BISHOP SCOTT BOYS' SCHOOL
STUDENT CURRICULUM MANUAL

Subject: CHEMISTRY	Class: XII	Academic Plan: 2025 -26

Month	Course Description	Learning Objectives	Activity	No. of Periods	Portion for PT & TERM Assessment
April	**Chapter - 1: Solutions** **1) Types of Solutions** **2) Expressing Concentration of Solutions of Solutions.** **3) Solubility** **4) Solubility of a Solid in a Liquid** **5) Solubility of a Gas in a Liquid** **6) Vapour Pressure of Liquid Solutions.** **7) Vapour Pressure of Liquid-Liquid Solutions.** **8) Raoult's Law as a special case of Henry's Law** **9) Vapour Pressure of Solutions of Solids in Liquids** **10) Ideal and Nonideal Solutions** **11) Colligative Properties and Determination of Molar Mass,**	1) Gaseous Solutions, Liquid Solutions, Solid Solutions 2) Mass percentage (w/w), Volume percentage (V/V), Mass by volume percentage (w/V), Parts per million, Mole fraction, Molality: 3) Saturated, unsaturated solution 4) Henry's law, Raoult's law, Dalton's law of partial pressures, 5) Ideal Solutions, non-ideal solution 6) azeotropes 7) minimum boiling azeotrope and maximum boiling azeotrope. 8) **Relative Lowering of Vapour Pressure, Elevation of Boiling Point, Depression of Freezing Point, Osmosis and Osmotic Pressure** **9)Isotonic, hypotonic and hypertonic solution** **10) Vants Hoff factor.**	Raw mango shrinks in salt solution.	25	Chapter:1 Solutions Chapter :2 Electrochemistry

	12) **Reverse Osmosis and Water Purification** 13) **Abnormal Molar Masses**				
	Chapter - 2 : **Electro chemistry.** **1) Electrochemical Cells** 2) electrolytic cell 3) Galvanic Cells 4) Measurement of Electrode Potential 5) Nernst Equation 6) Standard Electrode Potentials at 298 K 7) Equilibrium Constant from Nernst Equation, Electrochemical Cell and Gibbs Energy of the Reaction	1) Daniell cell or galvanic or voltaic 2) Gibbs energy, electrode potential standard electrode potential emf) 3) Standard Hydrogen Electrode 4) Resistivity, resistance, conductance, 5) Electrical conductance, ionic conductance 6) conductivity cell 7) molar conductivity, limiting molar conductivity 8) Lm = L° m – A c ½ 9) Kohlrausch law of independent migration of ions. 10) Applications of Kohlrausch law 11) Faraday's Laws of Electrolysis 12) Electrolysis of NaCl,H2SO4 and H2O. 13) Primary Batteries, Secondary Batteries, Fuel Cells, Corrosion	1) Variation of cell potential in Zn/Zn^{2+}|| Cu^{2+}/Cu with change in concentration of electrolytes ($CuSO_4$ or $ZnSO_4$) at room temperature.	20	

May	8) Conductance of Electrolytic Solutions, Measurement of the Conductivity of Ionic Solutions, Variation of Conductivity and Molar Conductivity with Concentration 9) Electrolytic Cells and Cells and Cells and Electrolysis. 10) Products of Electrolysis. Batteries,			8	
	<u>Chapter - 3</u>: **Chemical kinetics** **1)** Rate of a Chemical Reaction. **2) Factors Influencing Rate of a Reaction** **3) Dependence of Rate on Concentration** **4) Rate Expression and Rate Constant** **5) Order of a Reaction** **6) Molecularity of a Reaction**	1) average rate of a reaction, 2) instantaneous rate 3) rate constant 4) elementary reactions, complex reactions 5) rate determining step 6) pseudo first order reactions 7) Arrhenius equation, frequency factor, activated complex 8) activation energy 9) most probable kinetic energy, Gibbs energy, effective collisions	a) Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.	12	

June	**Chapter - 3:** 7) 3 Integrated Rate Equations. 8) Zero Order Reactions. First Order Reactions 9) Half-Life of a Reaction 10) Temperature Dependence of the Rate of a Reaction 11) Effect of Catalyst 12) Collision Theory of chemical reaction			12	
Month	Course Description	Learning Outcome	Activity	No. of Periods	Portion for PT & TERM Assessment
July	**Chapter - : 4** **: d and f Block Elements** **1)General introduction,** **2) general trends in** **3) metals – metallic character** **4)alloy formation,** **5) preparation and properties of K2Cr2O7 and KMnO4.** 5) Lanthanides 6) Actinides	1) **electronic configuration** 2) **occurrence and characteristics of transition metals** 3) **properties of the first-row transition** 4) **, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds** 5) Electronic configuration, oxidation states, chemical reactivity and lanthanide contraction and its consequences. 6) Electronic configuration, oxidation states and comparison with lanthanides	1) Determination of concentration/molarity of KMnO4 solution by titrating it against a standard solution of 2) Preparation of Potassium Ferric Oxalate.	18	

			Qualitative analysis Determination of one anion and one cation in a given salt Cations: Pb^{2+},Cu^{2+}, Al^{3+}, Fe^{3+},Mn^{2+}, Ni^{2+} Zn^{2+} Co^{2+} $Ca^{2+}$$Sr^{2+}$ Ba^{2+} Mg^{2+}, NH_4^+ + Anions: CO_3^{2-},S^{2-} , SO_3^{2-}, NO_3^-, NO_2^- , Cl^-, Br^-, I^- ,SO_4^{2-}, PO_4^{3-} , CH_3COO^-, C2O4 2- (Note: Insoluble salts excluded		
	Chapter - 5: Coordination Compounds **1)Coordination compounds –** **2) Introduction** **3) Werner's theory, VBT, and CFT**	**1)ligands** **2) coordination number, colour, magnetic properties and shapes** **3) IUPAC nomenclature of mononuclear coordination compounds** **4). Bonding.** **5)structure and stereoisomerism,** **6) importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).**	1) Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.	12	
August	**Chapter - 6: Haloalkanes and Haloarenes:** 1) Haloalkanes 2) Haloarenes 3) Uses and environmental effects of -	1)Nomenclature 2) nature of C–X bond 3)physical and chemical properties 4) optical rotation mechanism of substitution reactions.	Preparation of any one of the following compounds i) Acetanilide ii) Di-benzalAcetone iii) p-Nitroacetanilide iv) Aniline Yellow or 2-Naphthol	22	**Portion for TERM – 01** 1) Solutions 2) Electrochemistry 3) Chemical kinetics 4) d and f block elements

	dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT		Aniline Dye.		
	Chapter-7 1)Alcohols 2) Phenols and 3) Ethers	1) alcohol Nomenclature 2)methods of preparation 3)physical and chemical properties (of primary alcohols only), 4) identification of primary, secondary and tertiary alcohols, 5) mechanism of dehydration, 6) uses with special reference to methanol and ethanol. 7) Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. 8) Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses	Tests for the functional groups present in organic compounds Alcohol and phenol	20	
September	**Chapter - 8 :** Aldehydes, Ketones and Carboxylic Acids 1) Introductions	1) Aldehydes and Ketones: 2) Nomenclature 3) nature of carbonyl group, 4) methods of preparation,	i) Acetanilide ii) Di-benzalAcetone iii) p-Nitroacetanilide iv) Aniline Yellow or 2-Naphthol Aniline Dye. ii) Tests for the functional groups present in	15	

		5) physical and chemical properties, 6) mechanism of nucleophilic addition, 7) reactivity of alpha hydrogen in aldehydes, uses. 8) Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.	organic compounds aldehydic, ketonic, carboxylic		
October	**Chapter - 9 :** **1)Amines** 2) Diazonium salts	1) Amines: 2) Nomenclature. 3) classification, structure. 4) methods of preparation, physical and chemical properties, 5) uses, identification of primary, secondary and tertiary amines 6) Diazonium salts Preparation, chemical reactions and importance in synthetic organic chemistry.	**Test of amino (Primary) groups.**	14	**Portion for PT – 02** 1) Solutions 2) Electrochemistry 3) Chemical kinetics 4) d and f block elements 5) coordination compound 6) Haloalkanes and Haloarenes 7) Alcohol phenol and ether 8) Aldehydes, Ketones and Carboxylic Acids 9) Amines 10) Biomolecules
November	**Chapter - 10 :** **Biomolecules** 1) Carbohydrates 2) Proteins 3) Vitamins 4) Nucleic Acids	1)Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. 2) Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary,		17	

		tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. 3) Vitamins - Classification and functions. 4) Nucleic Acids: DNA and RNA.			
December					