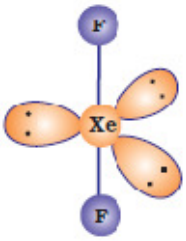
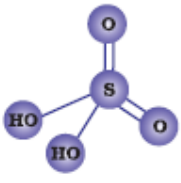
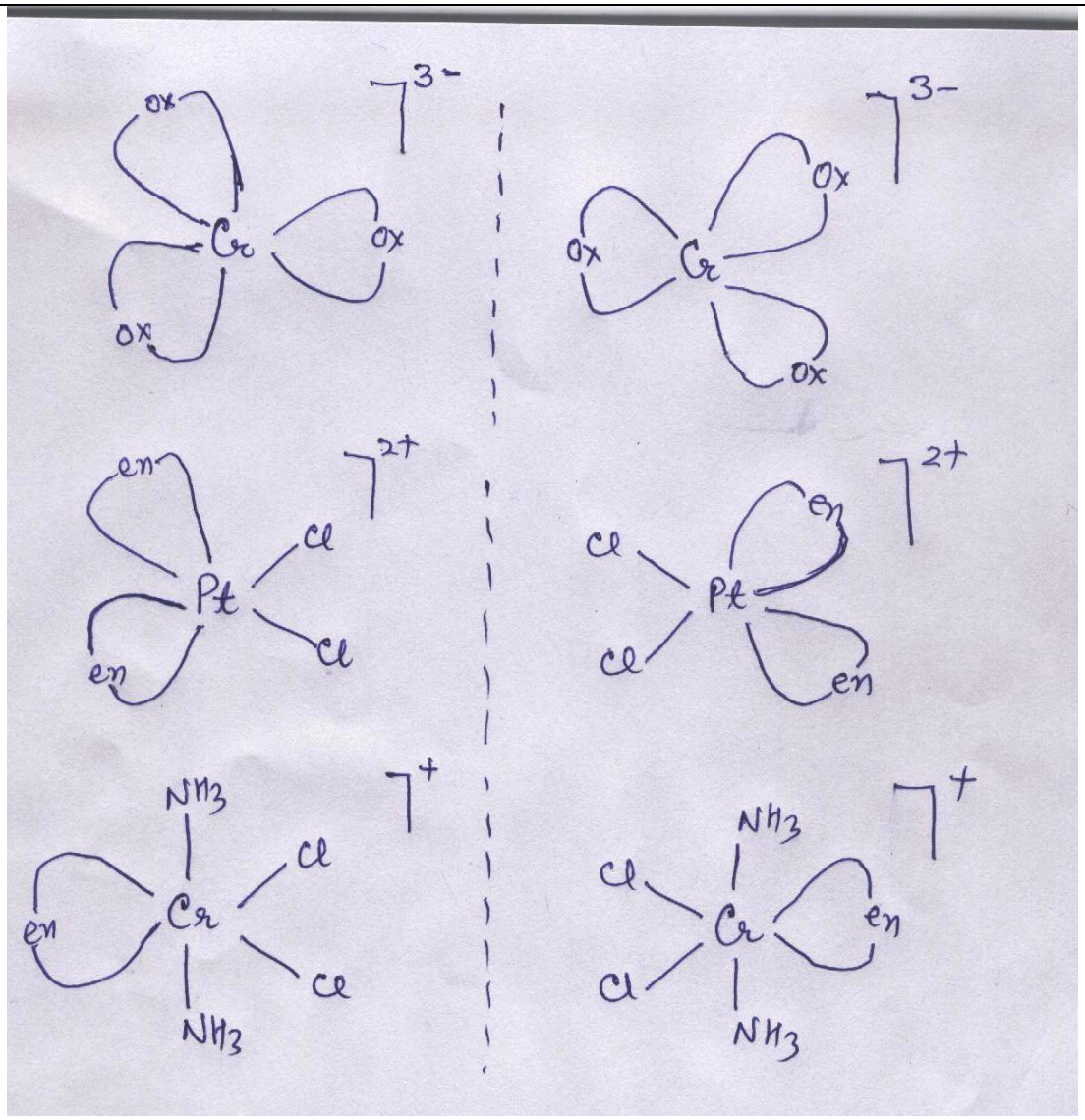
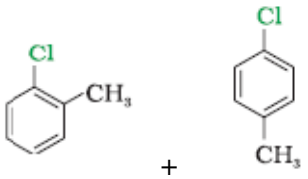
CHEMISTRY MARKING SCHEME
DELHI -2014
SET -56/1/1

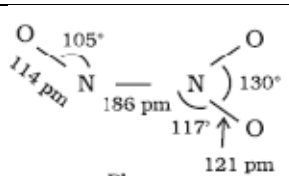
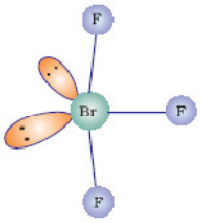
Qn	Answers	Marks
1	2	1
2	Lyophillic sol are liquid loving and lyophobic are liquid hating (or any other suitable difference)	1
3		1
4	SiO_2 removes impurtiy FeS, FeO in the form of slag.	1
5	Due to incomplete filling of d-orbitls	1
6	CH_3CH (Br) CH_2 CH_2 CH_3	1
7	2-methylpropanal	1
8	CH_3 NH_2	1
9	Vapour pressure of a solvent decreases This is due to fraction of surface area gets covered by non-volatile solute particles.	1 1
10	a) IIIrd Order b) s^{-1}/ min^{-1}/ $time^{-1}$	1 1
11	a) In roasting, ore is heated in a regular supply of air. b) In calcination, ore is heated in the absence or limited supply of air.	1 1
12	i)  ii) $[PCl_4]^+$ $[PCl_6]^-$	1 1

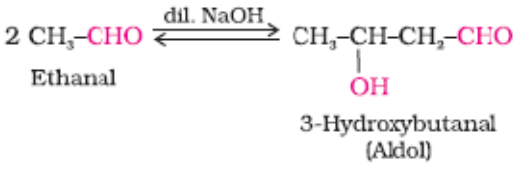
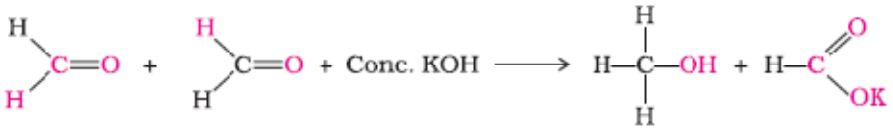
13	i)	Due to strong metallic bonding / due to involvement of greater number of electrons from (n-1)d and ns electrons in the interatomic metallic bonding	1
	ii)	Due to stability of d^0, d^3 and d^5 orbitals	1
		OR	
13	i)	The successive decrease in the size of atoms due to filling of inner orbitals in elements of atomic numbers 57 to 71 (in lanthanoid series) is called lanthanoid contraction	1
	ii)	It causes the radii (atomic sizes) of the third transition series to be very similar to those of the corresponding members of the second series.	1
14	i)	Because of the ability of oxygen to form multiple bonding with metal.	1
	ii)	Due to increase in stability of their lower oxidation states	1
15	i)	$R\text{–}X + R'\text{–}\ddot{O}\,Na \longrightarrow R\text{–}\ddot{O}\text{–}R' + Na\,X$	1
	ii)	 2-Hydroxybenzoic acid (Salicylic acid)	1
16	i)	$CH_3\text{-}CH{=}CH_2 \xrightarrow{H2O/H^+} CH_3\text{-}CH(OH)\text{-}CH_3$	1
	ii)	$CH_3\text{-}CH_2\text{-}Cl \xrightarrow{aq.NaOH} CH_3\text{-}CH_2OH \xrightarrow[CrO_3/PCC]{[O]} CH_3\text{-}CHO$ (or any other suitable method)	1
17	i)	Because deficiency of vitamin A causes night blindness whereas deficiency of vitamin C causes scurvy.	½ +½
	ii)	Nucleotide – base + sugar + phosphate whereas nucleoside is combiation of base and sugar.	1
18	Glucose does not form the hydrogensulphite addition product with NaHSO3. The pentaacetate of glucose does not react with hydroxylamine indicating the absence of free —CHO group.		1 1
19	Mass per unit cell = $\frac{63.55\text{g mol}^{-1}}{6.023x10^{23}mol^{-1}}$ x 4 = $4.22x10^{-22}$g Volume of unit cell = $\frac{mass}{density}$ = $4.22x10^{-22}$g / 8.95g cm^{-3} = $4.71x10^{-23}$ cm^3 Edge = $(volume)^{1/3}$ = ($4.71x10^{-23}$ cm^3)$^{1/3}$ = $3.61x10^{-8}$ cm = 361 pm r= $\frac{a}{2\sqrt{2}}$ = $\frac{361\,pm}{2x1.41}$ = 128 pm		½ ½ 1 ½ ½

20	m $HOCH_2CH_2OH = \frac{\Delta T_f}{K_f} = \frac{15.0^0C}{1.86\ \ ^0C/m} = 8.06m$ $\Delta T_b = K_b$ m $HOCH_2CH_2OH = (0.52^0C/m)(8.06m) = 4.19^0C$ $T_b = 100.00^0C + 4.19^0C$ $= 104.19^0C$	1 1 1
21	i) $k = \frac{2.303}{t} \log \frac{[R]_0}{[R]}$ $\text{Log } \frac{100}{85} = -(1.06x10^{-3})\ \text{min}^{-1}\ \frac{t}{2.303}$ $t = \frac{0.1635}{1.06x10^{-3}\ min^{-1}} = 153$ min ii) $\text{Log } \frac{100}{15} = -(1.06x10^{-3})\ \text{min}^{-1}\ \frac{t}{2.303}$ $t = \frac{0.824x2.303}{1.06x10^{-3}min^{-1}}$ t = 1790 min	½ ½ ½ 1 ½
22	a) The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption. b) Peptization may be defined as the process of converting a precipitate into colloidal sol by shaking it with dispersion medium in the presence of a small amount of electrolyte. c) Sol is solid dispersed in liquid medium	1 1 1
23	i) Pentaamminechloridocobalt (III) chloride ii) Potassium hexacyanidoferate (III) iii) Tetrachloridonickelate (II)	1 1 1
	OR	

23		1 1 1
24	a) i) CH_3I ii) CH_3Cl b) i) CH_3CN ii) 	½+ ½ 1 ½ +½
25	i) Because of salt formation by $-NH_2$ group with anhyd. $AlCl_3$ ii) Because of hydrogen bonding of ethylamine with H_2O whereas aniline does not form hydrogen bond with H_2O.	1 1

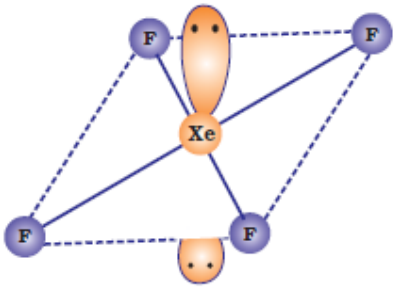
	iii)	Because of electron donating CH_3 group, electron density on 'N' increases whereas in aniline electron desnity on 'N' decreases due to resonance.	1
26	i)	Ethene	1
	ii)	Vinyl chloride	1
	iii)	Phenol & formaldehyde	1
27	i)	Disinfectants are the chemicals applied to inanimate objects which either kill or prevent the growth of microorganisms. For example: 1 per cent solution of phenol (or any other suitable example)	½+½
	ii)	Antacides are the drugs which neutralise acid in the stomach. For example: sodium hydrogencarbonate. (or any other suitable example)	½+½
	iii)	Food preservatives prevent spoilage of food due to microbial growth. For example: table salt (or any other suitable example)	½+½
28	a)	Conductivity of solution is inverse of resistivity ^{k} = G l/A	1
		Limiting molar conductivity – when concentration approches zero the conductivity is known as limiting molar conductivity	1
	b)	Specific conductance = $\frac{1}{R}$ x cell constant	½
		= $\frac{1}{100\Omega}$ x 1.25 cm^{-1}	½
		= $1.244 \times 10^{-3}\Omega^{-1}cm^{-1}$	1
		$\Lambda m = \frac{k}{c} = \frac{1.244x10^{-3}\Omega^{-1}cm^{-1}}{c}$	1
		OR	
28	a)	i) At cathode : $Ag^+ + e^- \rightarrow Ag$	½
		At Anode : $2H_2O \rightarrow O_2 + 4H^+ + 4e^-$	½
		ii)At cathode : $H_2O + e^- \rightarrow ½\ H_2 + OH^-$	½
		At Anode : $2H_2O \rightarrow O_2 + 4H^+ + 4e^-$	½
	b)	n=4	½

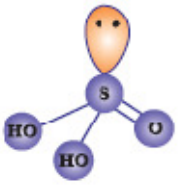
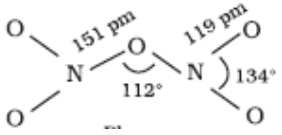
	ΔG = -nFE^0 -960 kJ =-4 x 96500JxE^0 E^0=$\frac{960000J}{4x96500J}$ = 2.48V≈2.5V	½ 1 ½ ½
29	a) i) $P_4 + 3NaOH + 3H_2O \rightarrow PH_3 + 3NaH_2PO_2$ ii) $XeF_4 + O_2F_2 \rightarrow XeF_6 + O_2$ b) i) Because of increase in electrongativity from Phorphorous to Chlorine ii) Because of decrease in oxidation state of Chlorine from $HClO_4$ to HClO. iii) Because in vapour form, sulphur exists as S_2 molecules and contains unpaired electrons.	1 1 1 1 1
	OR	
29	a) i)  ii)  b) i) SbH_3 <AsH_3<PH_3<NH_3 ii) Te<Se<O<S iii) I_2<Br_2<F_2<Cl_2	1 1 1 1 1

30	a) i) 	1
	ii) 	1
	b) i) On heating with NaOH +I_2, ethanal forms yellow ppt of iodoform whereas propanal does not.	1
	ii) Acetophenone- On heating with NaOH +I_2, forms yellow ppt of iodoform whereas Benzaldehyde does not (or any other test)	1
	iii)As there is a misprint in the question, award 1 mark for any attempt.	1
	OR	
30	a) i) $CH_3COCH_2CH(Cl)CH_3$	1
	ii)$CH_3CH=CH-CHO$	1
	b) i) $CH_2(Br)COOH$	1
	ii) CH_3CH_2OH	1
	iii)$CH_3CH_2CH_3$	1

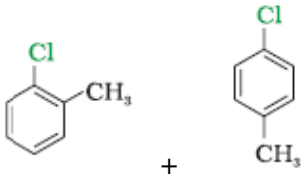
Sr. No.	Name		Sr. No.	Name	
1	Dr. (Mrs.) Sangeeta Bhatia		4	Sh. S.K. Munjal	
2	Dr. K.N. Uppadhya		5	Sh. Rakesh Dhawan	
3	Sh. D.A. Mishra		6	Ms. Garima Bhutani	

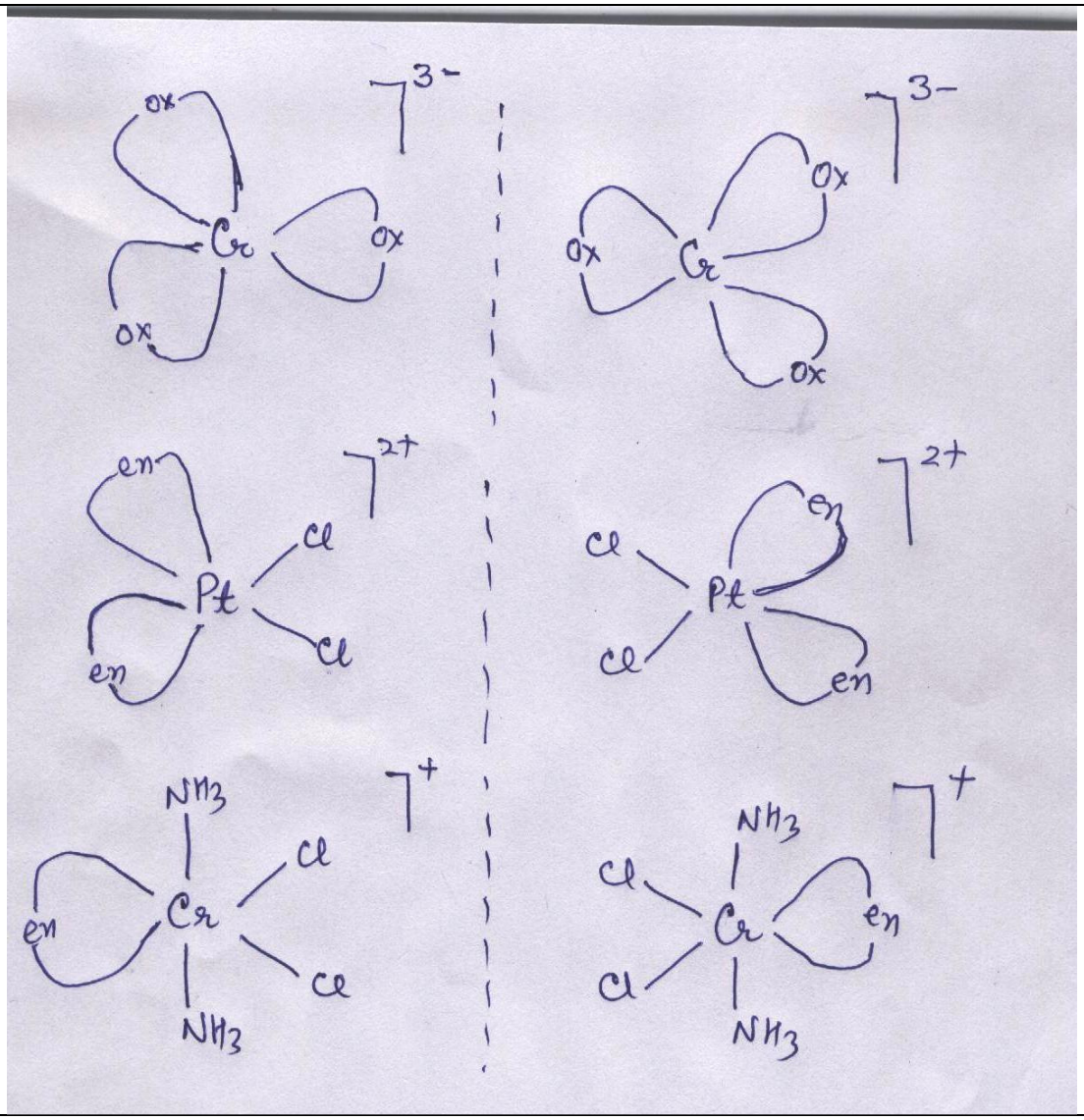
CHEMISTRY MARKING SCHEME
DELHI -2014
SET -56/1/2

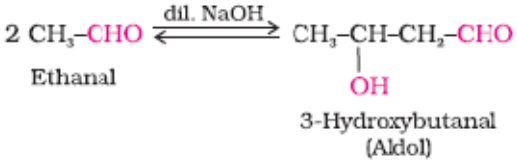
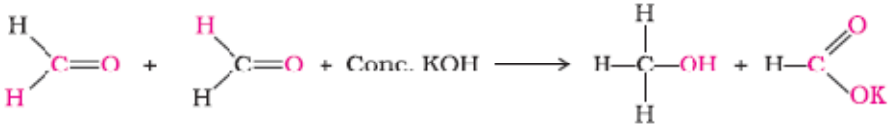
Qn	Answers	Marks
1	Schottky defect	1
2	Emulsions are liquid dispersed in liquid medium	1
3		1
4	The aluminate in solution is neutralized by CO_2 gas and hydrated Al_2O_3 is precipitated	1
5	H_3C-CH(Br)-CH_2-CH_2-CH_3	1
6	Due to incomplete filling of d-orbitls	1
7	CH_3 NH_2	1
8	2-methylpropanal	1
9	Molality - It is defined as the number of moles of the solute per kg of the solvent. *Molarity*: Molarity (*M*) is defined as number of moles of solute dissolved in one litre (or one cubic decimetre) of solution By converting weight of solvent into volume of solution using density	1 1
10	a) IIIrd Order b) s^{-1}/ min^{-1}/ $time^{-1}$	1 1
11	i) In froth floatation, sulphide ore is wetted by oil and gangue particles by water ii) Vapour phase refining – in this metal is converted into its volatile compound which is then decomposed to give pure metal	1 1

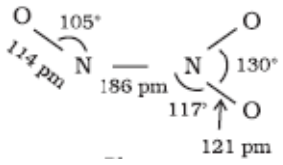
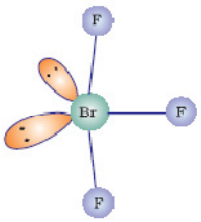
12	i)		1
	ii)		1
13	i)	Due to strong metallic bonding / due to involvement of greater number of electrons from (n-1)d and ns electrons in the interatomic metallic bonding	1
	ii)	Due to stability of d^0, d^3 and d^5 orbitals	1
		OR	
13	i)	The successive decrease in the size of atoms due to filling of inner orbitals in elements of atomic numbers 57 to 71 (in lanthanoid series) is called lanthanoid contraction	1
	ii)	It causes the radii (atomic sizes) of the third transition series to be very similar to those of the corresponding members of the second series.	1
14	i)	Because of the presence of unpaired electrons in d-orbital	1
	ii)	Because energy released in the formation of bond between Co(III) and ligand is more than the energy required for the conversion of Co(II) to Co(III).	1
15	Glucose does not form the hydrogensulphite addition product with NaHSO3. The pentaacetate of glucose does not react with hydroxylamine indicating the absence of free —CHO group.		1 1
16	i)		1
	ii)		1
17	i)	Because deficiency of vitamin A causes night blindness whereas deficiency of vitamin C causes scurvy.	½ +½
	ii)	Nucleotide – base + sugar + phosphate whereas nucleoside is combiation of base and sugar.	1
18	i)	$CH_3\text{-}CH{=}CH_2 \xrightarrow{H2O/H^+} CH_3\text{-}CH(OH)\text{-}CH_3$	1

	ii)	$CH_3\text{-}CH_2\text{-}Cl \xrightarrow{aq.NaOH} CH_3\text{-}CH_2OH \xrightarrow[CrO_3/PCC]{[O]} CH_3\text{-}CHO$ (or any other suitable method)	1
19	i)	$k = \frac{2.303}{t} \log \frac{[R]_0}{[R]}$ $\text{Log } \frac{100}{85} = -(1.06\text{x}10^{-3})\ \text{min}^{-1}\ \frac{t}{2.303}$ $t = \frac{0.1635}{1.06x10^{-3}\ min^{-1}} = 153\ \text{min}$	½ ½ ½
	ii)	$\text{Log } \frac{100}{15} = -(1.06\text{x}10^{-3})\ \text{min}^{-1}\ \frac{t}{2.303}$ $t = \frac{0.824x2.303}{1.06x10^{-3}min^{-1}}$ $t = 1790\ \text{min}$	1 ½
20		$\text{m } HOCH_2CH_2OH = \frac{\Delta T_f}{K_f} = \frac{15.0^0C}{1.86\ \ ^0C/m} = 8.06m$ $\Delta T_b = K_b\ \text{m } HOCH_2CH_2OH = (0.52^0C/m)\ (8.06m) = 4.19^0C$ $T_b = 100.00^0C + 4.19^0C$ $= 104.19^0C$	1 1 1
21		$\text{Mass per unit cell} = \frac{63.55g\ mol^{-1}}{6.023x10^{23}mol^{-1}} \text{ x } 4 = 4.22\text{x}10^{-22}g$ $\text{Volume of unit cell} = \frac{mass}{density} = 4.22\text{x}10^{-22}g / 8.95g\ cm^{-3} = 4.71\text{x}10^{-23}\ cm^3$ $\text{Edge} = (\text{volume})^{1/3} = (4.71\text{x}10^{-23}\ cm^3)^{1/3}$ $= 3.61\text{x}10^{-8}\ cm \quad = 361\ pm$ $r = \frac{a}{2\sqrt{2}}$ $= \frac{361\ pm}{2x1.41} = 128\ pm$	½ ½ 1 ½ ½
22	i)	Sorption- the process in which adsorption and absorption are taking place simultaneously	1
	ii)	Tyndall effect- scattering of light by the colloidal particles due to which the path of light becomes visible	1
	iii)	Electrophoresis- the process of movement of colloidal particles towards the oppositively charged electrodes when current is passsed through it.	1
23	i)	Because of salt formation by $-NH_2$ group with anhyd. $AlCl_3$	1
	ii)	Because of hydrogen bonding of ethylamine with H_2O whereas aniline does not form hydrogen bond with H_2O.	1

	iii) Because of electron donating CH_3 group, electron density on 'N' increases whereas in aniline electron desnity on 'N' decreases due to resonance.	1
24	a) i) CH_3I ii) CH_3Cl b) i) CH_3CN ii) 	½+ ½ 1 ½ +½
25	i) Pentaamminechloridocobalt (III) chloride ii) Potassium hexacyanidoferate (III) iii) Tetrachloridonickelate (II)	1 1 1
	OR	

25		1 1 1
26	a) Sweetening agents : the substances which when added to any matter gives sweet taste. For example : Sugar (or any other suitable example) b) Food preservatives : Food preservatives prevent spoilage of food due to microbial growth. For example : Table salt (or any other suitable example) c) Antibiotics which in low concentration inhibit the growth or destroy the micro organism For example : Chloramphenicol (or any other suitable example)	1 1 1
27	i) Chloroprene / 2-chloro-1,3-butadiene ii) Styrene iii) Propene	1 1 1

28	a) Conductivity of solution is inverse of resistivity ^{k} = G l/A Limiting molar conductivity – when concentration approches zero the conductivity is known as limiting molar conductivity b) Specific conductance = $\frac{1}{R}$ x cell constant = $\frac{1}{100\Omega}$ x 1.25 cm^{-1} = $1.244 \times 10^{-3} \Omega^{-1} cm^{-1}$ $\Lambda m = \frac{k}{c} = \frac{1.244x10^{-3}\Omega^{-1}cm^{-1}}{c}$	1 1 ½ ½ 1 1
	OR	
28	a) i) At cathode : $Ag^{+} + e^{-} \rightarrow Ag$ At Anode : $2H_2O \rightarrow O_2 + 4H^{+} + 4e^{-}$ ii)At cathode : $H_2O + e^{-} \rightarrow ½ H_2 + OH^{-}$ At Anode : $2H_2O \rightarrow O_2 + 4H^{+} + 4e^{-}$ b) n=4 ΔG = $-nFE^{0}$ -960 kJ =-4 x 96500JxE^{0} $E^{0} = \frac{960000J}{4x96500J}$ = 2.48V≈2.5V	½ ½ ½ ½ ½ ½ 1 ½ ½
29	a) i)  ii)  b) i) On heating with NaOH +I_2, ethanal forms yellow ppt of iodoform whereas propanal	1 1 1

	does not. ii) Acetophenone- On heating with NaOH +I_2, forms yellow ppt of iodoform whereas Benzaldehyde does not (or any other test) iii)As there is a misprint in the question, award 1 mark for any attempt.	1 1
	OR	
29	a) i) $CH_3COCH_2CH(Cl)CH_3$ ii)$CH_3CH=CH-CHO$ b) i) $CH_2(Br)COOH$ ii) CH_3CH_2OH iii)$CH_3CH_2CH_3$	1 1 1 1 1
30	a) i) $P_4 + 3NaOH + 3H_2O \rightarrow PH_3 + 3NaH_2PO_2$ ii) $XeF_4 + O_2F_2 \rightarrow XeF_6 + O_2$ b) i) Because of increase in electrongativity from Phorphorous to Chlorine ii) Because of decrease in oxidation state of Chlorine from $HClO_4$ to HClO. iii) Because in vapour form, sulphur exists as S_2 molecules and contains unpaired electrons.	1 1 1 1 1
	OR	
30	a) i)  ii)  	1 1

	b) i) $SbH_3 < AsH_3 < PH_3 < NH_3$	1
	ii) Te<Se<O<S	1
	iii) $I_2 < Br_2 < F_2 < Cl_2$	1

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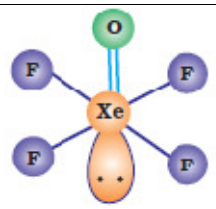
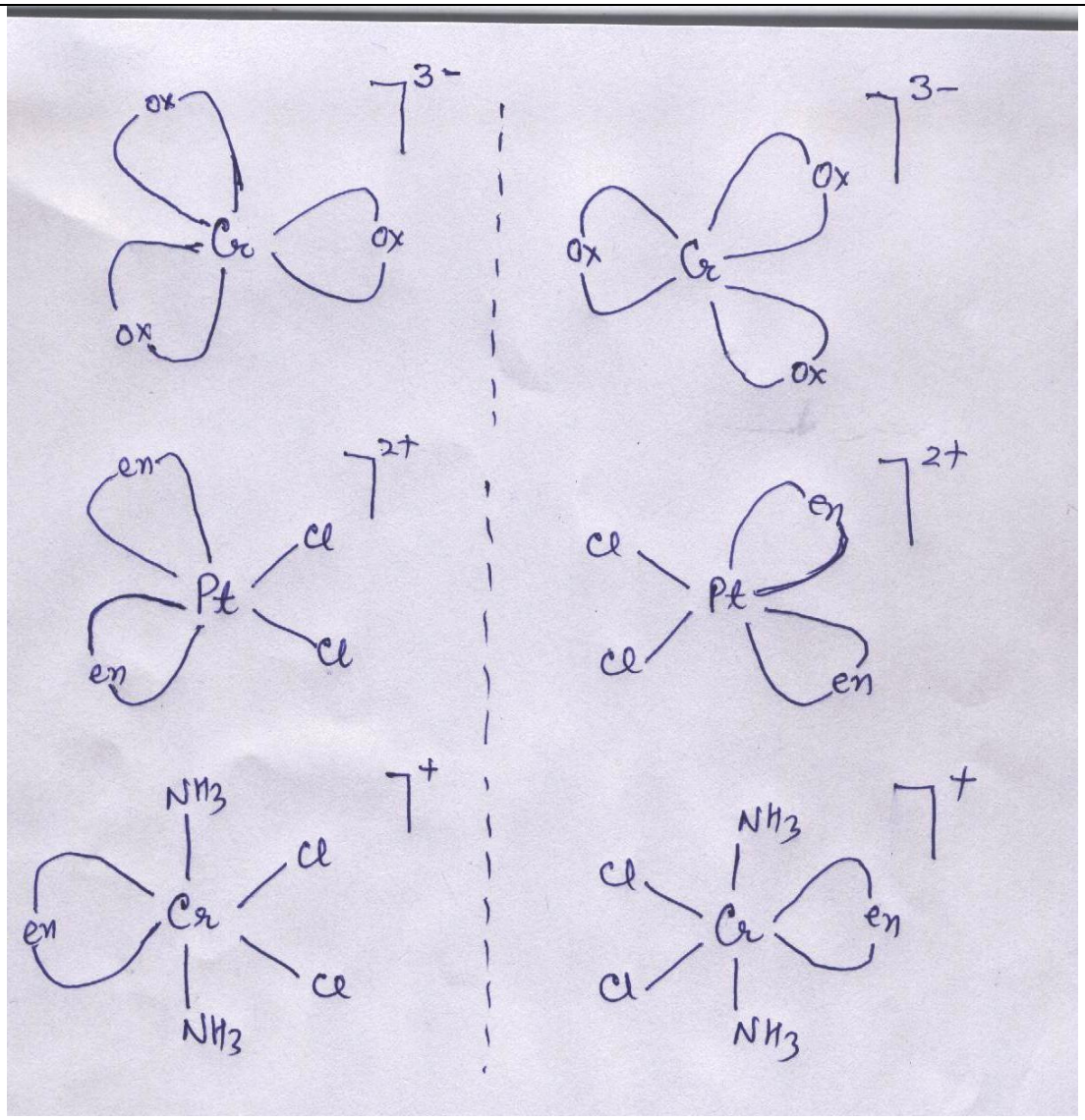
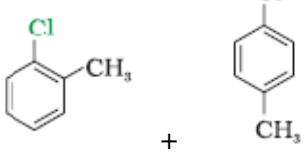
CHEMISTRY MARKING SCHEME
DELHI -2014
SET -56/1/3

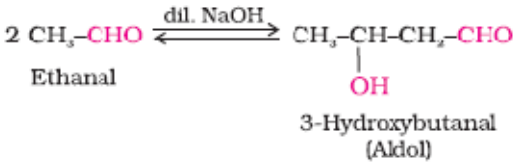
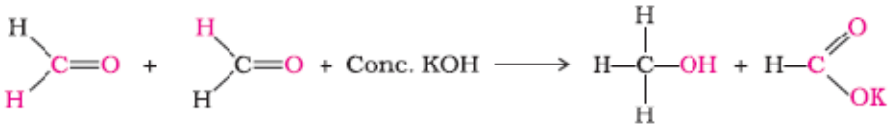
Qn	Answers	Marks
1	Conductance in metallic solid is through electrons whereas in ionic solid is through ions in molten state or aqueous state. (or any other)	1
2	Shape selective catalyst have specific pore size	1
3	It is used for leaching Al_2O_3 as sodium aluminates.	1
4		1
5	CH_3CH (Br) CH_2 CH_2 CH_3	1
6	Due to incomplete filling of d-orbitls	1
7	CH_3 NH_2	1
8	2-methylpropanal	1
9	Vapour pressure of a solvent decreases This is due to fraction of surface area gets covered by non-volatile solute particles.	1 1
10	a) Rate constant : is defined as rate of a reaction when concentration of reactants becomes unity. b) The energy required to form an intermediate, called as activated complex, is known as energy of activation.	1 1
11	i) In zone refining, impurities are more soluble in melt than in solid state of the metal ii) Vapour phase refining – in this metal is converted into its volatile compound which is then decomposed to give pure metal	1 1
12	a) $PCl_5 \xrightarrow{heat} PCl_3 + Cl_2$ b) $NaHCO_3 + HCl \longrightarrow NaCl + H_2O + CO_2$	1 1

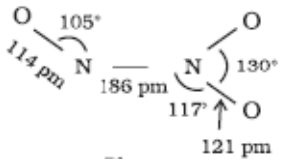
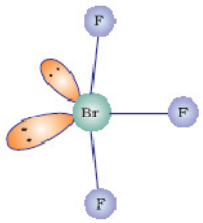
13	i)	Due to strong metallic bonding / due to involvement of greater number of electrons from (n-1)d and ns electrons in the interatomic metallic bonding	1
	ii)	Due to stability of d^0, d^3 and d^5 orbitals	1
		OR	
13	i)	The successive decrease in the size of atoms due to filling of inner orbitals in elements of atomic numbers 57 to 71 (in lanthanoid series) is called lanthanoid contraction	1
	ii)	It causes the radii (atomic sizes) of the third transition series to be very similar to those of the corresponding members of the second series.	1
14	a)	Oxidation states first increases from Sc to Mn and then decreases.	1
	b)	Oxometal ion formation tendency increases from V to Mn and then decreases.	1
15	i)	$CH_3\text{-}CH{=}CH_2 \xrightarrow{H2O/H^+} CH_3\text{-}CH(OH)\text{-}CH_3$	1
	ii)	$CH_3\text{-}CH_2\text{-}Cl \xrightarrow{aq.NaOH} CH_3\text{-}CH_2OH \xrightarrow[CrO_{3/PCC}]{[O]} CH_3\text{-}CHO$ (or any other suitable method)	1
16	i)	$R\text{–}X + R'\text{–}\ddot{O}\,Na \longrightarrow R\text{–}\ddot{O}\text{–}R' + Na\,X$	1
	ii)	 2-Hydroxybenzoic acid (Salicylic acid)	1
17		Glucose does not form the hydrogensulphite addition product with NaHSO3. The pentaacetate of glucose does not react with hydroxylamine indicating the absence of free —CHO group.	1 1
18	i)	Because deficiency of vitamin A causes night blindness whereas deficiency of vitamin C causes scurvy.	½ +½
	ii)	Nucleotide – base + sugar + phosphate whereas nucleoside is combiation of base and sugar.	1
19		$N_A = \frac{Z \times M}{a^3 \times d}$ $= \frac{2 \times 56 g\,mol^{-1}}{(2.866\times10^{-8})^3 cm^3 \times 7.874 g\,cm^{-3}}$ $= 6.04\times10^{23}\ mol^{-1}$ Or 286.65×10^{-10}cm = 2.866×10^{-8}cm Mass of Fe atom = $(2.866\times10^{-8}cm)^3 \times 7.874 g\ cm^{-3} \times 1/2 = 23.54\times10^{-24} \times 3.94\ g = 92.59 \times 10^{-24}\ g$	1 1 1 1½

	N_A= 56g mol^{-1}/92.59x10^{-24}g = 6.04x10^{23} mol^{-1}	1½
20	i) $k = \frac{2.303}{t} \log \frac{[R]_0}{[R]}$ $\text{Log } \frac{100}{85} = -(1.06x10^{-3})\ min^{-1}\ \frac{t}{2.303}$ $t = \frac{0.1635}{1.06x10^{-3}\ min^{-1}}$ = 153 min ii) $\text{Log } \frac{100}{15} = -(1.06x10^{-3})\ min^{-1}\ \frac{t}{2.303}$ $t = \frac{0.824x2.303}{1.06x10^{-3}min^{-1}}$ t = 1790 min	½ ½ ½ 1 ½
21	m $HOCH_2CH_2OH = \frac{\Delta T_f}{K_f} = \frac{15.0^0C}{1.86\ \ ^0C/m}$ = 8.06m $\Delta T_b = K_b$ m $HOCH_2CH_2OH$ = (0.52^0C/m) (8.06m) = 4.19^0C $T_b = 100.00^0C + 4.19^0C$ $=104.19^0C$	1 1 1
22	i) Pentaamminechloridocobalt (III) chloride ii) Potassium hexacyanidoferate (III) iii) Tetrachloridonickelate (II)	1 1 1
	OR	

22		1 1 1
23	a) The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption. b) Peptization may be defined as the process of converting a precipitate into colloidal sol by shaking it with dispersion medium in the presence of a small amount of electrolyte. c) Sol is solid dispersed in liquid medium	1 1 1
24	i) Because of salt formation by -NH_2 group with anhyd. $AlCl_3$ ii) Because of hydrogen bonding of ethylamine with H_2O whereas aniline does not form hydrogen bond with H_2O. iii) Because of electron donating CH_3 group, electron density on 'N' increases whereas in	1 1 1

	aniline electron desnity on 'N' decreases due to resonance.	
25	a) i) CH_3I ii) CH_3Cl b) i) CH_3CN ii) 	½+ ½ 1 ½ +½
26	Biodegradable detergents : unbranched hydrocarbon chain which can be easily degraded by bacteria. For example: Sodium lauryl sulphate (or any other suitable example) Non- Biodegradable detergents : highly branched hydrocarbon chain which can not be degraded by bacteria. For example: Sodium-4-(1,3,5,7-tetramethyl octyl) benzene sulphonate (or any other suitable example)	1+½ 1+½
27	a) Tetrafluoroethene b) Phenol & formaldehyde c) Chloroprene / 2-chloro-1,3-butadiene	1 1 1
28	a) Conductivity of solution is inverse of resistivity ^{k} = G l/A Limiting molar conductivity – when concentration approches zero the conductivity is known as limiting molar conductivity b) Specific conductance = $\frac{1}{R}$ x cell constant = $\frac{1}{100\Omega}$ x 1.25 cm^{-1} = $1.244x10^{-3}\Omega^{-1}cm^{-1}$ $\Lambda m = \frac{k}{c} = \frac{1.244x10^{-3}\Omega^{-1}cm^{-1}}{c}$	1 1 ½ ½ 1 1
	OR	
28	a) i) At cathode : $Ag^+ + e^- \rightarrow Ag$ At Anode : $2H_2O \rightarrow O_2 + 4H^+ + 4e^-$	½ ½

	ii)At cathode : $H_2O + e^- \rightarrow ½\ H_2 + OH^-$ At Anode : $2H_2O \rightarrow O_2 + 4H^+ + 4e^-$ b) n=4 $\Delta G = -nFE^0$ -960 kJ =-4 x 96500JxE^0 $E^0 = \frac{960000J}{4x96500J}$ = 2.48V≈2.5V	½ ½ ½ ½ 1 ½ ½
29	a) i)  ii)  b) i) On heating with NaOH +I_2, ethanal forms yellow ppt of iodoform whereas propanal does not. ii) Acetophenone- On heating with NaOH +I_2, forms yellow ppt of iodoform whereas Benzaldehyde does not (or any other test) iii)As there is a misprint in the question, award 1 mark for any attempt.	1 1 1 1 1
	OR	
29	a) i) $CH_3COCH_2CH(Cl)CH_3$ ii)$CH_3CH=CH-CHO$ b) i) $CH_2(Br)COOH$ ii) CH_3CH_2OH iii)$CH_3CH_2CH_3$	1 1 1 1 1

30	a) i) $P_4 + 3NaOH + 3H_2O \rightarrow PH_3 + 3NaH_2PO_2$ ii) $XeF_4 + O_2F_2 \rightarrow XeF_6 + O_2$ b) i) Because of increase in electrongativity from Phorphorous to Chlorine ii) Because of decrease in oxidation state of Chlorine from $HClO_4$ to HClO. iii) Because in vapour form, sulphur exists as S_2 molecules and contains unpaired electrons.	1 1 1 1 1
	OR	
30	a) i)  ii)  b) i) $SbH_3 < AsH_3 < PH_3 < NH_3$ ii) Te<Se<O<S iii) $I_2 < Br_2 < F_2 < Cl_2$	1 1 1 1 1

Sr. No.	Name		Sr. No.	Name	
1	Dr. (Mrs.) Sangeeta Bhatia		4	Sh. S.K. Munjal	
2	Dr. K.N. Uppadhya		5	Sh. Rakesh Dhawan	
3	Sh. D.A. Mishra		6	Ms. Garima Bhutani	