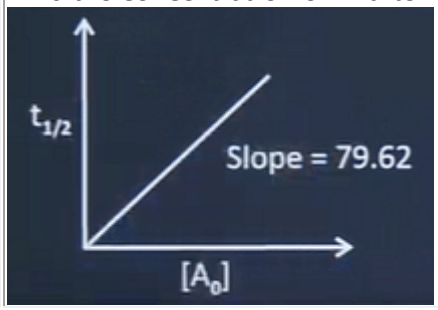
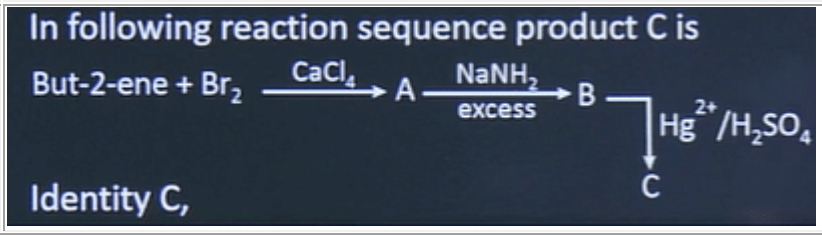
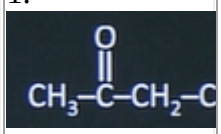
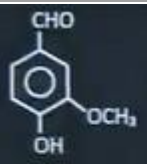
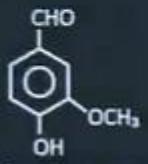
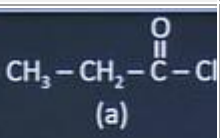
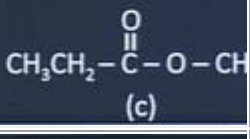
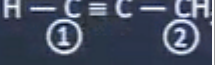
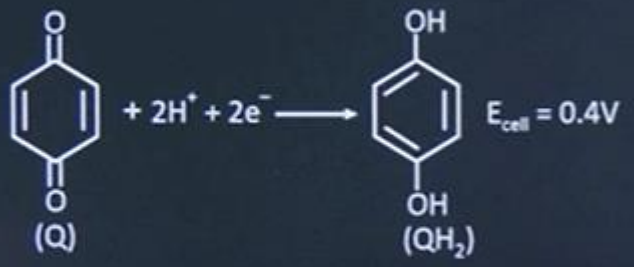
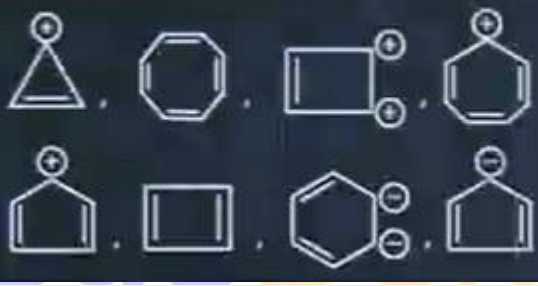
JEE MAIN 2 APRIL 2025 SHIFT 1

CHEMISTRY QUESTION PAPER WITH ANSWER KEY

Q.No.	Question	Answers
1	Which of the following is correct order of basic strength of amines in aqueous medium?	B. $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N > NH_3$
2	Which of the following statement(s) is correct is/are for the adiabatic process? A. Molar heat capacity is zero. B. Molar heat capacity is infinite. C. Work done on gas is equal to increase in internal energy D. The increase in temperature results in decrease in internal energy	1. A and C only
3	In group 17, which property does not follow regular trend?	A. Electron Affinity
4	Out of the following species, which one is anti-romantic?	B. 
5	Vapour pressure of pure liquid A is 200 mm Hg. If 1 mol of A and 3 mol of B are mixed. Assuming solution to be ideal, find the vapour pressure of pure liquid 'B', if total pressure of solution is 500 mm Hg.	600
6	100g $CaCO_3$ when reacted with 0.19 mole of HCI, then the moles of $CaCl_2$ formed is P x 10^{-3} mol. Find P?	95 x 10^{-3}
7	In the following graph between $t_{1/2}$ and initial concentration $[A_0]$. If slope of the graph is 79.62 M^{-1} min and initial concentration is 2.5 M. Find the concentration of A after 10 min. 	2.5 - 1/16
8		1. 

9	**Statement-I :**  reacts with NaOH to give a compound whic **Statement-II :**  reacts with NaOH to give self aldol conde In the light of above statements, choose the correct option.	4. Statement I and II both are incorrect
10	Arrange the following compounds in the decreasing order of their rate of hydrolysis in presence of acid as a catalyst.  (a)  (c)	1. a > b > c > d
11	Which of the following carbon atom, forms the least stable and most stable free radical, respectively. 	1. 1, 3
12	Given below are two statements: **Statement I**: All naturally occurring amino acids are optically active except glycerine. **Statement II**: All amino acids are optically active. In light of the above statements, choose the most appropriate option.	1. Statement I is true, Statement II is false
13	Given below are two statements: **Statement I**: Metallic radius of AI is less than that of Ga. **Statement II**: Ionic radius of AI^{3+} is less than that of Ga^{3+} In light of the above statements, choose the most appropriate option.	3. Statement I is incorrect and Statement II is correct
14	Out of the following, XF_2, NH_3, NF_3, CIF_3, SF_4, and SO_2, compounds having non zero dipole moment and central atom having maximum lone pair of electrons respectively are:	3. CIF_3 and XEF_2
15	In AX_4B if A is p-block group-18 element, X is most electromagnetic element and B is second most electronegative element, then shape of compound will be	1. Square Pyramidal
16	Among Fe, Mn, Co and Cr, element having higher value of $E^{O}_{M^{3+}/M^{2}}$ form a complex $[M(CN)_6]^{3-}$, then find the number of electrons in e_g set of orbital	1. 0
17	**Statement I:** If pairing energy (P) is greater than Δ_0 then the high speed complex is formed and if $P < \Delta_0$, then low spin complex is formed. **Statement II:** If $\Delta_t < P$, then high spin complex is formed. (Δ_0 - CFSE in octahedral field, Δ_t - CFSE in tetrahedral field)	1. Both Statement I and II are correct

18	Consider the following electrochemical cell $Pt\|QH_2, Q, H^+(0.1\ M)\ ||\ Ag^+(1\ M)\|Ag$ Given that  $E^\circ(Q\|QH_2) = 0.7V\ ;\ E^\circ(Ag^+\|Ag) = 0.8V\ ;$ $\frac{2.303\ RT}{F} = 0.06$	PH = 5
19	Find the total number of aromatic compounds among th 	4