

## Chemistry SESSION (20-21)

Month: March

Content/Topic	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week (6 days)	4 <sup>th</sup> week (5 days)	5 <sup>th</sup> week (2 days)
<b>UNIT 1: SOLUTIONS</b>  <b>UNIT 2: ELECTROCHEMISTRY</b>			<b>UNIT 1</b> <b>1. Types of solutions</b> <b>2. Method to express the conc. of solution</b> <b>3. Henry's law, Raoult's law</b> <b>4. Ideal &amp; non ideal solution.</b>	5. Numerical based on Colligative properties 6. Abnormal molecular mass <b>UNIT 2</b> <b>1. Galvanic and electrolytic cell</b> <b>2. Nernst equation ion</b>	3. Conductivity, Molar conductivity and their Variation with dilution
<b>Practical</b>	Determination of concentration and strength of $\text{KMnO}_4$ solution by titrating it against a standard solution of Mohr salt and Oxalic acid.				
<b>Learning Objectives</b>	Familiarizing the students with 1. Different types of solutions 2. Henry's and Raoult's law, Colligative properties and correlating them to molar masses of the solutes. 3. Nernst equation, conductivity & Molar conductivity				
<b>Learning Outcome</b>	Students would be able to: 1. Know the physical state of solute and solvent of different type of solutions. 2. Apply colligative properties and Nernst equation to solve the numerical. 3. Explain the deviations of real solution from Raoult's law. 4. Justify the variation of conductivity and molar conductivity of solution with dilution.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (In-text solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module				

**Month: April**

<b>Content/Topic</b>	<b>1<sup>st</sup> week (3 days)</b>	<b>2<sup>nd</sup> week (3 days)</b>	<b>3<sup>rd</sup> week (6 days)</b>	<b>4<sup>th</sup> week (5days)</b>	<b>5<sup>th</sup> week (4 days)</b>
	<b>UNIT 2 (Contd.)</b> 4. Kohlrausch law and its application 5. Product of electrolysis	6. Faraday's laws of electrolysis 7. Batteries & Fuel cells 8. Corrosion & its Mechanism <b>Assignment/NCERT questions</b>	<b>UNIT 3</b> 1. Average & instantaneous rate of reaction 2. Rate law expression. 3. Determination of order of reaction 4. Integrated rate equation 5. Reaction in gas phase	<b>Unit-3(Contd.)</b> 6. Arrhenius equation Temperature dependence of rate constant 7. Collision theory. <b>8. Assignment/ NCERT questions</b>	<b>Unit-4</b> 1. Adsorption & Absorption with examples 2. Physical & chemical Adsorption 3. Freundlich adsorption isotherm 4. Catalyst role in industry.
<b>Practical</b>	Determination of concentration and strength of $\text{KMnO}_4$ solution by titrating it against a standard solution of Mohr salt and Oxalic acid.				
<b>Learning Objectives</b>	1. Express the rate of reaction in terms of concentration 2. Mechanism of adsorption, explaining the factors controlling adsorption and enumerating the nature of colloidal 3. Defining average and Instantaneous rate of reaction, 4. Differentiating between molecularity and order of a reaction, 5. Deriving integrated rate equations for the zero and first order reactions.				
<b>Learning Outcome</b>	Student would be able to: 1. Recall and use the different rate equations to solve the numerical. 2. Explain the important features of adsorption and different catalytic activities.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module				

Month: MAY

Content/Topic	1 <sup>st</sup> week (1 days)	2 <sup>nd</sup> week (3days)	3 <sup>rd</sup> week (6 days)	4 <sup>th</sup> week (5 days)	5 <sup>th</sup> week (3 days)
<b>UNIT- 5 Isolation of Elements</b>  <b>Unit-6: The P- Block Elements</b>	<b>Unit-4 Cont.</b> 5.Homogeneous and heterogenous catalysis	6. Colloidal state and its preparation, properties and purification.	<b>PERIODIC TEST- I</b>  7. Methods of Coagulation 8. Emulsions and its types with examples <b>UNIT- 5</b> 1. Introduction of Metallurgy 2. Ores and minerals 3. Extraction of metals, purification and their uses	<b>PERIODIC TEST- I</b>  4. Ellingham diagram and its importance. 5. Refining of metals 6. <b>Assignment/ NCERT Questions</b> <b>Unit-6:</b> 1. General trends of group 16 2. Important compounds of group 16 elements	3,Allotropic forms of sulphur 4. Structure of oxo acids of sulphur 5. General trends of group 17&18
<b>Practical</b>	Preparation of Lyophobic and Lyophilic sol, To study the effect of concentration on the rate of reaction between $\text{Na}_2\text{S}_2\text{O}_3$ and HCl.				
<b>Learning Objectives</b>	1.Familiarizing the students with: 2.Correlating physical and chemical properties of metals. 3Purification of different metals				
<b>Learning Outcome</b>	Student would be able to: 1.Write the reactions involved during the extraction of metals. 2.Ellingham diagram to understand the coupling reactions.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module				

Month: JULY

Content/Topic	1 <sup>st</sup> week (4 days)	2 <sup>nd</sup> week (5 days)	3 <sup>rd</sup> week (6 days)	4 <sup>th</sup> week (5 days)	5 <sup>th</sup> week (3 days)
<b>Unit-6: The P- Block elements (Contd.)</b>  <b>Unit-7 :The d &amp; f-block elements</b>  <b>Unit-8: Coordination compounds</b>	<b>Unit-6:contd</b> 6.Preparation properties and uses of halogens and interhalogens 7.Structure of oxoacids of halogens	<b>Unit-6:contd</b> 8. periodic properties of noble gases 9. Structure and uses of noble gases. <b>Assignment/ NCERTquestions</b> <b>Unit-7 :</b> 1. General characteristic of d& f block elements	<b>Unit-7(contd.)</b> 2. Stability of oxidation states in terms of electrode potential 3. Some important compounds of Transition metals and their preparation and properties 4. Lanthanides and Actinides.	<b>Unit-7(Contd.)</b> 5.Electronic configuration of inner transition metals and their uses. <b>Assignment/NCERTquestions</b> <b>Unit-8:</b> 1.Defination of some important terms related to coordination chemistry. 2. Nomenclature. isomerism and bonding	3.Valence bond theory 4. Crytal field theory
<b>Practical</b>	To separate the color pigments by paper chromatography, preparation of potash alum.				
<b>Learning Objectives</b>	1.Describing general trends in group 16, 17 and 18. Preparation, properties and uses of various compounds 2.Describing general trends in properties of the first row transition elements and inner transition elements. 3.Preparation, properties, structures and uses of $K_2Cr_2O_7$ and $KMnO_4$ and Chemistry of Inner transition elements. 4.Understanding postulates of Werner's theory, writing the nomenclature, understanding the nature of bonding in terms of 5.Valence Bond and crystal Field theories				
<b>Learning Outcome</b>	Student would be able to: 1.Understand the chemistry of p-block elements, their preparation, properties and uses and their compounds 2.Understand the reactivity trends on the basis of electrode potential. 3.Prepare of $K_2Cr_2O_7$ and $KMnO_4$ and reactions with other compounds in acidic medium. 4.Understand the character of inner transition elements. 5.Classify the different isomers; to draw the geometry and importance of the magnetic character of the complexes.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from reckoner and smart class module on different trends of properties and reactivity of the p-block and d & f-block elements. Diagrams of oxoacids of S, Cl and Xe-compounds from p-block elements				

Month: August

Content/Topic	1 <sup>st</sup> week ( 1days)	2 <sup>nd</sup> week ( 4days)	3 <sup>rd</sup> week ( 4days)	4 <sup>th</sup> week ( 4days)	5 <sup>th</sup> week ( 6 days)
<b>Unit-8 Coordination compounds (Contd.)</b>  <b>Unit-9: Haloalkanes and haloarenes</b>  <b>Unit-10: Alcohol, Phenols &amp; Ethers</b>	<b>Unit-8(Contd.)</b> 5.Metal carbonyls	<b>PERIODIC TEST- II</b>  <b>Unit-8(Contd.)</b> 6. Formation constant of complexes 7. Application of coordination compounds. <b>Unit-9:</b> 1. Nomenclature. 2. Nature of C-X bond.	<b>PERIODIC TEST- II</b>  <b>Unit-9(Contd.)</b>  3.Preparation and physical properties. 4. Nucleophilic Substitution 5.Stereochemical aspects	<b>Unit-9(Contd.)</b>  6. Elimination  7. Reaction with metals  8. Electrophilic substitution 9.Uses <b>Assignment/NCERTquestions</b>	<b>Unit-10</b> 1.Nomenclature 2. Structure of the functional groups 3. Preparation,physical & chemical properties and uses of Alcohols
<b>Practical</b>	Investigatory Projects and salt analysis.				
<b>Learning Objectives</b>	IUPAC name of halo alkane and halo arenes Different stereo chemical aspects of nucleophilic substitution reactions. Naming alcohols, phenols and ethers according to IUPAC system.				
<b>Learning Outcome</b>	Students would be able to : 1. Write the mechanism of different stereo chemical aspects of nucleophilic substitution reactions like (SN1 and SN2) 2. Uses of polyhalo compounds 3. Importance of functional groups. 4. Understand the comparison of acidic character of alcohols and phenols.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from reckoner and smart class module on properties of haloalkanes, haloarenes(Unit-9) and alcohols, phenols & ethers (Unit-10)				

Month: September

Content/Topic	1 <sup>st</sup> week 5 days	2 <sup>nd</sup> week 5days	3 <sup>rd</sup> week 6days	4 <sup>th</sup> week 5 days	5 <sup>th</sup> week 2days
<b>Unit-10(contd.) Alcohol, Phenols &amp; Ethers</b>  <b>Unit-11: Aldehydes, Ketones &amp; Carboxylic acids</b>  <b>Unit-12: Amines</b>	<b>Unit-10(Contd.)</b>  4.Preparation,physical & chemical properties and uses of phenol 5. Preparation,physical & chemical properties and uses of ethers <b>Assignment/NCERT questions</b>	<b>Unit-11:</b> 1.Nomenclature 2. Structure of the functional groups. 3. Preparation ,physical & chemical properties and uses of aldehydes and ketones	4. Preparation ,physical & chemical properties and uses of carboxylic acids. 5, Acidity of carboxylic acids <b>Assignment/NCERTquestions</b>  <b>Unit-12: Amines</b> 1.Nomenclature 2. Structure of the functional group	3. Preparation ,physical & chemical properties and uses of Amines with special emphasis to basic character of amines 4.Diazonium dsalts	<b>Assignment/NCERTquestions</b>
<b>Practical</b>	Characteristic tests of carbohydrates and fats in food sample.				
<b>Learning Objectives</b>	1 Naming aldehyde, ketones and carboxylic acids according to IUPAC system. Classifying of amines IUPAC names, discussing reactions involved preparation of amines and reaction mechanism of acylation of amines. Write the bonding and chemical nature of three classes of amines and know the importance of Diazonium salt to solve the organic conversions.				
<b>Learning Outcome</b>	Students would be able to: Know the mechanism of few selective reactions of aldehydes and ketones Know the importance of various factors affecting the acidity of carboxylic acids. Describe the method of preparation of diazonium salts and their importance.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner and smart class module on properties of aldehydes, ketones & carboxylic acids (Unit-11); Amines (Unit-12)				

Month: October

<b>Content/Topic</b>	<b>1<sup>st</sup> week 1days</b>	<b>2<sup>nd</sup> week 5days</b>	<b>3<sup>rd</sup> week 5days</b>	<b>4<sup>th</sup> week 4days</b>	<b>5<sup>th</sup> week 4days</b>
<b>Revision PRE BOARD 1</b>	<b>Revision</b>	<b>PRE BOARD 1</b>	<b>PRE BOARD 1</b>	<b>PRE BOARD 1</b>	<b>PRE BOARD 1 Paper discussion</b>
<b>Practical</b>	Revision				
<b>Learning Objectives</b>	Technique of writing good answers will be reinforced to get better results.				
<b>Learning Outcome</b>	Students would be able to recapitulate and write well during examination.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module				

**Month: November**

<b>Content/Topic</b>	<b>1<sup>st</sup> week 5 Days</b>	<b>2<sup>nd</sup> week 4Days</b>	<b>3<sup>rd</sup> week 5 Days</b>	<b>4<sup>th</sup> week 5 Days</b>
<b>Unit 13: Biomolecules</b>  <b>Unit 14: Polymers</b>  <b>Unit 15 : Chemistry in everyday life</b>	<b>Unit 13:</b> 1. Carbohydrates definition and classification 2. Reactions of glucose 3. Cyclic structure of monosaccharides 4. Haworth structure of disaccharides and polysaccharides	<b>Unit 13: (contd.)</b> 5. Amino acids and structure of proteins 6. Nucleic acids and their types 7. Vitamins and their types <b>Assignment/NCERTquestions</b> <b>Unit 14:</b> 1. Classification of polymers	<b>Unit 14: (contd.)</b> 2. Types of polymer and structure of their monomer units 3. Vulcanisation 4. Free radical mechanism of polymerisation	<b>Unit 15 :</b> 1. <b>Introduction</b> 2. Drugs, chemicals in food and cleansing agents <b>Assignment/NCERTquestions</b>
<b>Practical</b>	Investigatory Projects and Known and unknown salt analysis /Preparation of organic compounds. Functional group and Proteins test			
<b>Learning Objectives</b>	Composition of various drugs and their classification Discussing reactions involved in preparation of different biomolecules and polymers			
<b>Learning Outcome</b>	Students would be able to: Students will be able to write(i) different monomers used to make polymers (ii) Explain the chemical reactions involved in biomolecules Explain the various type of drug function. Apply the concepts of chemicals used in their daily life.			
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).			
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module			



Month: December

<b>Content/Topic</b>	<b>1<sup>st</sup> week</b>	<b>2<sup>nd</sup> week</b>	<b>3<sup>rd</sup> week</b>	<b>4<sup>th</sup> week</b>	<b>5<sup>th</sup> week</b>
<b>Revision &amp; Pre board -2</b>	<b>Revision</b>	<b>Pre board -2</b>	<b>Pre board -2</b>	<b>Pre board -2</b>	<b>Pre board -2</b>
<b>Practical</b>	<b>Revision</b>				
<b>Learning Objectives</b>	Technique of writing good answers will be reinforced to get better results.				
<b>Learning Outcome</b>	Students would be able to recapitulate and write well during examination.				
<b>Assessment/ Activity</b>	Classroom discussion, Quiz (MCQ) from smart class module and homework assignment from NCERT (Intext solved, unsolved and back exercise questions).				
<b>Teaching Aids /Resources</b>	Mind map from Reckoner. Smart class module				

Month: January

<b>Content/Topic</b>	<b>1<sup>st</sup> week</b>	<b>2<sup>nd</sup> week</b>	<b>3<sup>rd</sup> week</b>	<b>4<sup>th</sup> week</b>	<b>5<sup>th</sup> week</b>
<b>Board Practicals &amp; Remedial classes</b>	<b>Board Practicals &amp; Remedial classes</b>	<b>Board Practicals &amp; Remedial classes</b>	<b>Board Practicals &amp; Remedial classes</b>	<b>Board Practicals &amp; Remedial classes</b>	<b>Board Practicals &amp; Remedial classes</b>
<b>Practical</b>	Practice for the Board practical Exam.				
<b>Learning Objectives</b>	Technique of writing good answers will be reinforced to get better results.				
<b>Learning Outcome</b>	Students would be able to recapitulate and write well during examination.				
<b>Assessment/ Activity</b>	Practice tests from selected topics				
<b>Teaching Aids /Resources</b>	Sample papers.				