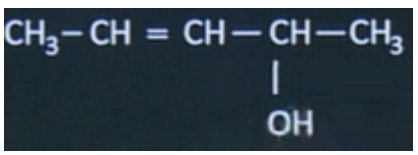
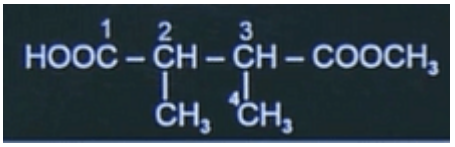
JEE Main 22 January 2025 Shift 1

Chemistry Question Paper with Answer Key

Q. No.	Question	Answers
1	For $[NiCL_4]^{2-}$ what is the charge on metal and shape of complex respectively?	+2, Tetrahedral
2	Compare boiling point of given solutions- (i) 10^{-4} NaCl (ii) 10^{-3} NaCl (iii) 10^{-2} NaCl (iv) 10^{-4} Urea	(iii)>(ii)>(i)>(iv)
3	The correct decreasing order of electronegativity is	F>Cl>Br>I
4	C_6H_6-NO_2 reacts with (i) Sn/HCl, (ii) $NaNO_2/H_4$, (iii) $CuCl/H_4$, and (iv) Na/dryether. Find the molecular weight of A.	154 gm/mole
5	Which of the following has the maximum size out of Al^{3+}, Mg^{2+}, F^-, Na^+?	F^-
6	How many compounds have linear shape SO_2, $BeCl_2$, N_3^-, I_3^-, NO^+_2, NO_2?	4
7	$CO_2(g) + C(s) \rightarrow 2CO(g)$ If initial pressure of CO_2 is 0.6 atm and after equilibrium is established, total pressure is 0.8 atm. Then, find K_p.	0.4 atm
8	Calculate Number of stereoisomers of 	4

9	Which of the following acids is also known as Vitamin C?	Ascorbic Acid
10	An electron of He^+ is present in 3rd excited state. Find its de-Broglie wavelength.	6.64λ
11	Which of the following lanthanide ion as $7e^-$ in the outermost shell?	Gd^{+3} or EU^{+2}
12	$4f^7$ configuration is possible for: (a) Eu^{3+}, (b) Eu^{2+}, (c) Gd^{3+}, (d) Tb^{3+}, (e) Sm^{2+}	(b) and (c)
13	Given: $NH_2COONH_4(s) \rightarrow 2NH_3(g) + CO_2(g)$ If the partial pressure of CO_2 gas at equilibrium is 0.4 atm and the total pressure is 1 atm, then the value of K_p at the same temperature is	0.144 atm^3
14	CO_2 gas is taken at 1 atm, 273K. Now it is allowed to pass through 0.1 M $Ca/(OH)_2$ aq. Solution. Excess amount of $Ca(OH)_2$ is neutralised with 40 mL of 0.1 M HCl. Then find volume of $Ca(OH)_2$ initial taken if half of the amount $Ca(OH)_2$ is reacted with CO_2.	40 mL
15	In a closed insulated container, a liquid is stirred with a paddle to increase the temperature, which of the following is true?	$\Delta E=w\neq 0, q=0$
16	Match the column and choose the correct option- (A) Electronegativity - (1) B<C<N<O (B) Cationic Size - (2)Li>Mg>Be (C) Metallic Character - (3) K>Mg>Al (D) Electron Affinity - (4) Cl<F<Br<I	A-1, B-2, C-3, D-4
17	In Carius method 180 mg of organic compound gives 143.5 mg of AgCl. Find the percentage of Cl in the organic compound. (Nearest integer)	20
18	Two ampere current is allowed to pass through molten $AlCl_3$ for 30 min. Find the mass of aluminium deposited in mg at cathode. (Nearest integer)	336 mg

19	IUPAC name of 	2-methyl-3-methoxycarbonyl butanoic acid
20	Compare splitting energy for (i) $K_4[Fe(CN)_6]$ (ii) $[Cu(NH_3)_4]^{+2}$ (iii) $K_4[Fe(SCN)_6]$ (iv) $[Fe(en)_3]Cl_3$	(ii)>(i)>(iv)>(iii)