

CLASS – XII

SUBJECT : CHEMISTRY

MONTH : OCTOBER 2024

QUES NO	TYPE OF QUESTION (REASONING / MCQ / MATRIX / GRID / OTHER)	QUESTION	OPTION PROVIDED	CORRECT OPTION	EXPLANATION	% OF STUDENTS ATTEMPTED CORRECTLY
01	MCQ	Which of the following is an example of vic-dihalide?	(a) Dichloromethane (b) 1,2-dichloroethane (c) Ethylidene chloride (d) Allyl chloride	(b)	Vicinal dihalides are those compounds in which halogen atoms are attached to the adjacent carbon atoms.	
02	MCQ	An alkyl halide forms its Grignard reagent followed by treating with water yields propane. The original alkyl halide is	(a)Methyl iodide (b)Ethyl bromide (c)Propyl bromide (d)Butyl bromide	c		

03	MCQ	Which of the following haloalkanes reacts with aqueous KOH most easily?	(i) 1-Bromobutane (ii) 2-Bromobutane (iii) 2-Bromo-2-methylpropane (iv) 2-Chlorobutane	iii	The tertiary carbocation formed in the reaction is stable
04	A & R	Assertion: Hydrogen halides (HX) are preferred over thionyl chloride for the preparation of alkyl halides from alcohols. Reason: Gaseous side products are formed in the case of thionyl chloride	a. Both A and R are true and R is the correct explanation of A b. Both A and R are true but R is not the correct explanation of A. c. A is true but R is false. d. A is false but R is true	d	
05	A & R	Assertion: S _N 2 mechanism leads to the inversion of configuration. Reason: As in this mechanism optical activity is lost.	a. Both A and R are true and R is the correct explanation of A b. Both A and R are true but R is not the correct explanation of A. c. A is true but R is false. d. A is false but R is true	c	In S _N 2 the reaction happens in a single transition state. Optically active substrate becomes optically inactive and half of the optically active substrate becomes similar. S _N 2 involves inversion reaction.
06	MCQ	A chelating agent has two or more than two donor atoms to bind to a single metal ion. Which of the following is not a chelating agent? (i) <u>thiosulphato</u> (ii) <u>oxalato</u> (iii) <u>glycinato</u> (iv) ethane-1,2-diamine	i ii	i	It is a bidentate ligand

			<p>iii</p> <p>iv</p>			
7	MCQ	<p>7. Assertion : Toxic metal ions are removed by the chelating ligands.</p> <p>Reason : Chelate complexes tend to be more stable.</p>	<p>i. Both A and R are true and R is the correct explanation of A</p> <p>ii. Both A and R are true but R is not the correct explanation of A.</p> <p>iii. A is true but R is false.</p> <p>iv. A is false but R is true</p>			
08	MCQ	<p>8. Assertion : $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_2$ and $[\text{Fe}(\text{H}_2\text{O})_6]\text{Cl}_2$ are reducing in nature.</p> <p>Reason : Unpaired electrons are present in their <i>d</i>-orbitals.</p>	<p>i. Both A and R are true and R is the correct explanation of A</p> <p>ii. Both A and R are true but R is not the correct explanation of A.</p> <p>iii. A is true but R is false.</p> <p>iv. A is false but R is true</p>	ii	<p>Analysing the assertion</p> <p>$[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_2$ and $[\text{Fe}(\text{H}_2\text{O})_6]\text{Cl}_2$ are reducing in nature as they undergo self-oxidation easily. it occurs because both the complexes become more stable by the oxidation of the metal ion to Cr^{3+} and Fe^{3+}.</p> <p>The electron get ionised easily to form a more stable half-filled or fully filled electronic configuration.</p> <p>So, the assertion is a correct statement.</p> <p>Analysing the reason</p>	

					[Cr(H ₂ O) ₆]Cl ₂ and [Fe(H ₂ O) ₆]Cl ₂ both the complexes have unpaired electrons in their d-orbitals	
09	MCQ	<p>9. Assertion : Linkage isomerism arises in coordination compounds containing ambidentate ligand.</p> <p>Reason : Ambidentate ligand has two different donor atoms.</p>	<p>i. Both A and R are true and R is the correct explanation of A</p> <p>ii. Both A and R are true but R is not the correct explanation of A.</p> <p>iii. A is true but R is false.</p> <p>iv. A is false but R is true</p>	i	<p>Correct option is A. Both Assertion and Reason are correct and Reason is the correct explanation for Assertion. Assertion: Linkage isomerism arises in coordination compounds containing ambidentate ligand. Reason: Ambidentate ligand has two different donor atoms.</p>	
10	MCQ	<p>Complexes of MX₆ and MX₅L type (X and L are unidentate) do not show geometrical isomerism.</p> <p>Reason : Geometrical isomerism is not shown by complexes of coordination number 6.</p>	<p>i. Both A and R are true and R is the correct explanation of A</p> <p>ii. Both A and R are true but R is not the correct explanation of A.</p> <p>iii. A is true but R is false.</p> <p>iv. A is false but R is true</p>	iii	<p>In MX₆ & MX₅L, their shape is Square Bipyramidal. In a plane, there are four atoms, all are same, linked to the metal atom, so they don't show geometrical isomerism. So, the assertion is correct. If the ligands present in complexes are Bidentate. Then they will show optical isomerism. So, reason is incorrect.</p>	