WEEKLY SPLIT-UP SYLLABUS- 2023-24					
CLASS - 11 SUBJECT - CHEMISTRY					
Month	**Week**	**Chapter**	**Topics**	**period**	**Learning outcomes**
June	4th (4 days) Note : 24th June PTM	1.Some basic concepts of chemistry (12 Periods)	Importance of chemistry, nature of matter, properties of matter & their measurement, uncertainty in measurement(scientific notation, significant figures, dimensional analysis) Laws of chemical combination, Atomic and molecular masses, mole concept	6	Students will be able to: 1.understand and appreciate the role of chemistry in different spheres of life, 2. use scientific notations and perform simple mathematical operations on numbers, 3. convert physical quantities from one system of units to other, 4.explain various laws of chemical combination, 5.describe the terms mole and molar mass, 6.perform the stoichiometric calculations.
	5th (3 days)		stoichiometry and stoichiometric calculations, limiting reagent,Percentage composition, empirical and molecular formula	4	
July	1st (1 days)		reactions in solutions(mass percent, molarity, molality, mole fra	2	
	2nd (6 days)	2.Structure of atom (16 Periods)	Introduction, electron, protonand neutron,Thomson atomic model, Rutherford atomic model, Atomic number and mass number, characteristics of wave, Bohr's atomic model, planck's quantum theory, spectrum(emission and absorption), Hydrogen spectrum, quantum numbers	9	Learners will be able to: 1.know about the discovery of electron, proton and neutron and their characteristics 2.know about Thomson, Rutherford and Bohr atomic models and their limitations, 3.understand the concept of isotope and isobar as well as atomic number as a fundamental property of elements 4. define an atomic orbital in terms of quantum numbers 5. understand nature of electromagnetic radiation and Planck's quantum theory 6. explain the features of atomic spectra 7. state de Broglie relation and Heisenberg uncertainty principle 8. define an atomic orbital in terms of quantum numbers 9. state the aufbau principle, Pauli exclusion principle and Hund's rule of maximum multiplicity 10.explain the photoelectric effect 11. write the electronic configurations of atoms correctly."
	3rd(5 days)		Pauli's exclusion principle, Hund's rule, Aufbau principle, electronic configurations, de-Broglie hypothesis, Heisenberg uncertainty principle,Photoelectric effect, shape of orbitals, quatum mechanical model of atom (schrodinger wave equation)	7	

	4th (6 days)	3.Classification of elements and periodicity in properties (12 Periods)	Introduction, law of triads, law of octaves, Mendeleeve's periodic law and table, Modern periodic law and present form of the periodic table, nomenclature of elements with atomic numbers > 100, electronic configuration of elements and the periodic table, periodic trends in properties of elements: atomic radius, ionic radius, ionisation enthalpy	9	Student will be able to : 1.understand the concept of grouping elements in accordance to their properties,. 2. recognise the periodic trends in physical and chemical properties of elements, 3. explain the relationship between, atomic size, ionization enthalpy, electron gain enthalpy and chemical properties, 4. use scientific vocabulary appropriately to communicate ideas related to certain important properties of atoms e.g., atomic/ ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity, valence of elements.
	5th (2 days) NOTE :24th,26th, 27th and 28th July FA-1		electron gain enthalpy, electronegativity, valency, anomalous properties of second period elements, periodic trends and chemical reactivity	3	
August	1st (5 days)	4.Chemical bonding and molecular structure (20 Periods)	Introduction, Kossel-Lewis approach to chemical bonding, octet rule, ionic bond, covalent bond, co-ordinate bond, Lewis structure of molecules, formal charge, limitations to the octet rule,VSEPR theory and shapes of molecules, Valence bond theory, types of covalent bond(sigma and pi),	7	Student will be able to: 1.explain the formation of different types of bonds-electrovalent and covalent 2. describe the VSEPR theory and predict the geometry of simple molecules 3. explain the valence bond approach for the formation of covalent bonds 4. explain the different types of hybridisation involving s, p and d orbitals and draw shapes of simple covalent molecules 5. describe the molecular orbital theory of homonuclear diatomic molecules 6. predict the directional properties of covalent bonds:dipole moment 7. explain the concept of hydrogen bond.
	2nd (5 days)		covalency, expansion of covalency, hybridization, Molecular orbital theory,	7	
	3rd(4 days)		polarity of bonds, dipole moment, resonance,Hydrogen bonding	6	

	4th (5 days) NOTE : 25th August PTM	5.States of matter (12 Periods)	Introduction, intermolecular forces, thermal energy, gas laws: Boyle's law, Charle's law, Gay-Lussac's law, Avogadro's law, Combined gas equation, ideal gas equation, units of 'R', Dalton's law of partial pressures, kinetic theory of gases	7	Learner will be able to : 1.explain the existence of different states of matter in terms of intermolecular forces, 2. apply gas laws in various real life situations; explain the behaviour of real gases, 3. describe the conditions required for liquifaction of gases; realise that there is continuity in gaseous and liquid state; differentiate between gaseous state and vapours; explain properties of liquids in terms of intermolecular attractions.
	5th (3 days)		deviation from ideal gas behavior, Vanderwaal's equation, compressibility factor(Z), Liquefaction of gases, critical constants. Liquid state: vapour pressure, viscosity and surface tension(qualitative idea only no mathematical derivation)	5	
September	1st (2 days)	6.Thermodynamics (14 Periods)	Concept of system and surrounding, types of system, extensive and intensive properties, state functions, types of thermodynamic processes, modes of exchange of energy (heat & work), types of thermodynamic work (PV & non PV work), internal energy	3	Student will be able to: 1.know the terms : system and surroundings; discriminate between close, open and isolated systems, 2. know the first law of thermodynamics and express it mathematically, 3.calculate energy changes as work and heat contributions in chemical systems, 4.know internal energy, work and heat, 5. calculate enthalpy changes for various types of reactions 6. know and apply Hess's law of constant heat summation, 7. state second law of thermodynamics, 8. define spontaneous and non- spontaneous processes; 9.explain entropy as a thermodynamic state function and apply it for spontaneity, 10. explain Gibbs energy change and establish relationship between ΔG and spontaneity, ΔG and equilibrium constant(K).
	2nd (4 days) NOTE : 5th September TEACHER "S DAY	NOTE : 3rd week 12th to 15th September FA-2	first law of thermodynamics. Enthalpy and enthalpy change, exothermic and endothermic reactions, conventions about thermochemical equations, relation between ΔH and ΔU Enthalpy of reaction, standard enthalpy of reaction, enthalpy of formation, enthalpy of combustion, enthalpy of neutralization, enthalpy of solution, enthalpy of hydration, enthalpy of	6	
	4th (4 days)		bond enthalpy,Hess's law of constant heat summation, entropy,entropy change and spontaneity, Second and third law of thermodynamics, Gibb's energy and spontaneity, Gibb's energy change and non mechanical work, standard Gibb's energy change , ,Gibb's energy change and equilibrium, heat capacity.	5	

	5th (5 days)	7.Equilibrium (20 Periods)	Introduction, law of chemical equilibrium, relationship between Kp and Kc , Equilibrium expressions of some reactions, characteristics of equilibrium constant, applications of equilibrium constant, Relationship between equilibrium constant and Gibb's free energy change, factor's affecting equilibrium (Le-chatelier's principle)	7	Learner will be able to: 1.write expressions for equilibrium constants and Establish a relationship between Kp and Kc, 2. explain various factors that effect the state of equilibrium, 3. classify substances as acids or bases according to Arrhenius, Bronsted-Lowry and Lewis concepts, 4. explain ionisation of water and its dual role as acid and base, describe ionic product (Kw) and pKw water, 5. describe pH scale for representing hydrogen ion concentration, 6. use of buffer solution and calculate the solubility product.
October	1st (4 days) NOTE : 7th October Educational Visit		Ionic equilibrium in solution: acids bases and salts, Arrhenius concept of acids and bases, Lewis acids and bases. Ionisation of acids and bases, ionization constant of water and its ionic product, pH scale, ionization constant of weak acids and weak bases, relationship between Ka and Kb , ionization of polyprotic acids	6	
	2nd (6 days)		common ion effect, hydrolysis of salts, solubility and solubility product constant, common ion effect on solubility of ionic salts, Buffer solutions.	7	
	3rd (5 days)	8.Redox reactios (08 Periods)	Concept of oxidation and reduction, oxidizing and reducing agents, oxidation number, types of redox reactions, balancing of redox reactios: 1. Oxidation number method "2.Ion electron method, Redox reactions and electrochemical cells."	8	Student will be able to: 1. define the terms oxidation, reduction, oxidant (oxidising agent) and reductant (reducing agent), 2. calculate oxidation number of various elements in a reaction and use it to identify oxidants and reductants. 3. classify redox reaction into combination (synthesis), decomposition, displacement and disproportionation reactions, 4. balance chemical equations using (i) oxidation number (ii) Ion electron method,

	4th (3 days)	9. Hydrogen (08 Periods)	Position of hydrogen in the periodic table. Dihydrogen : occurrence, isotopes, preparation,Properties and uses. Hydrides(ionic, covalent and metallic).Water : physical and chemical properties, structure, hardness of water, structure of ice.	5	Students will be able to: 1.identify the modes of occurrence and preparation of dihydrogen on a small and commercial scale; describe isotopes of hydrogen, 2. explain how different elements combine with hydrogen to form ionic, molecular and non- stoichiometric compounds. 3. explain how environmental water quality depends on a variety of dissolved substances; difference between 'hard' and 'soft' water and learn about water softening.
	5th (2 days)		Water : physical and chemical properties, structure, hardness of water, structure of ice."Hydrogen peroxide : preparation, properties, structure and uses. Heavy water, dihydrogen as a fuel."	3	
November	1st (0 days) NOTE :1st,2nd, 3rd and 4th Nov. SA 1			0	Learners will be able to: 1.describe the general charact-eristics of the alkali metals and their compounds, 2.explain the general characteristics of the alkaline earth metals and their compounds; 3.describe the manufacture, properties and uses of industrially important sodium and calcium compounds including Portland cement; 4.appreciate the biological significance of sodium, potassium, magnesium and calcium.
	2nd (4 days) NOTE : 6th and 7th Nov. SA-1	10.The s-block elements (08 Periods)	Group 1 elements (Alkali metals) : Electronic configuration, atomic and ionic radii, ionization enthalpy, hydration enthalpy, physical properties,"chemical properties and uses. General characteristics of the compounds of the alkali metals, anomalous properties of lithium, some important compounds of sodium(sodium carbonate, sodium chloride, sodium hydroxide, sodium hydrogen carbonate) . Biological importance of sodium and potassium. Group 2 elements (Alkaline earth metals) : Electronic configuration, atomic and ionic radii, ionization enthalpy, hydration enthalpy, physical properties, chemical properties and uses.	5	

	3rd (2 days)		General characteristics of the compounds of the alkaline earth m , "some important compounds of calcium(calcium oxide,calcium , calcium carbonate, calcium sulphate) . Biological importance of Mg and Ca."	3	
	4th (4 days)	The p-block elements (10 Periods)	Group 13 elements: The Boron family. Electronic configuration, atomic radii, ionization enthalpy, electronegativity, physical properties, chemical properties, anomalous properties of boron, some important compounds of boron (Borax, orthoboric acid ,diborane), uses of boron and aluminium and their compounds.	6	Student will be able to: 1.appreciate the general trends in the chemistry of p-block elements; 2. describe the trends in physical and chemical properties of group 13 and 14 elements; 3. explain anomalous behaviour of boron and carbon; 4. allotropic forms of carbon; 5.know the chemistry of important compounds of boron, carbon and silicon;
	5th (3 days)		Group 14 elements : The carbon family. Electronic configuration, covalent radius, ionization enthalpy, electronegativity, physical properties, chemical properties, anomalous properties of carbon, allotropes of carbon, uses of carbon, some important compounds of carbon and silicon (CO,CO2, SiO2, silicones, silicates, zeolites).	4	
December	1st (1 days) NOTE : 2nd December Educational Visit	12. Organic chemistry-some basic principles and techniques (18 Periods)	Introduction, General classification of organic compounds,	1	Students will be able to: 1.Know various ways of representing structures of organic molecules. 2. classify the organic compounds; name the compounds according to IUPAC system and also derive their structures from the given names, 3.understand the concept of organic reaction mechanism 4. learn the techniques of purification of organic compounds, 5.understand the principles involved in qualitative and quantitative analysis of organic compounds.
	2nd (6 days)		nomenclature. Isomerism, fundamental concepts in organic reaction mechanism	6	
	3rd (5 days)		fundamental concepts in organic reaction mechanism,	6	
	4th (5 days)		Methods of purification of organic compound, qualitative and quantitative analysis of organic compounds.	5	
	5th		Winter vacation.	0	

January	1st (4 days)	13. Hydrocarbons (14 Periods)	Alkanes :nomenclature, isomerism,preparations, physical and chemical properties, conformations (ethane only) . Alkene : structure of double bond, isomerism, preparations, physical properties,	4	Student will be able to : 1.recognise and write structures of isomers of alkanes, alkenes, alkynes and aromatic hydrocarbons 2. distinguish between alkanes, alkenes, alkynes and aromatic hydrocarbons on the basis of physical and chemical properties and appreciate the role of hydrocarbons as sources of energy and for other industrial applications; 3.predict the formation of the addition products of unsymmetrical alkenes and alkynes on the basis of electronic mechanism, 4. comprehend the structure of benzene, explain aromaticity and understand mechanism of electrophilic substitution reactions of benzene; 5.predict the directive influence of substituents in monosubstituted benzene ring.
	2nd (2 days) NOTE :6th,8th,9th,10th,11th FA-3		chemical properties of alkenes.	2	
	3rd (4 days)		Alkynes : structure of triple bond, preparations,Physical and chemical properties. Aromatic hydrocarbons : introduction, structure of benzene, aromaticity,	4	
	4th (4 days)		preparation of benzene, physical and chemical properties of benzene.	4	
February	1st (3 days)		Water pollution, soil pollution, strategies to control environmental pollution.	3	
			REVISION OF SYLLABUS		
March			REVISION OF SYLLABUS		