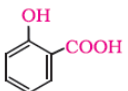
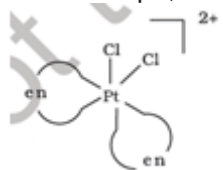
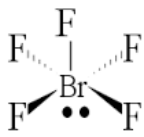
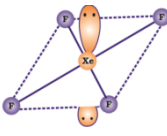


Chemistry Marking scheme
Delhi - 2016
Set – 56/1/1/D

Q.No	VALUE POINTS	MARKS
1	CH ₃ CH ₂ CH(Cl)CH ₃ ; secondary halide/ 2 ^o carbocation is more stable	½, ½
2	NH ₃	1
3	Ferromagnetism	1
4	2,4,6-Tribromoaniline / 2,4,6-Tribromobenzeneamine	1
5	Like Charged particles cause repulsion/ Brownian motion/ solvation	1
6	(i) Mercury cell (ii) Fuel cell (iii) Lead storage battery (iv) Dry cell	½ ½ ½ ½
7	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		
7	8MnO ₄ ⁻ + 3S ₂ O ₃ ²⁻ + H ₂ O → 8MnO ₂ + 6SO ₄ ²⁻ + 2OH ⁻	1
	Cr ₂ O ₇ ²⁻ + 14 H ⁺ + 3 Sn ²⁺ → 2 Cr ³⁺ + 3 Sn ⁴⁺ + 7 H ₂ O	1
8	(i) [Cr(H ₂ O) ₅ Cl]Cl ₂ .H ₂ O (ii) pentaquachloridoChromium(III) chloride monohydrate (or chloride hydrate) (no deduction for not writing hydrate)	1 1
9.	(i) zero order , bimolecular/ unimolecular (ii) mol L ⁻¹ s ⁻¹	½, ½ 1
10.	(i) $\text{CH}_3\text{-CH}_2\text{-}\ddot{\text{O}}\text{-H} + \text{H}^+ \rightarrow \text{CH}_3\text{-CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-H}$ (ii) $\text{CH}_3\text{CH}_2\text{-}\ddot{\text{O}}\text{-H} + \text{CH}_3\text{-CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-H} \rightarrow \text{CH}_3\text{CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-CH}_2\text{CH}_3 + \text{H}_2\text{O}$ (iii) $\text{CH}_3\text{CH}_2\text{-}\overset{\text{H}}{\overset{+}{\text{O}}}\text{-CH}_2\text{CH}_3 \rightarrow \text{CH}_3\text{CH}_2\text{-}\overset{\text{H}}{\text{O}}\text{-CH}_2\text{CH}_3 + \text{H}^+$	½ 1 ½
11.	(i) In chlorobenzene, each carbon atom is sp ² hybridised / resonating structures / partial double bond character. (ii) Due to +R effect in chlorobenzene/ difference in hybridization i.e. sp ² and sp ³ respectively/ -I and +R effect oppose each other while -I effect is the only contributing factor in cyclohexane. (iii) Due to formation of planar carbocation/ Carbon in carbocation formed is sp ² hybridised.	1 1 1
12.	2 x 10 ²⁴ atoms weigh = 300g	1

18.	(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
19.	(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 , $\text{CH}_3\text{CH}_2\text{NH}_2$, $\text{CH}_3\text{CH}_2\text{NC}$	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$
20.	a. Catalyst / initiator of free radical b. Hexamethylene diamine and adipic acid / structure / IUPAC name c. Buna-S < polystyrene < Terylene	1 $\frac{1}{2}$, $\frac{1}{2}$ 1
OR		
20	<p><i>Chain initiation steps</i></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><i>Chain propagating step</i></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 $\text{C}_6\text{H}_5 + \text{CH}_2-\text{CH}_2\text{CH}_2\text{CH}_2-\dot{\text{C}}\text{H}_2$ <p><i>Chain terminating step</i></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> $\text{C}_6\text{H}_5 + \text{CH}_2-\text{CH}_2\text{CH}_2\text{CH}_2-\dot{\text{C}}\text{H}_2 \longrightarrow \text{C}_6\text{H}_5 + \text{CH}_2-\text{CH}_2\text{CH}_2\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{CH}_2\text{C}_6\text{H}_5$	1 1 1
21.	(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.	$\frac{1}{2}$, $\frac{1}{2}$ 1 1
22.	d^2sp^3 , Paramagnetic, low spin 	1, $\frac{1}{2}$, $\frac{1}{2}$ 1
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)	$\frac{1}{2} + \frac{1}{2}$ 1 1 $\frac{1}{2} + \frac{1}{2}$
24	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	1 1 1

	b) i)  ii) 	1,1
	<u>OR</u>	
24	(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) H ₃ PO ₄ < H ₃ PO ₃ < H ₃ PO ₂ b) BiH ₃ < SbH ₃ < AsH ₃ < PH ₃ < NH ₃	½ × 4 = 2 1 1 1
25.	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
	<u>OR</u>	
25	a) $\text{HCHO} + \text{HCHO} \xrightarrow{\text{conc NaOH}} \text{HCOONa} + \text{CH}_3\text{OH}$ (or any other example) b) CH ₃ CH=N-NHCONH ₂ c) Stronger -I effect of fluorine ,stronger acid less pK _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
26.	a) $\Delta T_f = i \frac{K_f w_b \times 1000}{M_b \times w_a}$ $\Delta T_f = 3 \times (1.86 \times 1.9/95 \times 50) \times 1000$ $= 2.23\text{K}$ $T_f - \Delta T_f = 273.15 - 2.23 / 273 - 2.23$ $T_f = 270.92 \text{ K or } 270.77\text{K}$ b) i) 2M glucose ; More Number of particles / less vapour pressure ii) Reverse Osmosis	1 1 1 ½ + ½ 1
	<u>OR</u>	
26	a)	

$\Delta T_f = \frac{K_f w_b \times 1000}{M_b \times w_a}$	1
$0.383 = (3.83 \times 2.56 / M \times 100) \times 1000$	1
M=256	
S × x = 256	
32 × x = 256	
x=8	1
b)	
i) Shrinks	1
ii) swells	1

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		Mrs. Preeti Kiran	
Ms. Seema Bhatnagar		Sh. Mukesh Kaushik	
Sh. Pawan Singh Meena		Mr. Roop Narayan	
Sh. Praveen Kumar Agrawal		Ms. Garima Bhutani	