

Subject – Chemistry
Subject Code (043)
Class +2(science)

Session-2020-21

UNIT	LEARNING OBJECTIVES	LINKS USED	METHODOLOGY	ASSESSMENT
UNIT 1 MARCH - APRIL	SOLUTIONS LEARNING OUTCOMES: <ul style="list-style-type: none"> ● Classify the Types of solutions ● Write the expression of concentration of solutions of solids in liquids ● Explain about solubility of gases in liquids, solid solutions ● Detailed description about the colligative properties - relative lowering of vapor pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, ● Mathematically determination of molecular masses using colligative Properties. 	https://youtu.be/bPdtGA92WmI https://youtu.be/XojLe2tLLu4 https://youtu.be/1VEICP7_GFI Experiment: determination of concentration molarity of potassium permanganate solution by titrating it against a standard solution of 1)oxalic acid 2)ferrous ammonium sulphate https://youtu.be/kXI_Om-2XYk	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Knowledge based questions Conceptual questions Numerical solving skills. MCQ.
UNIT 7 MAY-JUNE	p - BLOCK ELEMENTS LEARNING OBJECTIVES: Students will be able to: <ul style="list-style-type: none"> ● Classify Group-15 Elements into General introduction, electronic configuration ,occurrence, oxidation states , trends in physical and chemical properties ● Elaborate about Nitrogen w.r.t. preparation, properties and uses; compounds of nitrogen: preparation and properties of Ammonia and Nitric acid ● Classify Group 16 Elements according to General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, ● Illustrate about dioxygen w.r.t. Preparation, Properties and uses, ● classify Oxides, Ozone, Sulphur - allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide, properties and uses; ● Draw the structures of Oxoacids of Sulphur ● Classify Group 17 Elements w.r.t. General introduction, electronic configuration, oxidation states, occurrence, trends in physical and 	https://youtu.be/kNFXJxX72uY https://youtu.be/TvYbmAJPetU	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Diagram based analysis. Pen paper test Solving Numer

	<p>chemical properties; compounds of halogens,</p> <ul style="list-style-type: none"> ● Explain the Preparation, properties and uses of Chlorine and Hydrochloric acid, inter-halogen compounds ● Draw the structures of Oxoacids of halogens ● Classify Group 18 Elements w.r.t. General introduction, electronic configuration, occurrence, trends in physical and Chemical properties, uses 			
<p>UNIT 8</p> <p>JULY</p>	<p>d - AND f - BLOCK ELEMENTS</p> <p>LEARNING OBJECTIVES:</p> <p>Students will be able to</p> <ul style="list-style-type: none"> ● Give General introduction, electronic configuration, occurrence and characteristics of transition metals, ● Tabulate the general trends in properties of the first row transition metals w.r.t. - metallic character, ionization enthalpy, oxidation states, ionic radii, color, catalytic property, magnetic properties, interstitial compounds, alloy formation ● Explain about Lanthanides ● Write their Electronic configuration, oxidation states, lanthanide contraction and its consequences 	<p>https://youtu.be/LzZWHsYaxw</p> <p>Experiment: qualitative analysis Determination of one cation and one anion in a given salt https://youtu.be/5eBS6apmNL8</p>	<p>Discussion/ Explanation through examples/ Video demonstration/ Notes making</p>	<p>MCQ. Numerical solving skills. Pen paper test.</p>
<p>UNIT 9</p> <p>AUGUST</p>	<p>COORDINATION CHEMISTRY</p> <p>LEARNING OUTCOMES:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Explain about Coordination compounds w.r.t. Introduction, ligands, coordination number, color, magnetic properties ● Draw their shapes, ● Write the the the IUPAC nomenclature of mononuclear coordination compounds. ● Illustrate about Bonding, Werner's theory, VBT, and CFT. 	<p>https://youtu.be/jkizZTfMF7s</p> <p>https://youtu.be/s0dJHwBVFcl</p> <p>https://youtu.be/9ohaOGLzOIQ</p>	<p>Discussion/ Explanation through examples/ Video demonstration/ Notes making</p>	<p>MCQ. Practical skills-viva. Conceptual questions.</p>
<p>UNIT 1</p> <p>AUGUST</p>	<p>SOLID STATE</p> <p>LEARNING OBJECTIVE:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Classify solids based on different 	<p>Preparation of double salt of ferrous ammonium sulphate or potash alum. https://youtu.be/bhoMvPJKc24</p>	<p>Discussion/ Explanation through examples/ Video demonstration</p>	<p>MCQ. Practical skills-viva. Conceptual questions</p>

	<p>binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids(elementary idea).</p> <ul style="list-style-type: none"> ● Draw and describe Unit cell in two dimensional and three dimensional lattices ● calculate the density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cells in a cubic unit cell, point defects 	<p>Preparation of Potassium Ferric Oxalate. https://youtu.be/SilzJBCeIns https://youtu.be/RcG9e2Bg3eE https://youtu.be/KZDUJuIaAWw https://youtu.be/SA99EsACa6Y</p>	on/ Notes making	
UNIT 2 SEPTEMBER	<p>ELECTROCHEMISTRY</p> <p>LEARNING OUTCOMES:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Describe about the redox reactions ● Explain about the conductance in electrolytic solutions ● define specific and molar conductivity and the variation of conductivity with concentration ● Define Kohlrausch's law and electrolysis ● Illustrate about the EMF of a cell ● Calculate the standard electrode potential ● mathematically explain Nernst equation and its application to chemical cells ● Derive the relationship between Gibbs energy change and EMF of a cell 	<p>https://youtu.be/HbEMmhiBTtg https://youtu.be/paRg8Q9Y1t8</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Logical reasoning. Conceptual questions. SA/VSA questions pen paper test.
UNIT 3 SEPTEMBER	<p>CHEMICAL KINETICS</p> <p>LEARNING OUTCOMES:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Explain the rate of a reaction (Average and instantaneous), ● Describe the factors affecting rate of reaction w.r.t. concentration, temperature, catalyst; ● Calculate the order and molecularity of a reaction ● Describe rate law and specific rate constant, ● Derivation of integrated rate equations ● Calculation of half life (only for zero and first order reaction) 	<p>https://youtu.be/602063c-qzU https://youtu.be/winBCKAGPR0</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Equation based. Logical reasoning based questions. Conceptual questions.
UNIT 4 SEPTEMBER	<p>SURFACE CHEMISTRY</p> <p>LEARNING OBJECTIVES:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Describe Adsorption w.r.t.- physisorption and chemisorptions, factors affecting 	<p>https://youtu.be/2cCiOvm44q4 https://youtu.be/-YtNNph4qlM https://youtu.be/tvmV_fla52k https://youtu.be/8QH853ffG2U</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes	MCQ. Logical reasoning based questions. Conceptual questions. Pen paper test.

	<p>adsorption of gases on solids , colloidal state</p> <ul style="list-style-type: none"> ● Differentiate between true solutions, colloids and suspension; lyophilic, lyophobic multi-molecular and macromolecular colloids; ● Explain the properties of colloids ● Demonstrate Tyndall effect, Brownian movement, electrophoresis, coagulation 	<p>Experiment: preparation of inorganic compounds 1) preparation of double salt of ferrous ammonium sulphate or potash alum 2) preparation of potassium ferric oxalate</p>	making	
<p>UNIT 10</p> <p>OCTOBER</p>	<p>HALO ALKANES AND HALOARENES</p> <p>LEARNING OUTCOMES:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Describe Haloalkanes w.r.t nomenclature, nature of C -X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation. ● Describe Haloarenes: w.r.t Nature of C -X bond, substitution reactions (Directive influence of halogen in mono-substituted Compounds only. 	<p>https://youtu.be/s7pXbV9dumI</p> <p>https://youtu.be/ztt0teVJtIY</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Equation based worksheet. MCQ. Logical reasoning based questions. Conceptual questions.
<p>UNIT 11</p> <p>OCTOBER</p>	<p>ALCOHOLS PHENOLS AND ETHERS</p> <p>LEARNING OUTCOMES:</p> <p>Students will be able to</p> <ul style="list-style-type: none"> ● Describe Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), ● Describe identification of primary, secondary and tertiary alcohols, ● Mathematically explain mechanism of dehydration. ● Illustrate about Phenols w.r.t Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, ● Describe Electrophilic substitution reactions, uses of phenols. ● Describe Ethers w.r.t Nomenclature, methods of preparation, physical and chemical properties, uses. 	<p>https://youtu.be/qbYXVztddJs</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Equation based worksheet. MCQ. Logical reasoning based questions. Conceptual questions. Pen paper test
<p>UNIT 12</p> <p>OCTOBER</p>	<p>ALDEHYDES, KETONES AND CARBOXYLIC ACIDS</p> <p>LEARNING OBJECTIVES:</p> <p>Students were able to</p> <ul style="list-style-type: none"> ● Describe Aldehydes and Ketones w.r.t. Nomenclature, nature of carbonyl group, methods of preparation ● Tabulate the physical and 	<p>https://youtu.be/UmbmTSj73K4</p> <p>Experiment: to test for the functional group present in organic compounds Unsaturation, alcoholic, phenolic, keonic , aldehydic, carboxylic and</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	VS/VSA questions Equation based worksheet. MCQ. Logical reasoning based questions. Conceptual questions.

	<p>chemical properties,</p> <ul style="list-style-type: none"> ● Explain the mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses. ● Describe Carboxylic Acids w.r.t. Nomenclature, acidic nature, methods of preparation, physical and chemical properties;uses. 	<p>amino groups</p> <p>https://youtu.be/n4esSHxz_J8</p>		Pen paper tetes
UNIT 13 NOVEMBER	<p>AMINES</p> <p>LEARNING OBJECTIVES: Students will be able to:</p> <ul style="list-style-type: none"> ● Describe Amines w.r.t. Nomenclature, classification, structure, methods of preparation, ● Tabulate the physical and chemical properties, ● Illustrate the uses, identification of primary, secondary and tertiary amines 	<p>https://youtu.be/ztnPnackibs</p> <p>Experiment: characteristic tests of carbohydrates fats and proteins in pure sample and their detection in given food stuff</p> <p>https://youtu.be/QacQmS3aaTI</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Equation based worksheet. MCQ. Logical reasoning based questions. Conceptual questions.
UNIT 14 NOVEMBER	<p>BIOMOLECULES</p> <p>LEARNING OBJECTIVES Students will be able to:</p> <ul style="list-style-type: none"> ● Illustrate Carbohydrates - w.r.t. Classification (aldoses and ketoses), mono-saccharides (glucose and fructose), D-L configuration. ● Describe Proteins w.r.t.- Elementary idea of - amino acids, peptide bond, polypeptides, proteins, ● Draw the structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), ● Give an idea about denaturation of proteins. ● Describe Nucleic Acids: DNA and RNA. 	<p>https://youtu.be/lkoDv6ggRjE</p> <p>https://youtu.be/MkqtHP9MhDs</p> <p>https://youtu.be/-QK4wz254AA</p> <p>https://youtu.be/DZ92AFVcDx4</p>	Discussion/ Explanation through examples/ Video demonstration/ Notes making	VSA/Conceptual questions to enhance their reasoning and structural skill

PRACTICALS

Evaluation Scheme for Examination Marks	Marks
Volumetric Analysis	08
Salt Analysis	08
Content Based Experiment	06
Project Work	04
Class record and viva	04
Total	30