JEE-Main-23-01-2025 (Memory Based)
[EVENING SHIFT]
Chemistry

Question: The correct order of melting point of 14 group element is
Options:
(a) C > Si > Ge > Sn > Pb
(b) Si > C > Ge > Sn > Pb
(c) Ge > Sn > C > Si > Pb
(d) C > Si > Ge > Pb > Sn
Answer: (d)

Question: What will be effect on pH of water when it is heated
Options:
(a) Increase
(b) Decrease
(c) Remains same
(d) pH first increases then decreases
Answer: (b)

Question: α-helix protein and β-pleated sheet protein belong from which of the following structures?
Options:
(a) Primary
(b) Secondary
(c) Tertiary
(d) Quaternary
Answer: (b)

Question: Match the following List-I with List-II

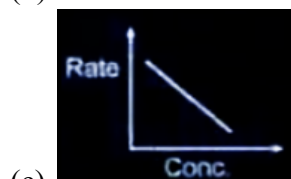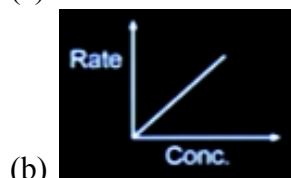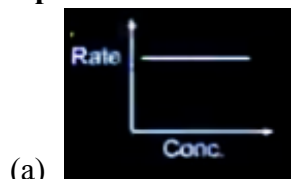|	List-I (Alloys)		List-II (Metals)
A.	Bronze	(i)	Fe, Cr, and Ni
B.	Stainless steel	(ii)	Cu and Sn
C.	UK Gold Coin	(iii)	Cu and Zn
D	Brass	iv	Ag, Cu, Zn and Ni

Options:
(a) A-ii, B-i, C-iv, D-iii
(b) A-iii, B-iv, C-i, D-ii
(c) A-iv, B-iii, C-ii, D-i
(d) A-i, B-ii, C-iii, D-iv
Answer: (a)

Question: Which one the following plots represents zero order reactions
Options:

(a)

(b)

(c)

(d)

Answer: (a)

Question: By using relation
$$\Delta G = \Delta H - T\Delta S$$
Which of the following is incorrect for spontaneous reaction at a given temperature
Options:
(a) $\Delta H > 0$, $\Delta S > 0$
(b) $\Delta H > 0$, $\Delta S < 0$
(c) $\Delta H < 0$, $\Delta S > 0$
(d) $\Delta H < 0$, $\Delta S < 0$
Answer: (b)

Question: Statement-I: For a particular shell, maximum number of orbital is n^2.
Statement-II: For d-subshell, the number of orientations lies between -1 to +1 including zero.
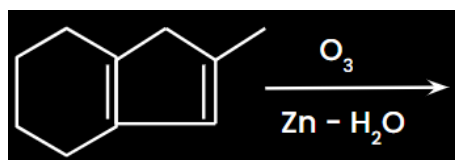**Options:**
(a) S-I and S-II both are correct
(b) S-I and S-II both are incorrect
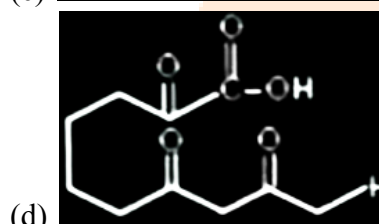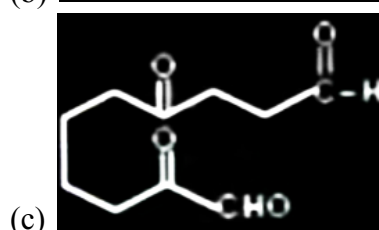(c) S-I is correct, S-II is incorrect
(d) S-I is incorrect, S-II is correct
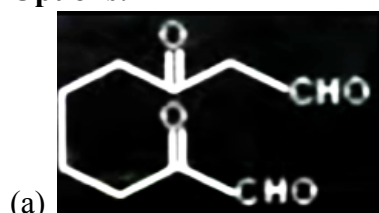**Answer: (a)**

Question:

Options:

(a)

(b)

(c)

(d)
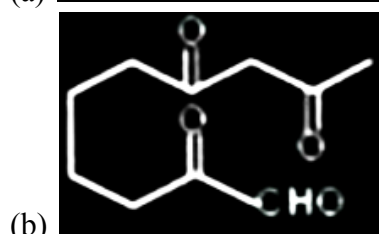
Answer: (b)

Question: The total Number of isomers possible (aldehyde and Ketone) for C_4H_8O are
Options:
(a) 6
(b) 3
(c) 4
(d) 5
Answer: (b)

Question: Identify the complex in which central metal ion has d^4 configuration
Options:
(a) $[FeO_4]^{2-}$
(b) $[Mn(CN)_6]^{3-}$
(c) $Fe(CN)_6]^{3-}$
(d) $[NiF_6]^{2-}$
Answer: (b)

Question: Consider the given following reaction $X_2Y(S) \rightleftharpoons X_2(g) + \frac{1}{2}Y_2(g)$. If α is the degree of dissociation. Calculate K_p in terms of P total pressure
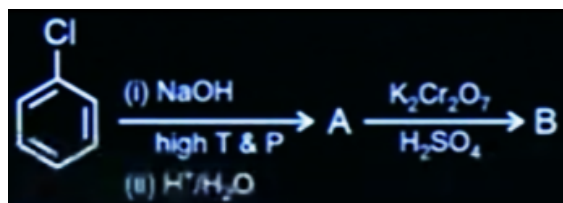
Options:
(a) $K_P = \dfrac{2P^{\frac{3}{2}}}{3^{\frac{3}{2}}}$

(b) $K_P = \dfrac{2P^{\frac{3}{2}}}{3}$

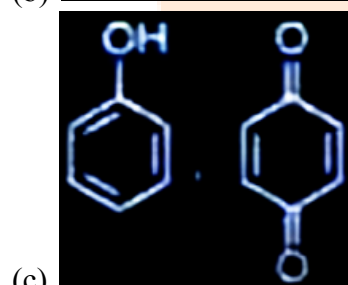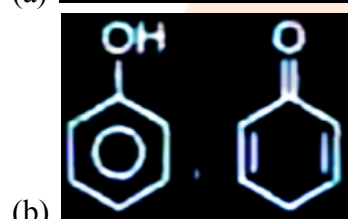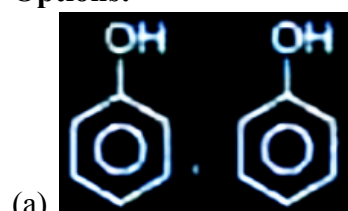(c) $K_P = \sqrt{\dfrac{2P}{3}}$

(d) $K_P = \dfrac{\sqrt{2P}}{3}$

Answer: (a)

Question: **Predict A and B?**
Options:

(a)

(b)

(c)
(d) None of the above
Answer: (c)

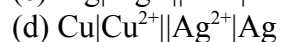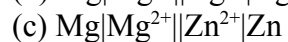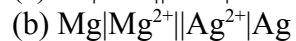**Question: Consider the following E° values of given half cell**

$E^{o}_{Ag^{+}/Ag} = 0.8\,V,\ E^{o}_{Zn^{2+}/Zn} = -\,0.76\,V$

$E^{o}_{Cu^{2+}/Cu} = 0.34\,V,\ E^{o}_{Mg^{2+}/Mg} = -\,2.36\,V$

Then which of the following will have the most negative value of ΔG°?
Options:
(a) $Zn|Zn^{2+}||Cu^{2+}|Cu$
(b) $Mg|Mg^{2+}||Ag^{2+}|Ag$
(c) $Mg|Mg^{2+}||Zn^{2+}|Zn$
(d) $Cu|Cu^{2+}||Ag^{2+}|Ag$
Answer: (b)
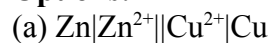
Question: When a non solute (A) is added to a volatile solvent, the vapour pressure of solvent decrease by 10 mm Hg. Mole fraction of solute is 0.2. If 2nd solute (B) is added to the same solution and vapour pressure of solution decreases by 20 mm Hg. Calculate mole fraction of 2nd solute in the final solution.
Options:
(a) 0.3
(b) 0.4
(c) 0.5
(d) 0.6
Answer: (c)

Question: Given below are two statements:
Statement-I: Phenol & alcohol melting point increases with increase in carbon atoms
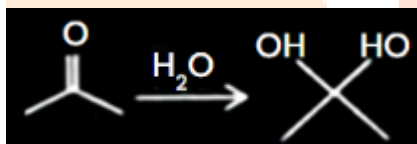**Statement-II: Phenol & alcohol has higher melting point than ether and haloalkanes**
In the light of the above statements, choose the most appropriate answer from the options given below:
Options:
(a) Both Statement-I and Statement-II are incorrect below
(b) Statement-I is correct but statement-II is incorrect
(c) Both Statements are correct
(d) Statement I is incorrect and Statement II is correct
Answer: (c)

Question: **Given below are two statements:**

**Statement-I: HCHO(r = 22400) rate due to less steric.**
Statement-II: CCl_3 - CHO (r = 2000) rate due to -I group of halogen
In the light of the above statements, choose the most appropriate answer from the options given below:
Options:
(a) Both Statement-I and Statement-II are incorrect
(b) Statement-I is correct & statement-II is incorrect
(c) Both Statements are correct
(d) Statement I is incorrect and Statement II is correct
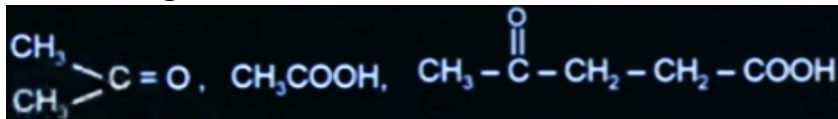**Answer: (d)**
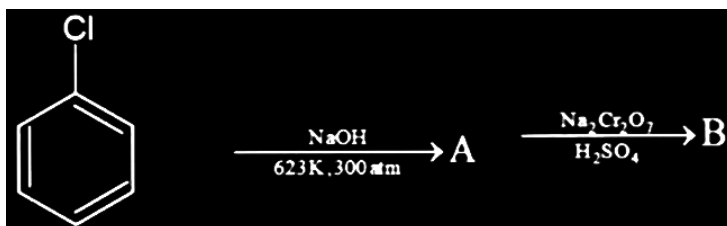
Question: Find B?
Options:
(a)1,2-dimethyl benzene

(b) Toluene
(c) Phenol
(d) 1,4-Benzoquinone
Answer: (d)

Question: A compound X consumes two moles of H_2 and when 'X' heated with $KMnO_4/H^+$ give

The number of σ bonds in X are____.

Answer: (27)

Question: 81 g of Al reacts with 128 g of O_2. Calculate the amount(in moles) of Al_2O_3 is produced?

Answer: (1.5)