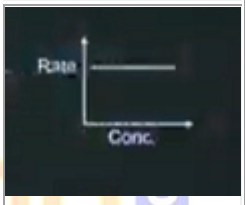
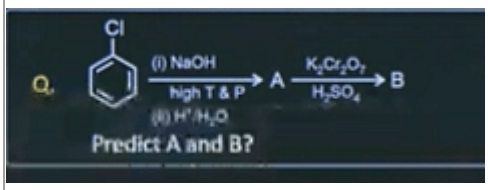
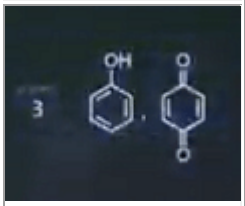
JEE MAIN 23 JANUARY 2025 SHIFT 2

CHEMISTRY QUESTION PAPER WITH ANSWER KEY

Q.No.	Questions	Answers
1.	The correct order of melting point of 14 group element is (K)	C> Si> Ge>Pb> Sn
2.	What will be effect on pH of water it is heated	Decrease
3.	α -helix protein and β- pleated sheet protein belong from which of the following structure?	Secondary
4.	Match the following List I with list II List-I (Alloys) / List-II (Metals) A. Bronze — (i) Fe, Cr, and Ni B Stainless steel — (ii) Cu and Sn C UK Gold Coin — (iii) Cu and Zn D Brass — (iv) Ag, Cu, Zn and Ni	A (ii) B (i) C (iv) D (iii)
5.	Which one of the following plots represents zero order reaction?	
6.	By using relation $\Delta G = \Delta H - T\Delta S$ Which one of the following is incorrect for spontaneous reaction at a given temperature	$\Delta H>0$ $\Delta S<0$
7.	Statement I: For a particular shell, maximum number of orbital is n^2 Statement II: For d-subshell, number of orientations lies between -1 to +1 including zero	S-I and S-II both are correct
8.	The total number of isomers possible (aldehyde & ketones) for C_4H_8O are	3
9.		
10.	Which of the following complex has a^{14} configuration	$[MnF_6]^{3-}$
11.	Consider the given following reaction $X_2Y(S)$ __ $X_2(g) + 1/2\ Y_2(g)$. If α is the degree of dissociation, Calculate Kp in terms of P total pressure	$Kp = 2P^{3/2}$ / $3^{3/2}$

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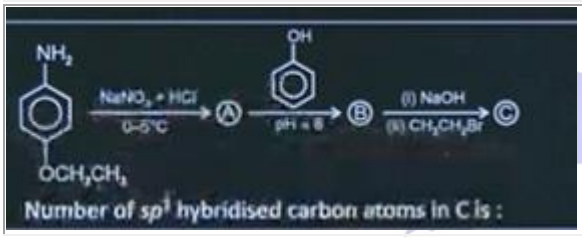
12.	When a non volatile solute (A) is added to a volatile solvent, the vapour pressure of solvent decreases by 10mm Hg. Mole fraction of solute is 0.2. If 2nd solute (B) is added to the same solution and vapour pressure of solution decreases by 20mm Hg. Calculate mole fraction of 2nnd solute in the final solution.	0.5
13.	Consider the following E^* values of given half cell $E^*_{Ag^+/Ag} = 0.8\ V,\ E^*_{Zn^{2+}/Zn} = -0.76\ V$ $E^*_{Cu^{2+}/Cu} = 0.34\ V,\ E^*_{Mg^{2+}/Mg} = -2.36\ V$ Then which of the following will have the most negative value of ΔG^*?	$Mg\|Mg^{2+}\|\|Ag^{2+}\|Ag$
14.	Q. A compound X consume two moles of H_2 and when 'X' heated with $KMnO_4/H^+$ gi $CH_3-C(CH_3)=O$, CH_3COOH, $CH_3-\overset{O}{\overset{\|}{C}}-CH_2-CH_2-COOH$ Number of σ bonds in X are____.	27
15.	 Number of sp^3 hybridised carbon atoms in C is :	4
16.	0.01 mole of an organic compound (Hydrocarbon) gives 1.76 gm CO_2 and 0.9 gm H_2O on complete combustion. Find out the chemical formulae of the compound.	0.04
17.	Match the following Reactant / Product (A) (I) (B) (II) (C) (III) (D) (IV) Give correct product of oxidative ozonolysis (O_3/H_2O)	A i B ii C iii D iv
18.	Arrange the following compounds in the decreasing order of rate of hydro (I) (II) (III) (IV)	III> IV> I> II