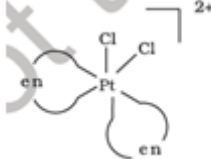
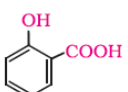
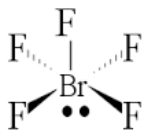
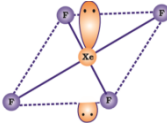


Chemistry Marking scheme
Delhi - 2016
Set – 56/1/2/D

Q.No	VALUE POINTS	MARKS
1	2,4,6-Tribromoaniline / 2,4,6-Tribromobenzenamine	1
2	Like Charged particles cause repulsion/ Brownian motion/ solvation	1
3	CH ₃ CH ₂ CH(Cl)CH ₃ ; secondary halide/ 2 ^o carbocation is more stable	½, ½
4	NH ₃	1
5	Ferromagnetism	1
6	(i) zero order , bimolecular/ unimolecular (ii) mol L ⁻¹ s ⁻¹	½, ½ 1
7	<p>(i) $\text{CH}_3\text{-CH}_2\text{-}\ddot{\text{O}}\text{-H} + \text{H}^+ \rightarrow \text{CH}_3\text{-CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-H}$</p> <p>(ii) $\text{CH}_3\text{CH}_2\text{-}\ddot{\text{O}}\text{:} + \text{CH}_3\text{-CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-H} \rightarrow \text{CH}_3\text{CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-CH}_2\text{CH}_3 + \text{H}_2\text{O}$</p> <p>(iii) $\text{CH}_3\text{CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-CH}_2\text{CH}_3 \rightarrow \text{CH}_3\text{CH}_2\text{-O-CH}_2\text{CH}_3 + \text{H}^+$</p>	½ 1 ½
8	(i) Mercury cell (ii) Fuel cell (iii) Lead storage battery (iv) Dry cell	½ ½ ½ ½
9	A-Na ₂ CrO ₄ B-Na ₂ Cr ₂ O ₇ C-K ₂ Cr ₂ O ₇ Use- strong oxidising agent / as a primary standard in volumetric analysis	½ ½ ½ ½
OR		
9	$8\text{MnO}_4^- + 3\text{S}_2\text{O}_3^{2-} + \text{H}_2\text{O} \rightarrow 8\text{MnO}_2 + 6\text{SO}_4^{2-} + 2\text{OH}^-$	1
	$\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 3\text{Sn}^{2+} \rightarrow 2\text{Cr}^{3+} + 3\text{Sn}^{4+} + 7\text{H}_2\text{O}$	1

10	(i) [Cr(H ₂ O) ₅ Cl]Cl ₂ .H ₂ O (ii) pentaaquachloridoChromium(III) chloride monohydrate (or chloride hydrate) (no deduction for not writing hydrate)	1 1						
11	(i) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Adsorption</th> <th style="text-align: center;">Absorption</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Surface phenomena</td> <td style="text-align: center;">Bulk phenomena</td> </tr> <tr> <td>The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption.</td> <td>The substance is uniformly distributed throughout the bulk of the solid essentially a bulk phenomenon. (any one difference)</td> </tr> </tbody> </table>	Adsorption	Absorption	Surface phenomena	Bulk phenomena	The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption.	The substance is uniformly distributed throughout the bulk of the solid essentially a bulk phenomenon. (any one difference)	1
Adsorption	Absorption							
Surface phenomena	Bulk phenomena							
The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption.	The substance is uniformly distributed throughout the bulk of the solid essentially a bulk phenomenon. (any one difference)							

	c. Buna-S<polystyrene<Terylene	1
	OR	
17	<p>Chain initiation steps</p> $\text{C}_6\text{H}_5-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{C}_6\text{H}_5 \longrightarrow 2\text{C}_6\text{H}_5-\overset{\text{O}}{\parallel}{\text{C}}-\dot{\text{O}} \longrightarrow 2\dot{\text{C}}_6\text{H}_5$ <p style="text-align: center;">Benzoyl peroxide Phenyl radical</p> $\dot{\text{C}}_6\text{H}_5 + \text{CH}_2=\text{CH}_2 \longrightarrow \text{C}_6\text{H}_5-\text{CH}_2-\dot{\text{C}}\text{H}_2$ <p>Chain propagating step</p> $\text{C}_6\text{H}_5-\text{CH}_2-\dot{\text{C}}\text{H}_2 + \text{CH}_2=\text{CH}_2 \longrightarrow \text{C}_6\text{H}_5-\text{CH}_2-\text{CH}_2-\text{CH}_2-\dot{\text{C}}\text{H}_2$ \downarrow $\text{C}_6\text{H}_5-(\text{CH}_2-\text{CH}_2)_n\text{CH}_2-\dot{\text{C}}\text{H}_2$ <p>Chain terminating step</p> <p>For termination of the long chain, these free radicals can combine in different ways to form polythene. One mode of termination of chain is shown as under:</p> $\text{C}_6\text{H}_5-(\text{CH}_2-\text{CH}_2)_n\text{CH}_2-\dot{\text{C}}\text{H}_2 + \text{C}_6\text{H}_5-(\text{CH}_2-\text{CH}_2)_m\text{CH}_2-\dot{\text{C}}\text{H}_2 \longrightarrow \text{C}_6\text{H}_5-(\text{CH}_2-\text{CH}_2)_n\text{CH}_2-\text{CH}_2-\text{CH}_2-(\text{CH}_2-\text{CH}_2)_m\text{C}_6\text{H}_5$	1 1 1
18	(i) β-D glucose and β-D-galactose / glucose and galactose (ii) water soluble ,excreted out of the body (iii)In nucleotide , phosphoric acid/phosphate group attached to the nucleoside / structures of both nucleotide and nucleoside / nucleotide= base +sugar + phosphate group, nucleoside= base +sugar.	1/2 , 1/2 1 1
19	d^2sp^3 , Paramagnetic, low spin 	1, 1/2 , 1/2 1
20	(i) ability of oxygen to form multiple bond/ pπ-dπ bond. (ii) Partially filled d orbitals / due to comparable energies of ns and (n-1) d orbitals (iii) due to relative stabilities of the f^0 , f^7 and f^{14} occupancies of the 5f orbitals/ Comparable energies of 7s,6d,5f orbitals.	1 1 1
21	(i) CH_3OH , $(\text{CH}_3)_3\text{C-I}$ (ii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  (iii)	1 1 1
22	(i) $\text{C}_6\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{N}_2^+\text{Cl}^-$, $\text{C}_6\text{H}_5\text{I}$ (ii) CH_3CN , $\text{CH}_3\text{CH}_2\text{NH}_2$, $\text{CH}_3\text{CH}_2\text{NC}$	1/2 + 1/2 + 1/2 1/2 + 1/2 + 1/2
23	(i) Aware, concerned or any other correct two values. (ii) Side effects, unknown health problems (iii) Neurologically active drugs/ stress relievers Example- valium, equanil (or any other correct two example)	1/2 + 1/2 1 1 1/2 + 1/2
24	a) $\Delta T_f = i \frac{K_f w_b \times 1000}{M_b \times w_a}$ $\Delta T_f = 3 \times (1.86 \times 1.9/95 \times 50) \times 1000$ $= 2.23\text{K}$ $T_f - \Delta T_f = 273.15 - 2.23 / 273 - 2.23$	1 1

	$T_f = 270.92 \text{ K or } 270.77\text{K}$ b) i) 2M glucose ; More Number of particles / less vapour pressure ii) Reverse Osmosis	1 $\frac{1}{2} + \frac{1}{2}$ 1
	OR	
24	a) $\Delta T_f = \frac{K_f w_b \times 1000}{M_b \times w_a}$ $0.383 = (3.83 \times 2.56 / M \times 100) \times 1000$ $M = 256$ $S \times x = 256$ $32 \times x = 256$ $x = 8$ b) i) Shrinks ii) swells	1 1 1 1 1 1
25	a) i. Endothermic compound / decomposition of ozone is exothermic in nature and ΔG is negative / decomposition of ozone is spontaneous. ii. Exists as $[\text{PCl}_4]^+ [\text{PCl}_6]^-$ iii. Shows only -1 oxidation state / most electronegative element / absence of d-orbitals b) i)  ii) 	1 1 1 1,1
	OR	
25	(i) F_2 is the stronger oxidising agent than chlorine (a) low enthalpy of dissociation of F-F bond (b) less negative electron gain enthalpy of F (c) high hydration enthalpy of F ion ii) low temperature, high pressure and presence of catalyst iii) a) $\text{H}_3\text{PO}_4 < \text{H}_3\text{PO}_3 < \text{H}_3\text{PO}_2$ b) $\text{BiH}_3 < \text{SbH}_3 < \text{AsH}_3 < \text{PH}_3 < \text{NH}_3$	$\frac{1}{2} \times 4 = 2$ 1 1 1

26	A -C ₆ H ₅ COCH ₃ B-C ₆ H ₅ CH ₂ CH ₃ C-C ₆ H ₅ COOH D ,E -C ₆ H ₅ COONa , CHI ₃	1 1 1 1+1
OR		
26	a)HCHO + HCHO $\xrightarrow{\text{conc NaOH}}$ HCOONa +CH ₃ OH (or any other example) b)CH ₃ CH=N-NHCONH ₂ c) Stronger -I effect of fluorine ,stronger acid less p _k _a / strong electron withdrawing power of fluorine. d)CH ₃ CH=CHCH ₂ CHO e)Silver mirror formed on adding ammonical silver nitrate to propanal and not with propanone (or any other correct test)	1 1 1 1 1