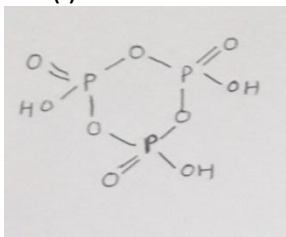
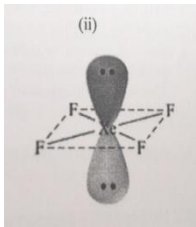


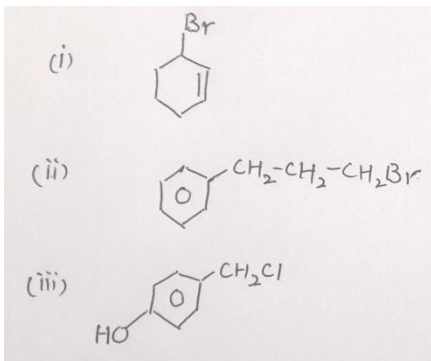
MARKING SCHEME -CHEMISTRY 2016

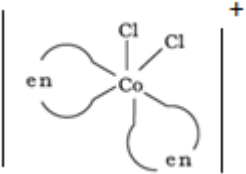
SET -56/1/N

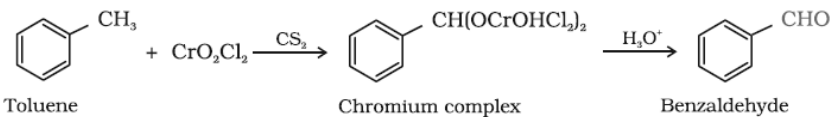
Q.N.	Value Points	Marks
1.	(i) , Inversion of configuration	$\frac{1}{2} + \frac{1}{2}$
2.	NO ₂	1
3.	Due to presence of free electrons at interstitial sites, / metal excess defect	1
4.	N-methyl-2-methylpropanamine / 2-methyl-N-methylpropanamine	1
5.	Like Charged particles cause repulsion/ Brownian motion/ solvation	1
6.	(i) Osmotic pressure (ii) Positive deviation from Raouls' law/ Positive deviation	1 1
7	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(i)</p>  </div> <div style="text-align: center;"> <p>(ii)</p>  </div> </div>	1 +1

8.	(i) [Ni(H ₂ O) ₆] Cl ₂ (ii) Hexaaquanickel(II) chloride	1 1
9.	(i) zero order , bimolecular/ unimolecular (II) mol L ⁻¹ s ⁻¹	$\frac{1}{2} + \frac{1}{2}$ 1

	$t_{1/2} = 0.693 / k$ $k = 0.693 / 200$ $= 0.0034 \text{ min}^{-1} / 3.4 \times 10^{-3} \text{ min}^{-1}$	$\frac{1}{2}$ 1
13	(i) Oil as dispersed phase and water as dispersion medium (ii) The potential difference between fixed layer and diffused / double layer of opposite charges. (iii) Large number of atoms or smaller molecules of a substance aggregate together to form species having size in colloidal range.	1 1 1
14	1. Chromatography 2. To Separate two sulphide ores 3. It decomposes to CaO which removes impurity (silica) as slag/ Acts as flux.	1 1 1

15	$\Delta T_b = i \frac{K_b w_b \times 1000}{M_b \times w_a}$ $\Delta T_b = \frac{3 \times 0.52 \times 2 \times 1000}{142 \times 50}$ $= 0.439 \text{ K}$ $\Delta T_b = T_b - T_b^0$ $T_b = 0.439 + 373 = 373.439 \text{ K} \quad (\text{OR } 373.589 \text{ K})$	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1
16.	(i) Due to presence of two P-H bonds in H_3PO_2 / In H_3PO_2 O.S of P = +1 which can increase but in H_3PO_4 O.S of P = +5 (max.) (ii) Due to stronger S-S bond than O-O bond. (iii) Size of halogen increases / bond length increases / bond dissociation enthalpy decreases (any one)	1 1 1
17.		1 1 1
18.	(a) . In phenols lone pair of electron on oxygen are delocalized over benzene ring due to resonance but in alcohol lone pair of electron on oxygen are localized & hence available for protonation / + R- effect in phenol but not in	1

	<p>(b)</p> 	1
23.	<p>(i) Aware, concerned or any other two correct values</p> <p>(ii) Side effects/ health problems</p> <p>(iii) Neurologically active drugs/ stress relievers/drugs used to treat mental diseases</p> <p>example- valium, equanil (or any other two correct example)</p>	<p>½ + ½</p> <p>1</p> <p>1</p> <p>½ + ½</p>
24.	<p>(a) $E_{\text{cell}} = E_{\text{cell}}^0 - \frac{0.059}{n} \log \frac{[\text{Cr}^{3+}]^2}{[\text{Fe}^{2+}]^3}$</p> <p>$0.261 \text{ V} = E_{\text{cell}}^0 - \frac{0.059}{6} \log \frac{[0.01]^2}{[0.01]^3}$</p> <p>$0.261 \text{ V} = E_{\text{cell}}^0 - \frac{0.059}{6} \log 100$</p> <p>$E_{\text{cell}}^0 = 0.261 + 0.0197$</p> <p>$= 0.2807 \text{ V}$</p> <p>(b) A, due to its more negative E^0 value.</p>	<p>½</p> <p>1</p> <p>½</p> <p>1</p> <p>1+1</p>
	OR	
24	<p>(a).</p> <p>$\Lambda_m^c = \kappa \times 1000 / C$</p> <p>$= 3.905 \times 10^{-5} \times 1000 / 0.001$</p> <p>$= 39.05 \text{ S cm}^2/\text{mole}$</p> <p>$\text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{COO}^- + \text{H}^+$</p> <p>$\Lambda^0 \text{CH}_3\text{COOH} = \lambda^0 \text{CH}_3\text{COO}^- + \lambda^0 \text{H}^+$</p> <p>$= 40.9 + 349.6$</p> <p>$\Lambda^0 \text{CH}_3\text{COOH} = 390.5 \text{ S cm}^2/\text{mol}$</p> <p>$\alpha = \frac{\Lambda_m}{\Lambda_m^0}$</p> <p>$= 39.05 / 390.5$</p> <p>$= 0.1$</p> <p>(b). Device used for the production of electricity from energy released during spontaneous chemical reaction and the use of electrical energy to bring about a chemical change.</p> <p>The reaction gets reversed / It starts acting as an electrolytic cell & vice – versa.</p>	<p>½</p> <p>1</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p>

25.	<p>(a) (i) Ability of oxygen to form multiple bond . (ii) Due to lanthanoid contraction. (iii) Due to variable oxidation state/unpaired electrons</p> <p>(b) (i) $2\text{MnO}_2 + 4\text{KOH} + \text{O}_2 \rightarrow 2\text{K}_2\text{MnO}_4 + 2\text{H}_2\text{O}$ (ii) $\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 6\text{I}^- \rightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O} + 3\text{I}_2$</p>	1 1 1 1 1
	OR	
25	<p>(i) Zn , because of not having partially filled d-orbital in its ground state or ionic state. (ii) Cr (iii) Cu (iv) Mn , because Mn^{+2} has extra stability due to half filled d-orbital</p>	$\frac{1}{2}+1$ 1 1 $\frac{1}{2}+1$
26.	<p>a). A : CH_3CHO B : $\begin{array}{c} \text{OH} \\ \\ \text{CH}_3-\text{CH}-\text{CH}_2\text{CHO} \end{array}$</p> <p>C : $\text{CH}_3-\text{CH}=\text{CH}-\text{CHO}$ D : $\begin{array}{c} \text{OH} \\ \\ \text{CH}_3-\text{CH}-\text{CN} \end{array}$</p> <p>b) i) Heat both the compounds with NaOH and I_2, $\text{C}_6\text{H}_5-\text{CH}=\text{CH}-\text{COCH}_3$ gives yellow ppt of iodoform while $\text{C}_6\text{H}_5-\text{CH}=\text{CH}-\text{COCH}_2\text{CH}_3$ does not. ii) Add ammoniacal silver nitrate solution (Tollens' reagent) , HCOOH gives silver mirror while $\text{CH}_3\text{CH}_2\text{COOH}$ does not. c) $\text{CH}_3\text{COCH}_3 < \text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{COOH}$</p>	$\frac{1}{2}$ $\times 4 = 2$ 1 1 1
	OR	
26	<p>a.)</p> <div style="text-align: center;">  <p>Toluene Chromium complex Benzaldehyde</p> </div> <p>b) $\text{C}_6\text{H}_5\text{COCH}_3 < \text{CH}_3\text{CHO} < \text{HCHO}$ c) stronger -I effect of Cl , stronger acid less pK_a / strong electron withdrawing power of Cl. d) $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}-\text{CH}_2\text{CHO}$ e) A: CH_3COCH_3 B: $\text{CH}_3\text{CH}_2\text{CHO}$</p>	1 1 1 1 $\frac{1}{2}$ $\frac{1}{2}$

Name	Signature	Name	Signature
Dr. (Mrs.) Sangeeta Bhatia		Sh. S.K. Munjal	
Dr. K.N. Uppadhya		Sh. D.A. Mishra	
Prof. R.D. Shukla		Sh. Rakesh Dhawan	
Dr. (Mrs.) Sunita Ramrakhiani		Ms. Nirmala Venkateswaran	
Sh. S. Vallabhan, Principal		Mrs. Deepika Arora	
Mr. K.M. Abdul Raheem		Ms. Minakshi Gupta	
Mrs. Sushma Sachdeva		Sh. Mukesh Kaushik	
Ms. Seema Bhatnagar		Mr. Roop Narayan	
Sh. Pawan Singh Meena		Ms. Garima Bhutani	
Sh. Praveen Kumar Agrawal			