planet Earth** a. The atmosphere. b. Water Treatment c. The Earth Crust
Periodic Assessment III November 2022	5. **The Nature of Matter** a. The state of matter b. Separation Techniques c. Atoms and molecules d. The structure of the atom e. Electronic configuration 6. **Elements and Compounds** a. Periodic Table and classification of elements b. Trends in groups and Periods c. Chemical bonding in elements and compounds d. The chemical formulae of elements and compounds e. Metals, alloys and crystals
Finals February 2023	**7. Quantitative Chemistry and** **Complete syllabus covered Till PA – III**

MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – X

CBSE

Exam	Curriculum
Periodic Assessment I **July 2022**	1. Chemical reactions and equations 2. Acid, Base and salt
Periodic Assessment II **September 2022**	1. Chemical reactions and equations 2. Acid, Base and salt 3. Metals and Non metals
Half Yearly **November 2022**	1. Chemical reactions and equations 2. Acid, Base and salt 3. Metals and Non metals 4. Carbon and its compounds 5. Periodic classification of elements
Pre Board I **January 2023**	1. Chemical reactions and equations 2. Acid, Base and salt 3. Metals and Non metals 4. Carbon and its compounds 5. Periodic classification of elements
Pre Board II **February 2023**	1. Chemical reactions and equations 2. Acid, Base and salt 3. Metals and Non metals 4. Carbon and its compounds 5. Periodic classification of elements

MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – XI
CBSE

Exam	Concepts
Periodic Assessment I July 2022	**Unit I: Some Basic Concepts of Chemistry** General Introduction: Importance and scope of Chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry. **Unit II: 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, Bohr's model and its limitations, 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.
Periodic Assessment II September 2022	**Unit III: Classification of Elements and Periodicity in Properties** Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100. **Unit IV: Chemical Bonding and Molecular Structure** Valence electrons, ionic bond, covalent bond, bond parameters, Lewis's structure, 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, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond. **Unit VI: Chemical 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, heat capacity and specific heat, measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second

	law of Thermodynamics (brief introduction) Introduction of entropy as a state function, Gibb's energy change for spontaneous and non-spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).
Periodic Assessment III November 2022	**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, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect (with illustrative examples). **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, applications of redox reactions. Unit XII: Organic Chemistry -Some Basic Principles and Techniques 20 Periods General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions. **Unit XII: Organic Chemistry -Some Basic Principles and Techniques** General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions. **Unit XIII: Hydrocarbons** Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, the structure of double bond (ethene), geometrical isomerism, physical properties, 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, the structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.
Finals February 2023	**Whole Syllabus of chemistry**

MAYO COLLEGE, AJMER
SUBJECT CURRICULUM (AY 2022-23)
SUBJECT - CHEMISTRY
CLASS – XII
CBSE

Exam	Curriculum
Periodic Assessment I July 2022	**Solutions-** Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor **Electrochemistry-** Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion. **Chemical Kinetics-** Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment), activation energy, Arrhenius equation.
Periodic Assessment II September 2022	**d and f Block Elements-** General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first-row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of K2Cr2O7 and KMnO4. **Lanthanoids –** Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. **Actinoids -** Electronic configuration, oxidation states and comparison with lanthanoids.

	Coordination Compounds Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, the importance of coordination compounds (in qualitative analysis, extraction of metals and biological system). **Halo alkanes & Haloarenes** Haloalkanes: Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation mechanism of substitution reactions. **Haloarenes:** Nature of C–X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT. **Whole Syllabus of PA 1**
Half Yearly November 2022	**Alcohols, Phenols and Ethers** Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol. **Phenols:** Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. **Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses. **Aldehydes, Ketones and Carboxylic Acid** **Aldehydes and Ketones:** Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses. **Carboxylic Acids:** Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

	Amines Nomenclature, Classification, structure, methods of preparation, physical & chemical properties, uses, identification of primary, secondary and tertiary amines **Diazonium salts:** Preparation, chemical reactions and importance in synthetic organic chemistry **Biomolecules** **Carbohydrates -** Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. **Proteins -**Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. **Vitamins -** Classification and functions. **Nucleic Acids:** DNA and RNA. **Whole syllabus of PA 1 and PA 2**
Pre Board I **January 2023**	**Complete syllabus will come in Pre Board 1**
Pre Board II **February 2023**	**Complete syllabus will come in Pre Board 2**