



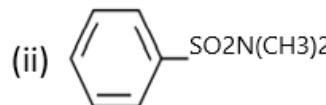
INDIAN SCHOOL MUSCAT
SECOND PRE - BOARD EXAMINATION
SUBJECT WITH SUBJECT CODE

CLASS: XII

TERM 2

Max.Marks:

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARK S SPLIT UP
A	1.	(i) $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})_2]\text{Cl}_3$ (ii) Dichloridobis (ethane1,2 diamine)cobalt(III) nitrate	1+1
	2.	$\Rightarrow \kappa = \frac{\Lambda_m^c \times M}{1000} = \frac{138.9 \times 1.5}{1000} = 0.20835 \text{ S cm}^{-1}$	1+1
	3.	(i) A=CHCl ₃ +alc KOH (ii) B=Br ₂ +Alkali (iii) C=Catalytic redn /Fe,HCl/Sn,HCl	1+1
	4.	$K_c = 3.224 \times 10^{30}$ $\Delta G^\circ = - nFE_{\text{cell}}^\circ$ $= - 6 \times 96500 \times 0.30$ $= - 173700 \text{ J mol}^{-1}$ $\Delta G^\circ = - 173.7 \text{ kJ mol}^{-1}$ OR $E_{\text{cell}} = E_{\text{cell}}^\circ - \frac{0.059}{n} \log \frac{[\text{Sn}^{2+}]}{[\text{H}^+]^2}$, we get $E_{\text{cell}} = 0.14 - \frac{0.059}{2} \log \frac{4 \times 10^{-3}}{(2 \times 10^{-2})^2}$ $E_{\text{cell}} = 0.14 - 0.0295 \log 10$ $E_{\text{cell}} = 0.1400 - 0.0295 = 0.1105 \text{ V}$	1.5+1.5
	5.	(i) a reddish brown coloured colloidal solution is formed. In this case, Fe ³⁺ ions from ferric chloride are adsorbed by Fe(OH) ₃ precipitate. (ii) Lyophilic sols are more solvated than lyophobic (iii) The ions carrying charge opposite to that of sol particles are effective in causing the coagulation of the sol.	1x3
		OR Correct Definition (i) Electrophoresis (ii) Zeta potential (iii) Tyndall effect	

	6.	(i) Higher oxidation states are stabilized in oxides due to the ability of oxygen to form multiple bonds (ii) Larger surface area and variable oxidation states (iii) Due to Lanthanide contraction	1x3
	7.	(i) Hybridisation : dsp^2 Magnetic character : Diamagnetic (ii) Any one limitation	1+1 1
	8.	(i) $\text{CH}_3\text{CH}_2\text{CH}=\text{NNHCONH}_2$ (ii) EWG stabilizes the carboxylate anion formed and acidic nature increases & pK_b value decreases (iii) Acetaldehyde gives Fehlings test (or) Iodoform test	1x3
	9.	Correct Equations (i) Stephen reaction (ii) Aldol condensation (iii) Rosenmund reduction OR Convert (i) P-nitrotoluene to p-nitro benzaldehyde-Oxidn (ii) Propanal to butan-2-one- $\text{CH}_3\text{MgBr}+\text{Oxidn}$ (iii) Benzene to benzoic acid-Acylation+Oxidn	1x3
	10.	(i) Due to steric & electronic reasons (ii) Absence of H-bonding in aldehydes (iii) addition compounds with NaHSO_3 on hydrolysis give pure aldehydes.	1x3
	11.	 (i)  (ii)  (iii) RNH_2 OR (i) N-methylethanamine (ii) $\text{C}_6\text{H}_5\text{NH}_2$, $\text{NH}_3\text{C}_2\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$ (iii) $\text{CH}_3\text{NHCOC}_6\text{H}_5$	1x3
	12.	a) Molecularity=2 order=1.5 b) Definition-Pseudo first order c) Rate increases 9 times	1 1 1

		$= \frac{2.303}{2.54 \times 10^{-3}} \log 4$ $= \frac{2.303}{2.54 \times 10^{-3}} \times 0.6020$ <p>d) = 545.82 sec</p> <p style="text-align: center;">OR</p> $\frac{0.0051 \times 180}{2.303} = \log \frac{0.1}{[R]} = 0.3961$ $[R] = 0.1 / 2.5036 = 0.03994M$	1+1
SET B	1.	SETA(3)	1+1
	2.	Molar conductivity $\Lambda_m^c = \frac{\kappa \times 1000}{\text{Molarity}}$ $= \frac{0.025 \times 1000}{0.20} = 125 \text{ S cm}^2 \text{ mol}^{-1}$	1+1
	3.	(i) $[\text{Co}(\text{NH}_3)_5(\text{ONO})]\text{Cl}_2$ (ii) Potassiumdiaquatetracyanidochromate(III)	1+1
	4.	$K_c = \text{antilog } \frac{2 \times 0.04 \text{ V}}{0.0591 \text{ V}}$ $K_c = \text{antilog } 1.356 = 22.38$ $\Delta G = -7720 \text{ J}$ <p style="text-align: center;">OR</p> $E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.0591}{n} \log \frac{[\text{Al}^{3+}]^2}{[\text{Ni}^{2+}]^3},$ $E_{\text{cell}} = 1.41 - \frac{0.0591}{6} \log \frac{(10^{-2})^2}{(0.1)^3}$ $= 1.41 - 0.00985 \log 10^{-1}$ $= 1.41 + 0.00985 = 1.41985 \text{ V}$ $E_{\text{cell}} = 1.42 \text{ V}$	1.5+1.5
	5.	(i) $\text{CH}_3\text{CH}=\text{NNH}_2\text{CONH}_2$ (ii) EWG stabilizes the carboxylate anion formed and acidic nature increase & pK _b value decreases (iii) Ethanal gives positive iodoform test, propanal will not	1x3
	6.	SETA(11)	
	7.	SETA(6)	
	8.	SETA(10)	
	9.	Write the equations involved in the following reactions (i) Gattermann-Koch reaction (ii) HVZ reaction	1x3

	(iii) Wolff Kischner reduction OR Convert (i) Ethanal to but-2-enal-Aldol condensation (ii) Propanone to propene-redn followed by dehydration (iii)Bromobenzene to benzoic acid -Mg+CO ₂ +H+/H ₂ O	
10.	(i)d2sp3,diamagnetic (ii)a)t2g4 b)t2g3eg1	1+1 1
11.	SETA(5)	
12.	SetA (12)	
SET C	1. Molar conductivity, $\Lambda_m^c = \frac{\kappa \times 1000}{\text{Molarity}}$ $= \frac{7.896 \times 10^{-5} \times 1000}{0.00241} = 32.76 \text{ S cm}^2 \text{ mol}^{-1}$	1+1
	2. SETA(3)	
	3. (i)[PtBr ₂ (en) ₂](NO ₃) ₂ (ii)Sodiumdicyanidoaurate(I)	1+1
4.	$\Delta G^\circ = - nFE_{\text{cell}}^\circ$ $\Delta G^\circ = - 2 \times 96500 \times 1.05 = - 202650 \text{ J}$ $\log K_c = \frac{2}{0.059} \times 1.05 = 39.5932$ $K_c = \text{antilog } 39.5932 = 3.919 \times 10^{39}$ OR $E_{\text{cell}} = 0.30 - \frac{0.0591}{6} \log \frac{(0.1)^2}{(0.01)^3}$ $= 0.30 - 0.0394 = 0.26 \text{ V}$	1.5+1.5
5.	SETA(11)	
6.	(i)CH ₃ C(CH ₃)=NNHCOCCH ₃ (ii) EWG stabilizes the carboxylate anion formed and acidic nature increase &pK _b value decreases (iii) Propanal gives Fehlings/Tollens test	1x3
7.	(i) Sp ³ d ² ,octahedral paramagnetic (ii) [Cr(H ₂ O) ₆]Cl ₃	1+1 1
8.	SETA(5)	
9.	SETA(10)	

	10.	SETA(6)	
	11.	<p>(i) Etards reaction</p> <p>(ii) Clemmensen reduction</p> <p>(iii) Cannizzaro reaction</p> <p>Convert OR</p> <p>(i) Phenylethyne to acetophenone-H₂O/Hg²⁺ & H⁺</p> <p>(ii) Ethanoic acid to ethanal-PCl₅+Rosenmund redn</p> <p>(iii) Benzene to benzoic acid-Alkylation & oxdn KMnO₄</p>	1x3
	12.	SetA(12)	