

Lesson Plan

Session:- 2019-20

CLASS: 12 (Science)

SUBJECT: Chemistry

NAME OF TEACHER: -

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation
April- 10 – periods	Solution(Ch.1)	Student will be able to :- 1. Describe the formation of different type of solution . 2. Express concentration of solution in different unit . 3. Implementation of Henry's and Raoult's law. 4. Distinguish between ideal and non ideal solution 5. Understand the deviation of solution from ideal behavior. 6. Explain the colligative properties solution having non volatile solute.	1.Types of solution 2.Concentration units (molarity ,Molality , Mole fraction etc) 3.Henry's law ,Raoult's law 4.Ideal & non ideal solution. 5.Azeotropic mixture & its type 6. colligative properties & its types 7.Vant Hoff's factors 8.Degree of association and dissociation .	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .	1.Introduction of topic by questioning method 2.Explaining concentration of solutions by desolving solute in solvent 3.Deriving the formula of molarity,molality ,mole fraction ,depression in FP ,Lowering of vapour pressure,,elevation in B.P. 4.Solving numericals based on topic. 5.Discussion of applications of Henry's law in daily life. 6.Experiments (titration) to find the strength of solution.	NCERT Exercise questions Q.No.:- 1.21,1.6,1.11, 1.12,1.20,(page no 30,31) 2.4, 2.20, 2.9, 2.32, 2.41, 2.Additional questions and numericals from Reference books.	Class test Oral test And written test.

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Reference:-

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April 12 periods	Electrochemistry(Ch-.2)	<p>Student will be able to :-</p> <ol style="list-style-type: none"> 1 Describe the formation of different type of cell. 2. Find the cell potential of electrochemical cell using Nernst equation. 3. Understand conductivity and molar conductivity and effect of dilution 4.know the use of cell in daily life 5. Explain the different type of corrosion 	<ol style="list-style-type: none"> 1. Structure ,& working of electrochemical cell. 2. Cell Representation & cell formula. 3. Finding electrode potential using Hydrogen electrode . 4.Electrochemical Series 7& its importance. 5. Conductance & conductivity 6. Resistance and resistivity. 7. Molar Conductivity and Kaoulroush's law and its applications. 8.Electrolysis and Faraday's law 9.Primary and secondry cell (dry cell,mercury cell,nickel cell , lead storage cell) 10 . Corrosion ,Rusting of iron and its prevention. 	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks,Audio visuals ,denial cell, dry cell mercury cell available in school lab etc .	<p>Introduction of topic by questioning method</p> <p>Showing the students different types of cell .</p> <p>Taking example of day today life .</p> <p>Showing the working of cell (denial cell)</p> <p>Use of some audio visual to make them understand it in better waw.</p>	NCERT Exercise questions Q.No.:- 3.1,3.2, 3.5, 3.7, 3.9, 3.10, NCERT Intext Question .3.1, 3.2, 3.5 , 3.6, 3.9 ,3.11, 3.19	Class test Oral test And witten test.
Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation

May 10periods	Chemical Kinetics(Ch.3)	Student will be able to :- 1.Distiguish between slow ,fast and moderate reaction. 2.define the average and instantaneous rate of reaction. 3.derive the integrated rate equation for first and zero order reaction . 4. differentiate between order of reaction and molecularity . 5. Discuss the factors affecting the rare of reaction. 6.Understand the collision theory	1.Rate of chemical reaction factors affecting reaction rates 2.rate equation and rate constant 3.molecularity 4.order of reaction 5.threshold energy and activation energy 6.influence of temperature on reaction rates 7.graphical representations 8.mechanism of reactions	NCERT text book Reerence books (Comprehensive, companion,Pradeep's)Extra marks etc .	1.Introduction of topic by questioning method 2.Taking example of day today life . 3.Use of some audio visual to make them understand it in better way. 4.Student will study the effect of change in the concentration and temperature on thebrate of reaction between sodium thiosulphate and HCl in practical period in lab.	NCERT Exercise questions Q.No4.1, 4.2 4.3 ,4,4, 4.5 4.6 .4.8, 4.9, 4.11,4.12, 4.13, 4.15, .4.16 NCERT Intext Question Q.No4.1, 4.2 4.3 ,4,4, 4.5 4.6 .4.8, 4.9	Class test Oral test And witten test.
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May /8- periods	Surface Chemistry(ch.4)	Student will be able to :- 1.Distiguish between Physical and chemical adsorption . 2.Understand the mechanism of adsorption. 3.know the effect of pressure on adsorption. 4 differentiate lyophylic and lyophobic sol . 5. form stable sol . 6.predict the charge on colloidal particles . 7.enhance his/her knowledge about emulsion and their stability	1.Adsorption (Physical & chemical), 2.Factors affecting adsorption of of gases on solids 3.,Catalysis(Homogenous & heterogenous) ,Shape selective catalyst , 4.Difference between true solution suspension and colloid solution. 5.Lyo phylic and lyophobic sol. 6.Multi molecular and macro molecular colloids. 7.Properties of colloids (Tyndal effect ,Brownian movement , electrophoresis coagulation) 8.emulsion ansd its type .	NCERT text book Reerence books (Comprehensive, companion,Pradeep' s)Extra marks etc .	1.Introduction of topic by questioning method 2.Taking example of day today life . 3.Use of some audio visual to make the students understand it in better way. 4.Demonstration of preparation of colloidal solution of albumin o egg .arebic gum arsenic sulphide etc	Additional questions From pradeep,s reference book. Write preparation of colloidal solution of albumin o egg .arebic gum arsenic sulphide etc in practical record book.	Class test Oral test And witten test.
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July /8- periods	General principles and processes of isolation of elements(ch.5)	Students will be able to :- 1.Distiguish between Minerals and ores . 2.Understand the mechanism extraction of metal fron its ore. 3.know the different methods used to obtain pure metal. 4.predict the redusing agents used to reduce metal oxide into metals. 7.enhance knowledge about different types of extraction methods. 8.use elingham diagram to find the appropriate tempreture.	1.Principles and methods of extraction - concentration, oxidation, reduction 2. Electrolytic method and refining 3.Occurrence and principles of extraction of aluminium, copper, zinc & iron 4.Ellingham Diagram 5. Mond process for refining nickel 6.Van Arkel Method for refining zirconium or titanium	NCERT text book Reerence books (Comprehensive, companion,Pradeep's)Extra marks etc .	Use of audio visuals to describe different process of metallurgy. Use of Ellingham diagram to explain reduction process.	Draw Ellingham diagram Writing a chart showing appropriate reducing agents.	Class test Oral test And witten test.
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July /12periods	p Block Elements (Ch.6)	Students will be able to :- 1.Distiguish between p-block elements. 2.Understand the physical and chemical properties of elements . 3.know the different methods used to obtain their compounds . 4.predict the redusing and oxidizing nature of their compounds	Electronic configuration, occurrence, oxidation states, trends in physical and chemical properties Nitrogen, preparation properties & uses Compounds of Nitrogen Preparation and properties of Ammonia and Nitric acid, Oxides of Nitrogen Structure onlyPhosphorus) Allotropic forms compounds of Phosphorus Preparation and properties of Phosphine, Halides and Oxoacids (elementary idea only)	NCERT text book Reerence books (Comprehensive, companion,Pradeep's)Extra marks etc		Draw a chart showing different block of elements & their electronic configuration. Write intext and exercise questions	
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August / 12- periods	d&f – block elements(ch.7)	<p>Students will be able to :-</p> <ol style="list-style-type: none"> 1. Distinguish between d & f block elements. 2. Understand the physical and chemical properties of elements . 3. know the different methods used to obtain their compounds . 4. predict the reducing and oxidizing nature of their compounds 	<p>Electronic configuration, occurrence and characteristics of transition metals</p> <p>General trends in properties of the first row transition metals –</p> <ul style="list-style-type: none"> • metallic character • ionization enthalpy (very important) • oxidation states (very important) • ionic radii • colour • catalytic property • magnetic properties • interstitial compounds (very important) • alloy formation <p>Preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$</p>	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc .	Use of audio visuals to describe nature of compounds formed by these elements..	Draw a chart showing different block of elements & their electronic configuration. Write intext and exercise questions.	Class test Oral test And written test.
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August /12- periods	Coordination Compounds (Ch.8)	<p>Students will be able to :-</p> <p>Describe the term coordination complex & ligand.</p> <p>Give the name of coordination compound .</p> <p>Describe the various type of isomerism in complex compound .</p> <p>Mention the hybridization in complex compound .</p> <p>identify low spin and high spin complex .</p> <p>describe crystal field splitting energy.</p> <p>Use various type of theories (Werner's theory, Valence bond theory, Crystal-field theory)</p>	<ol style="list-style-type: none"> 1.Coordination Compounds 2. Coordination Entity 3. Central Atom or Ion 4.Ligands 5. Coordination Number 6. Coordination Sphere 7.Coordination Polyhedron 8. Oxidation Number of CentralAtom 9. Homoleptic complexes 10.Heteroleptic complexes 11. Werner's theory 12. Valence bond theory 13. Crystal-field theory 	NCERT text book Reerence books (Comprehensive, companion,Pradeep's)Extra marks etc .	<ol style="list-style-type: none"> 1. Use of audio visuals to describe natue of compounds formed by these elements.. 2.Explaination of the examples of isomerism in coordination compounds. 3.Discussion of VBT,MOT,CFT. 4.Solving example of Hybridisation in coordination compounds. 	Draw a chart showing different hybridization in complex compounds. Write intext and exercise questions.	Class test Oral test And witten test.
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August/ 10 – periods	Haloalkanes and Haloarenes (Ch.9)	1.Able to recognize structures alkyle halides 2. Able to convert given name of alkyle halids to structure. 3. Able to write the order of reactivity of different halogen derivatives. 4. Able to describe different classes of halogen compounds. 5. Able to write down structure of halogen compounds.	Haloalkanes:.Nomenclature Nature of C-X bond Physical and chemical properties Mechanism of substitution reactions Optical rotation Haloarenes: Nature of C -X bond, Substitution reactions (Directive influence of halogen in mono substituted compounds only. Uses and environmental effects of - Dichloromethane Trichloromethane Tetrachloromethane Iodoform Freons DDT	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .	Explaining the structure of molecule using modals Performing tests and reactions in lab to understand the properties of halogen compounds. Teaching by interconversion chart . Make the student practice reactions . Teaching by comparision the chemical and physical properties of halogen compounds.	Solve NCERT intext and exercise questions	Class test Oral test And witten test.
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September 10 – periods	Alcohols ,Phenols & Ether (Ch.10)	<p>1.Name Alcohols, Phenols and Ethers according to the IUPAC system</p> <p>2.Discuss the reactions involved in the preparation of alcohols from (i) alkenes(ii) aldehydes, ketones and carboxylic acids</p> <p>3. Discuss the reactions involved in the preparation of phenols from(i) haloarenes (ii) Benzene sulphonic acids (iii) Diazonium salts and (iv) Cumene</p> <p>4.Discuss the reactions involved in the 5.preparation of Ethers from(i) alcohols and (ii) alkyl halides and sodium alkoxides/aryloxides</p> <p>6.Correlate physical properties of alcohols, phenols and ethers with their structures</p> <p>7.Discuss chemical reactions of the three classes of compounds on the basis of their functional groups</p>	<p>Nomenclature of Alcohols, Phenols and Ethers</p> <p>Classification of alcohols and phenols</p> <p>isomerism in Alcohols, Phenols and Ethers</p> <p>Methods of preparation of Alcohols, Phenols and Ethers</p> <p>Physical and chemical properties of Alcohols, Phenols and Ethers</p> <p>Mechanism of Acidic hydration of Alkenes, Dehydration of Alcohols, Mechanism of Williamson's Synthesis</p> <p>Properties of Methyl alcohol, Ethyl alcohol</p>	<p>NCERT text book</p> <p>Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .</p>	<p>Explaining the structure of molecule using modals</p> <p>Performing tests and reactions in lab to understand the properties of alcohols ,phenols and ether.</p> <p>Teaching by interconversion chart .</p> <p>Make the student practice reactions .</p> <p>Teaching by comparision the chemical and physical properties of alcohol,phenol,ether.</p>	Solve NCERT intext and exercise questions	Class test Oral test And witten test.
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September 10 – periods	Aldehyde ,ketone , carboxylic acid (Ch.11)	<p>A student will be able to understand</p> <ol style="list-style-type: none"> 1. To understand how to name different aldehydes and ketones. 2. To understand the reactivity of different carbonyl compounds towards nucleophilic reaction. 3. To understand how to write the products of addition reaction to carbonyl compounds. 4. To understand to differentiate between aromatic and aliphatic compounds. 	<p>Aldehydes and Ketones:</p> <p>Nomenclature,</p> <p>Nature of carbonyl group,</p> <p>Methods of preparation,</p> <p>Physical and chemical properties,</p> <p>Mechanism of Nucleophilic addition (very important)</p> <p>Reactivity of alpha hydrogen in Aldehydes: Uses</p> <p>Carboxylic Acids:</p> <p>Nomenclature</p> <p>Acidic nature</p> <p>Methods of preparation (very important)</p> <p>Physical and chemical properties (very important) Uses</p>	<p>NCERT text book</p> <p>Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .</p>	<p>Explaining the structure of molecule using models</p> <p>Performing tests and reactions in lab to understand the properties of alcohols ,phenols and ether.</p> <p>Teaching by interconversion chart .</p> <p>Make the student practice reactions .</p> <p>Teaching by comparison the chemical and physical properties of alcohol,phenol,ether.</p>	Solve NCERT intext and exercise questions	Class test Oral test And written test.
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Sept--Oct 10 – periods	Amines(Ch.12)	<p>A student will be able to understand</p> <p>Learning objectives: 1. Provide both IUPAC and common names for amines. 2. Differentiate primary, secondary, and tertiary amines. 3. Utilize the pK_b values of amine or the pK_a values of the conjugate acids of amines and arrange the order of basicity of amines. 4. Utilize the pK_b values of amine or the pK_a values of the conjugate acids of amines and predict the dominant products for an acid-base reaction.</p>	Introduction# Structure and Classification Nomenclature Physical Properties Basicity of Amines* Reactions with Acids Synthesis of Arylamines: Reduction of the – NO ₂ group* Reaction of Primary Aromatic Amines with Nitrous Acid	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .	Explaining the structure of molecule using modals Performing tests and reactions in lab to understand the properties of 1,2 and 3 amines Teaching by inter conversion chart . Make the student practice reactions . Teaching by comparison the chemical and physical properties of aliphatic and aromatic amines	Solve NCERT intext and exercise questions	Class test Oral test And witten test.
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October 12 – periods	Biomolecules(Ch.13)	<p>A student will be able to understand Learn the elements present in biomolecules and the difference monomers and polymers.</p> <ul style="list-style-type: none"> • Explain the role of water in synthesis and breakdown of polymers. • List the four major complex biomolecules found in living cells, three of which are found on food labels and the basis for grouping of biomolecules into those four groups. • For each group of biomolecules learn the name of its generic monomer (simple unit) and polymer (complex structure) and their function. <p>Carbohydrates:</p> <ul style="list-style-type: none"> o Identify their chemical elements and the difference between simple sugars and complex carbohydrates. <p>On the food labelso</p> <ul style="list-style-type: none"> Compare and contrast the structure and function of the carbohydrates and where they are found: glucose, o <p>Describe the function of DNA.</p>	<p>Carbohydrates -</p> <p>Classification (aldoses and ketoses)</p> <p>Monosaccahrises (glucose and fructose)</p> <p>D-L configuration oligosaccharides (sucrose, lactose, maltose)</p> <p>Polysaccharides (starch, cellulose, glycogen)</p> <p>Importance of carbohydrate</p> <p>Proteins -</p> <p>Elementary idea of - amino acids, peptide bond, polypeptides, proteins,</p> <p>Structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only) - very important</p> <p>Denaturation of proteins</p> <p>Enzymes</p> <p>Hormones - Elementary idea excluding structure</p>	<p>NCERT text book</p> <p>Reference books (Comprehensive, companion,Pradeep's)Extra marks etc,</p> <p>Audio visuals related to topic .</p>	<p>Explaining the structure of molecule using modals</p> <p>Performing tests and reactions in lab to understand the properties of different biomolecules.</p> <p>Teaching by inter conversion chart .</p> <p>Make the student practice reactions .</p> <p>Teaching by comparision the chemical and physical properties of different biomolecules.</p>	<p>Solve NCERT intext and exercise questions</p>	<p>Class test</p> <p>Oral test And witten test.</p>
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			<p>Vitamins - Classification and functions</p> <p>Nucleic Acids: DNA and RNA</p>				
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October 6-periods	: Chemistry in Everyday Life (Ch.15)	<p>After studying this Unit Student will be able to</p> <ul style="list-style-type: none"> • visualise the importance of Chemistry in daily life; • explain the term ‘chemotherapy’; • describe the basis of classification of drugs; • explain drug-target interaction of enzymes and receptors; • explain how various types of drugs function in the body; • know about artificial sweetening agents and food preservatives; • discuss the chemistry of cleansing agents. 	<p>Chemicals in medicines –</p> <p>Analgesics</p> <p>Tranquilizers antiseptics</p> <p>Disinfectants</p> <p>Antimicrobials</p> <p>Antifertility drugs</p> <p>Antibiotics (very important)</p> <p>Antacids (very important)</p> <p>Antihistamines</p> <p>Chemicals in food -</p> <p>Preservations</p> <p>Artificial sweetening agents (very important)</p> <p>Elementary idea of antioxidants</p> <p>Cleansing agents -</p> <p>Soaps and detergents (very important)</p> <p>Cleansing action (very important)</p>	<p>NCERT text book Reference books (Comprehensive, companion, Pradeep’s) Extra marks etc, Audio visuals related to topic .</p>	<p>Explaining the structure of molecule using models</p> <p>.Make the student practice reactions .</p> <p>Teaching by comparison the chemical and physical properties of different chemicals.</p> <p>Making the students aware about different diseases and their medicines</p>	<p>Solve NCERT intext and exercise questions</p>	<p>Class test Oral test And written test.</p>
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		8.Be able to name a common polyolefin. 9.Be able to describe the typical features and biomedical uses of polyolefins. 10.Be able to describe two simple substituted ethylene polymers (like PVC and polystyrene). 11.Be able to name a common polyacrylate. 12.Be able to describe the typical features and biomedical uses of polyacrylates (like PMA and PMMA). 13.Be able to describe the general chemistry of polyurethane thermal plastic elastomers.)					
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Lesson Plan

Session:- 2019-20

CLASS: 11 (Science)

SUBJECT:Chemistry

NAME OF Teacher

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation

From April-19 10-periods	<u>Some Basic Concepts of Chemistry</u> (Ch-1)	<p>1.Student will be able to :- the distinction between qualitative and quantitative chemical .analysis</p> <p>2.How to use the scientific method to create, test, and evaluate a hypothesis.</p> <p>3.the determination of the molar mass of an unknown nonelectrolyte and an unknown electrolyte</p> <p>4.Students will gain an understandithe fundamental properties of atoms, molecules, and the various states of matter ng of: stoichiometric calculations of chemical equations to determine the quantities of reactants and products, limiting reagent problems, and enthalpies of reactions</p>	<p>1. Classification of matter</p> <p>2. SI unit of various physical quantities</p> <p>3. Scientific notations and mathematical operations</p> <p>4. Significant figures (precision and accuracy)</p> <p>5. Dimensional analysis</p> <p>6. Laws of chemical combination and Dalton's theory</p> <p>7. Atomic and molecular masses</p> <p>8. Mole concept and molar masses</p> <p>9. Empirical formula</p> <p>10. Percentage composition</p> <p>11. Limiting reagents</p> <p>12. Different formulae to express volume of solution</p> <p>a) Mass percentage</p> <p>b) Mole fraction</p> <p>c) Molarity</p> <p>d) Molality</p>	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .	<p>1.Introduction of topic by questioning method</p> <p>2.Explaining concentration of solutions by desolving solute in solvent</p> <p>3.Deriving he formula of molarity,molality ,mole fraction ,depression in FP ,Lowering of vapour pressure,,elevtion in B.P.</p> <p>4.Solving numericals based on topic.</p> <p>5.Discussion of applications of Henry's law in daily life.</p> <p>6.Experiments (titration) to find the strength of solution.</p>	NCERT intext and Exercise questions	Class test Oral test And witten test.
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From April-26 th 10 – periods	Structure of Atom (Ch-2)	<p>Students will gain an understanding of:</p> <ol style="list-style-type: none"> the fundamental properties of atoms, molecules, and the various states of matter with an emphasis on the particulate nature of matter fundamental atomic structure and the periodicity of elements in the periodic table write the electronic configuration of elements. Filling of electrons in orbitals 	<ol style="list-style-type: none"> Discovery and nature of sub-atomic particles Models of atom: Thomson, Rutherford and Bohr Models of atom: Merits and demerits Dual nature of electromagnetic radiations Planck's quantum theory Photoelectric effect and black body radiations Atomic number and mass number Isotopes and Isobars Atomic spectra (Emission and Absorption spectra) Line spectrum of hydrogen and its explanation Orbitals and quantum numbers Shape and energy of atomic orbitals Principles followed for filling of orbitals in atom <ol style="list-style-type: none"> Aufbau principle Pauli exclusion principles Hund's Rule of Maximum Multiplicity Electronic Configuration of Atoms 	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .	<ol style="list-style-type: none"> Introduction of topic by questioning method Explaining of atomic model comparing it with solar system. Comparing different atomic models. Explanation of dual nature of matter by comparing different object. explaining different structure of atoms by using their 3D models. 	NCERT intext and Exercise questions	Class test Oral test And written test.
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From May 5 th 10 – periods	Periodic table (Ch-3)	<p>The students will be able to</p> <ol style="list-style-type: none"> 1.Understand about the periodic classification of elements 2.Cherish with the essentials of Mendeleev and Modern periodic table 3.Classify the elements into different blocks viz. s,p,d,f and get a detailed idea of their general characteristics 4.Know about the periodic properties viz. Ionisation enthalpy, electron gain enthalpy. 5.Electronegativity, ionic and atomic radii and their variations in the given form of the periodic table 6.Correlate various elements and their physical properties in the periodic table 	<ol style="list-style-type: none"> 1. Earlier attempts to classify elements 2. Mendeleev’s periodic table 3. Modern periodic law 4. Long form of periodic table 5. Groupwise electronic configuration 6. Periodic trends in following properties of elements <ol style="list-style-type: none"> a) Atomic radius b) Ionic radius c) Ionization enthalpy d) Electron gain enthalpy e) Electronegativity f) Oxidation states g) Anomalous behaviour of second period elements 	NCERT text book Reference books (Comprehensive, companion,Pradeep’s)Extra marks etc, Audio visuals related to topic .	<ol style="list-style-type: none"> 1.Introduction of topic by questioning method 2.Explaining of properties of elements connecting it with day today life . 3.Comparing different approach of classification . 4.Giving assignment to compare different element in their property. . 5.explaining different structure of atoms by using their 3D models. 	NCERT intext and Exercise questions	Class test Oral test And written test.
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From july 1 st 15 periods	: Chemical Bonding and Molecular Structure (Ch-4)	<p>The students will be able to</p> <ol style="list-style-type: none"> 1.Understand the different approaches to types of chemical bonding 2.Explain the rules to write the Lewis structures of simple molecules and the limitations involved 3.Calculate the formal charge of atoms present in the Lewis structures which will give an idea of actual shapes of molecules 4.Explain the Bond parameters viz., Bond angle, Bond length, Bond enthalpy and Bond order which would give a complete knowledge of electronic concept of structures of the molecules 5.Describe the VSEPR theory and its significance in predicting the anomalous change in 	<ol style="list-style-type: none"> 1. Octet rule and its limitations 2. Covalent bond 3. Steps to write lewis structure 4. Formula for formal charge 5. Ionic or electrovalent bond 6. Lattice enthalpy 7. Bond parameters 8. Resonating structures 9. Polarity of bonds 10. VSEPR theory 11. Valence bond theory 12. Types of hybridisation 13. Molecular orbital theory 14. Hydrogen bonding and its types 	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .		NCERT intext and Exercise questions	Class test Oral test And witten test.
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		<p>geometry of molecules due to different kinds of electronic interactions</p> <p>6. Give an account of VB theory that predicts the geometry of molecules in terms of the concept of hybridization</p> <p>7. Explain the concept of resonance</p> <p>8. Describe the concept of hydrogen bonding</p>					
Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation

From July 12 th 12– periods	<u>States of Matter</u> (Ch-5)	<p>The students will be able to</p> <p>Explain different states of matter and the forces existing in them</p> <p>Explain the different laws governing ideal gases and their applications in day to day life</p> <p>Describe the essential conditions required for liquification of gases</p> <p>Different properties of liquids based on intermolecular force of attraction</p>	<p>1. Intermolecular forces a) Dispersion forces or London forces b) Dipole-dipole forces c) Dipole-Induced dipole forces d) Hydrogen bond</p> <p>2. Gas laws a) Boyle's law b) Charles' law c) Gay Lussac's law d) Avogadro law</p> <p>3. Ideal gas equation</p> <p>4. Dalton's law of partial pressure</p> <p>5. Postulates of kinetic molecular theory of gases</p> <p>6. Behaviour of real gases</p> <p>7. Liquefaction of gases</p> <p>8. Liquid state a) Vapour pressure b) Surface tension c) Viscosity</p>	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .		NCERT intext and Exercise questions	Class test Oral test And witten test.
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Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home	Assessment/ Evaluation
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						Assignment	
August 18-periods	<u>Thermodynamics</u> (Ch-6)	The students will be able to 1. The concept of System and surroundings in thermodynamics and their types 2. First law of thermodynamics in terms of internal energy, work and heat. 3. Relationship between internal energy and enthalpy changes and the formulation of Hess's law 4. Intensive and Extensive properties of a system 5. Different types of enthalpy changes involved in terms of Hess's law 6. Determination of enthalpy of combustion - Bomb calorimeter 7. Gibbs free energy, entropy and the concept of spontaneity	1. Intermolecular forces a) Dispersion forces or London forces b) Dipole-dipole forces c) Dipole-Induced dipole forces d) Hydrogen bond 2. Gas laws a) Boyle's law b) Charles' law c) Gay Lussac's law d) Avogadro law 3. Ideal gas equation 4. Dalton's law of partial pressure 5. Postulates of kinetic molecular theory of gases 6. Behaviour of real gases 7. Liquefaction of gases 8. Liquid state a) Vapour pressure b) Surface tension c) Viscosity	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .	1.Introduction of topic by questioning method 2.Discussing some curious question related to topic . 2.Relate the gas law to practical life . 3.Comparing different atomic models. 4.Discussion of interesting facts about the topic. 5.Explaining different structure of atoms by using their 3D models. 6.Solving numericals based on topics	NCERT intext and Exercise questions	Class test Oral test And written test.

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation
August 18 –periods	(Ch-7) Equilibrium	<p>The students will be able to</p> <p>1.Understand the equilibria existing between different states of matter</p> <p>2.Explain the characteristics of chemical equilibrium and equilibrium constant</p> <p>3.Bringout the relationship between equilibrium constants at different conditions</p> <p>4.Classify substances as acids and bases on the basis of different theories</p> <p>5.Explain different important concepts of equilibrium viz., pH scale, ionic product of water, common ion effect, buffer solution</p> <p>6.Understand and calculate solubility product 7.Solve problems pertaining to this chapter</p>	<p>1. Chemical and ionic equilibrium</p> <p>2. Equilibrium in physical processes</p> <p>a) Solid-liquid equilibrium</p> <p>b) Liquid-vapour equilibrium</p> <p>c) Solid-vapour equilibrium</p> <p>d) Equilibrium involving dissolution of solids or gases in liquid</p> <p>3. Characteristics of Equilibria Involving Physical Processes</p> <p>4. Equilibrium in chemical processes</p> <p>5. Equilibrium constant and its applications</p> <p>6. Equilibrium constant in gaseous systems</p> <p>7. Factors affecting equilibria</p> <p>a) Le Chatelier's principle</p> <p>8. Ionic equilibrium in solution</p> <p>9. Acids, bases and salts</p> <p>a) Arrhenius Concept of Acids and Bases</p> <p>b) The Bronsted-Lowry Acids and Bases</p> <p>c) Lewis Acids and Bases</p> <p>10. Dissociation or ionization constant calculations</p> <p>11. Factors affecting acidic strength</p> <p>12. Hydrolysis of salts and pH of their solutions</p> <p>13. Buffer solution</p> <p>14. Solubility product (K_{sp})</p>	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .	<p>1.Introduction of topic by questioning method</p> <p>2.Discussing some curious question related to topic .</p> <p>2.Relate the laws to everyday life .</p> <p>3.Comparing different atomic models.</p> <p>4.Discussion of interesting facts about the topic.</p> <p>5.Explaining different structure of atoms by using their 3D models.</p> <p>6.Solving numericals based on topics</p>	NCERT intext and Exercise questions	Class test Oral test And written test.

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation

sept 8 –periods	(Ch-7) Redox reactions	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Electronic concept of oxidation and reduction 2. Basic principles involved in redox reactions 3. Mechanism of electron transfer involved in redox reactions 4. Calculation of oxidation numbers in terms of electron transfer 5. Various kinds of reactions in terms of redox reaction 6. Balancing of redox reactions using i) oxidation number method ii) half reaction method; 7. Electrochemistry of redox reactions as a tool for future knowledge 	<ol style="list-style-type: none"> 1. Concept of oxidation, reduction, oxidising agent and reducing agent 2. Oxidation number: Definition, notations and application 3. Types of redox reactions 4. Methods for balancing redox reactions 5. Electrode potential 6. Electrochemical series 	<p>NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .</p>	<ol style="list-style-type: none"> 1. Introduction of topic by questioning method 2. Discussing some curious question related to topic . <p>Involvement of students in topic.</p> <ol style="list-style-type: none"> 2. Relate the gas law to practical life . 3. Comparing different atomic models. 4. Discussion of interesting facts about the topic. 5. Explaining different structure of atoms by using their 3D models. 6. Solving numericals based on topics 7. Performing oxidation & reduction titration in lab. 	<p>NCERT intext and Exercise questions</p>	<p>Class test Oral test And written test.</p>
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Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation
sept 8 –periods	(Ch-9) <u>Hydrogen</u>	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Discuss the position of hydrogen in the periodic table 2. Explain the preparation ,properties and uses of dihydrogen 3. List out the different types of hydrides and their significance 4. Describe the structure of water in its different physical forms 5. Recall the behaviour of water under different chemical environment 6. Identify the sources of hard water and softwater 7. List out the Methods to get rid of temporary and permanent hardness of water 8. Explain the preparation and important haracteristics of hydrogen peroxide 	<ol style="list-style-type: none"> 1. Isotopes of hydrogen 2. Dihydrogen: Preparation, properties and uses 3. Hydrides and its three types 4. Difference between structures of ice and water 5. Chemical properties of water 6. Hard and soft water: Definition and methods of removal 7. H₂O₂: Preparation, structure and properties 8. Use of dihydrogen as an efficient fuel 	<p>NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .</p>	<ol style="list-style-type: none"> 1. Introduction of topic by questioning method 2. Discussing some curious question related to topic . <p>Involvement of students in topic.</p> <ol style="list-style-type: none"> 2. Relate the gas law to practical life . 3. Comparing different atomic models. 4. Discussion of interesting facts about the topic. 5. Explaining different structure of atoms by using their 3D models. 7. Performing oxidation & reduction titration in lab. 	<p>NCERT intext and Exercise questions</p>	<p>Class test Oral test And written test.</p>

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation

October 10 –periods	<u>Chapter 10 :</u> <u>The s-block</u> <u>elements</u>	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Discuss the position of hydrogen in the periodic table 2. Explain the preparation ,properties and uses of dihydrogen 3. List out the different types of hydrides and their significance 4. Describe the structure of water in its different physical forms 5. Recall the behaviour of water under different chemical environment 6. Identify the sources of hard water and softwater 7. List out the Methods to get rid of temporary and permanent hardness of water 8. Explain the preparation and important haracteristics of hydrogen peroxide 	<ol style="list-style-type: none"> 1. Alkali metals: Atomic. physical properties, chemical properties and characteristics 2. Anomalous behaviour of lithium 3. Diagonal relationship between lithium and magnesium 4. Short notes on the compounds mentioned under topic ‘some important compounds of sodium’ 5. Sodium-potassium pump 6. Alkaline earth metals: Atomic. physical properties, chemical properties and characteristics 7. Anomalous behaviour of beryllium 8. Diagonal relationship between beryllium and aluminium 9. Short notes on the compounds mentioned under topic ‘some important compounds of calcium’ 10. Short note on biological importance of magnesium and calcium 	<p>NCERT text book Reference books (Comprehensive, companion,Pradeep’s)Extra marks etc, Audio visuals related to topic .</p>	<ol style="list-style-type: none"> 1. Introduction of topic by questioning method 2. Discussing some curious question related to topic . Involvement of students in topic. 3. Relate the gas law to practical life . 4. Comparing different atomic models. 4. Discussion of interesting facts about the topic. 5. Explaining different structure of atoms by using their 3D models. 6. Performing oxidation & reduction titration in lab. 	<p>NCERT intext and Exercise questions</p>	<p>Class test Oral test And written test.</p>
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October 10 –periods	<u>Chapter 11 :</u> <u>The p-block elements</u>	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Discuss the position of hydrogen in the periodic table 2. Explain the preparation ,properties and uses of dihydrogen 3. List out the different types of hydrides and their significance 4. Describe the structure of water in its different physical forms 5. Recall the behaviour of water under different chemical environment 6. Identify the sources of hard water and softwater 7. List out the Methods to get rid of temporary and permanent hardness of water 8. Explain the preparation and important haracteristics of hydrogen peroxide 	<ol style="list-style-type: none"> 1. General properties of p-block elements esp. oxidation state 2. Group 13: Boron family <ol style="list-style-type: none"> a) Trends of atomic properties mentioned in the chapter b) Chemical properties Focus on trends in atomic properties and electron deficiency of boron, structure of $AlCl_3$ and their reaction with alkali c) Anomalous behaviour of boron d) Short notes on the compounds mentioned under topic ‘some important compounds of Boron’ esp. structure and reactions of diborane and boric acid 3. Group 14: Carbon family <ol style="list-style-type: none"> a) Trends of atomic properties mentioned in the chapter b) Chemical properties esp hydrolysis of tetrachlorides c) Anomalous behaviour of carbon d) Allotropes of carbon: Types, structure and distinction between diamond and graphite e) Short notes on the compounds mentioned under topic ‘some important compounds of carbon’ focussing on their preparation and adverse effects f) Short notes on the compounds mentioned under topic ‘some important compounds of silicon’ focussing on structure of silicon dioxide, preparation of silicones and how to restrict chain length while its preparation. g) Short notes on silicates and zeolites 	<p>NCERT text book Reference books (Comprehensive, companion,Pradeep’s) Extra marks etc, Audio visuals related to topic .</p>	<ol style="list-style-type: none"> 1. Introduction of topic by questioning method 2. Discussing some curious question related to topic . <p>Involvement of students in topic.</p> <ol style="list-style-type: none"> 3. Relate the gas law to practical life . 4. Comparing different atomic modals. 4. Discussion of interesting facts about the topic. 5. Explaining different structure of atoms by using their 3D modals. 6. Performing oxidation & reduction titration in lab. 	<p>NCERT intext and Exercise questions</p>	<p>Class test Oral test And witten test.</p>
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Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation
November 18 –periods	<u>Chapter 12 : Organic chemistry-Some basic principles and techniques</u>	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Interpret the structure of molecules in different ways 2. Classify and give the nomenclature of organic compounds in trivial and IUPAC system. 3. Explain about different types of isomerism exhibited by organic compounds 4. Bring out the effect of electronic displacements on structure and reactivity of organic compounds 5. Understand the methods of purification of organic compounds 6. Explain in detail the qualitative and quantitative aspects of organic compounds. 	<ol style="list-style-type: none"> 1. Shape, hybridisation and structure representation of carbon compounds 2. Classification of organic compounds focusing on the concepts revolving around aromaticity 3. Nomenclature and isomerism of organic compounds 4. Homolytic and heterolytic cleavage 5. Nucleophile and electrophile 6. Electron displacement effects 7. Purification of organic compounds esp. focussing on types of chromatography and distillation and its types 8. Qualitative analysis of organic compounds esp. focussing on numericals and short notes 	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .	<p>1. Introduction of topic by questioning method</p> <p>2. Discussing some curious question related to topic .</p> <p>Involvement of students in topic.</p> <p>3. Relate the gas law to practical life .</p> <p>4. Comparing different atomic models.</p> <p>4. Discussion of interesting facts about the topic.</p> <p>5. Explaining different structure of atoms by using their 3D models.</p> <p>6. Performing oxidation & reduction titration in lab.</p> <p>7. Practice on nomenclature and isomerism.</p>	NCERT intext and Exercise questions	Class test Oral test And written test.

Month/ No. of Periods	Topic/ sub- topic	Learning Objectives	Detailed Content	Teaching and learning Aids	Teaching Pedagogy/ Methodology	Class Assignment & Home Assignment	Assessment/ Evaluation
November 10 –periods	<u>Chapter 13 : Hydrocarbons</u>	<p>The students will be able to</p> <p>1.Name the different kinds of hydrocarbons according to common and IUPAC nomenclature 2.Identify and write the structures of isomers of aliphatic and aromatic hydrocarbons 3.Know different forms arise due to free rotation of C-C bond in alkanes(conformers) 4.Discuss on Preparations and Properties of alkanes, alkenes, alkynes and arenes</p> <p>5.Define Geometrical isomers(cis-trans) arising due to the restricted rotation about C=C 6.Explain resonance and extra stability of benzene 7.Describe directive influence of functional groups on the aromatic ring system. 8.Explain Carcinogenicity and Toxicity in aromatic hydrocarbons</p>	<p>1. Aliphatic hydrocarbon: <u>Alkanes, alkenes and alkynes:</u> a) Nomenclature and isomerism b) Methods of preparation c) Chemical properties d) Conformations of alkanes 2. Aromatic hydrocarbons: a) Nomenclature and isomerism b) Huckel rule c) Benzene: Structure, preparation and chemical reactions d) Functional groups and their directive influence in monosubstituted benzene</p>	NCERT text book Reference books (Comprehensive, companion,Pradeep's)Extra marks etc, Audio visuals related to topic .	<p>1.Introduction of topic by questioning method</p> <p>2.Discussing some curious question related to topic .</p> <p>Involvement of students in topic.</p> <p>3.Relate the gas law to practical life .</p> <p>4.Comparing different atomic models.</p> <p>4.Discussion of interesting facts about the topic.</p> <p>5.Explaining different structure of atoms by using their 3D models.</p> <p>Explaining mechanism of reactions .</p>	NCERT intext and Exercise questions	Class test Oral test And written test.

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December 8 –periods	<u>Chapter 14 : Environmental chemistry</u>	<p>The students will be able to</p> <ol style="list-style-type: none"> 1. Define environmental chemistry 2. Define atmospheric pollution 3. Explain green house effect 4. Explain causes of acid rain 5. Relate the various factors which cause the depletion of ozone layer 6. Recognize the factors which cause water pollution 7. Explain soil pollution 8. Methods to control pollution 9. Importance of green chemistry in our day to day life 	<ol style="list-style-type: none"> 1. Air Pollution <ol style="list-style-type: none"> a) Short notes on gaseous pollutants namely oxides of carbon and oxides of nitrogen b) Greenhouse effect c) Global warming d) Acid rain e) Smog f) Photochemical smog: Definition, formation, adverse effects and effective control g) Ozone: Formation, breakdown, ozone hole and depletion of ozone layer 2. Water Pollution <ol style="list-style-type: none"> a) Causes of water pollution b) BOD c) Eutrophication d) Portable water and international standards of drinking water 	NCERT text book Reference books (Comprehensive, companion, Pradeep's) Extra marks etc, Audio visuals related to topic .	<ol style="list-style-type: none"> 1. Introduction of topic by questioning method 2. Discussing some curious question related to topic . <p>Involvement of students in topic.</p> <ol style="list-style-type: none"> 3. Relate the gas law to practical life . 4. Comparing different atomic models. 4. Discussion of interesting facts about the topic. 5. Explaining different structure of atoms by using their 3D models. 6. Making the students aware about the consequences of pollution. <p>.</p>	NCERT intext and Exercise questions	Class test Oral test And written test.

