JEE-Main-24-01-2026 (Memory Based)
[EVENING SHIFT]
Chemistry

Question: An electron make transition from higher energy orbit (n_2) to lower energy orbit (n_1) in Li^{2+} ion such that $n_1 + n_2 = 4$ & $n_2 - n_1 = 2$. Determine the wavelength emitted in the dimension (in nm)
Options:
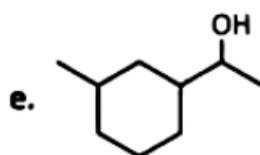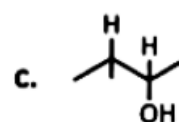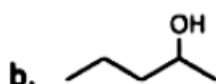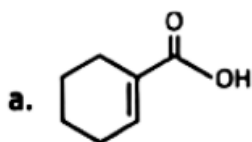(a) 12.9 nm
(b) 11.4 nm
(c) 16.7 nm
(d) 9.2 nm
Answer: (b)

Question: Choose the correct order of second IE of O, C, N and F
Options:
(a) $C < N < F < O$
(b) $C < F < O < N$
(c) $C < N < O < F$
(d) $C < O < F < N$
Answer: (a)

Question: Which of the following molecules is secondary alcohol?

Options:
(a) b, c, e only
(b) b, c, d, e only
(c) a, c, d, e only
(d) a, b, d only
Answer: (a)

Question: How many linear tripeptides are possible with valine (Val), Glycine (Gly) and Alanine (Ala). No amino acid should be repeated?
Options:

(a) 8
(b) 5
(c) 6
(d) 4
Answer: (c)

Question: Order of wavelength of absorbed radiation for the below given complexes is,
(a) $[Co(NH_3)_6]^{3+}$ **(b) $[Co(NH_3)_5H_2O]^{3+}$**
(c) $[CoF_6]^{3-}$ **(d) $[Co(CN_6]^{3-}$**
Options:
(a) d > a > c > b
(b) d > a > b > c
(c) d < a < b < c
(d) d < a < c < b
Answer: (b)

Question: Given:
$\Delta H_{atom} (CH_4) = x$ **kJ mole^{-1}**
$\Delta H_{atom} (C_2H_6) = y$ **kJ mole^{-1}**
Find out bond energy (C - C) (kJ/mole)
Options:
(a) y - x
(b) y - 4x
(c) $y - \frac{3x}{2}$
(d) y - 2x
Answer: (c)

Question: Which of the following have same bond order and are paramagnetic?
Options:

(a) O_2^+, N_2^-

(b) O_2^+, O_2^-

(c) O_2^-, N_2^-

(d) O_2^-, N_2^+

Answer: (c)

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Options:
(a) 12.9 nm
(b) 11.4 nm
(c) 16.7 nm
(d) 9.2 nm
Answer: (b)

Question: How would you distinguish product formed P and Q of reaction given below

$$\text{CH}_3\text{CH}=\text{CH}-\text{O}-\text{CH}=\text{CH}_2 \xrightarrow[\Lambda]{\text{H}_3\text{O}^+} \text{P} + \text{Q}$$

Options:
(a) Fehling solution test
(b) Tollens test
(c) 2, 4 DNP test
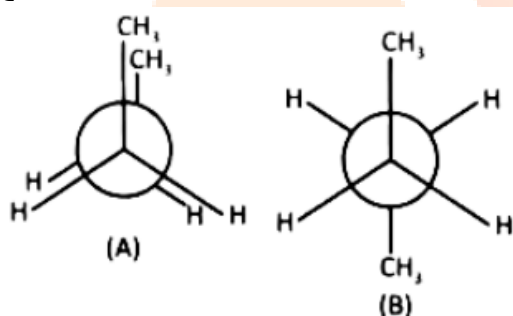(d) Iodoform test
Answer: (d)

Question: A group VII element which has a + 7 oxidation state forms a salt with potassium (K). What is the colour of this salt?
Options:
(a) Green
(b) Yellow
(c) Orange
(d) Purple
Answer: (d)

Question: Given below are two statements based on structures given

Statement-I: B is more stable than A.
Statement-II: Dihedral angle of B is more than A.
In the light of the above two statements, choose the correct option.
Options:
(a) Both Statement-I and Statement-II are correct
(b) Both statement-I and statement-II are incorrect
(c) Statement-I is correct but statement-II is incorrect
(d) Statement-I is incorrect but statement-II is correct
Answer: (a)

Question: Vapor pressure of two volatile species A and B are 55 mm and 120 mm respectively. If mole fraction of 'A' in liquid state is 0.8, then mole fraction of 'B' in vapor state is
Options:
(a) 0.65
(b) 0.45
(c) 0.35
(d) 0.53
Answer: (c)

Question: Find incorrect statement among the following
Options:
(a) C^{13} is radioactive isotope
(b) Covalency of carbon greater than 4 is possible
(c) Carbon can exhibit +2 & +4 oxidation state
(d) In group-14, CO_2 is most acidic
Answer: (b)

Question: Which of the following statement is correct about resonance and resonating structures?
Options:
(a) Resonating structure with more covalent bonds is more stable
(b) The resonance structure differ in position of electrons and relative position of atoms
(c) The stability of resonance hybrid decreases with increasing number of equivalent resonating structure
(d) Electronegative atom bearing positive charge in the canonical form is more stable
Answer: (a)

Question: Consider the following reversible reaction wherein the moles of species at equilibrium is given
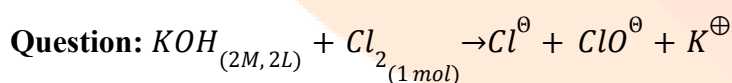
$$t=t_{eq} \quad P_2 \underset{2\,mol}{} + Q_2 \underset{2\,mol}{} \rightleftharpoons 2PQ \underset{2\,mol}{}$$
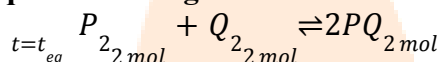
If one mole of P_2 and one mole of Q_2 are added at equilibrium. The number of moles of P_2, Q_2 and PQ at new equilibrium, respectively are
Options:
(a) $\frac{4}{3}, \frac{4}{3}, \frac{8}{3}$
(b) $\frac{8}{3}, \frac{8}{3}, \frac{8}{3}$
(c) $\frac{4}{3}, \frac{4}{3}, \frac{4}{3}$
(d) $\frac{8}{3}, \frac{8}{3}, \frac{4}{3}$
Answer: (b)

Question: $KOH_{(2M,\,2L)} + Cl_{2\,(1\,mol)} \rightarrow Cl^{\ominus} + ClO^{\ominus} + K^{\oplus}$

Find the conc. Of each product and choose correct option
Options:
(a) $[Cl^-] = [ClO^-] = [K^+] = 0.5$ M
(b) $[Cl^-] = [K^+] = 1.5$ M
(c) $[Cl^-] = [ClO^-] = 0.5$ M
(d) $[Cl^-] = [ClO^-] = 0.75$ M
Answer: (c)

Question: Given below are two statements.
Statement I: Two different aldehydes on cross aldol condensation always give four products.
Statement II: Among benzaldehyde and acetophenone, only acetophenone reacts with semicarbazide.

In the light of the above two statements, choose the correct option.
Options:
(a) Both statement I and statement II are correct
(b) Both statement I and statement II are incorrect
(c) Statement I is correct but statement II is incorrect
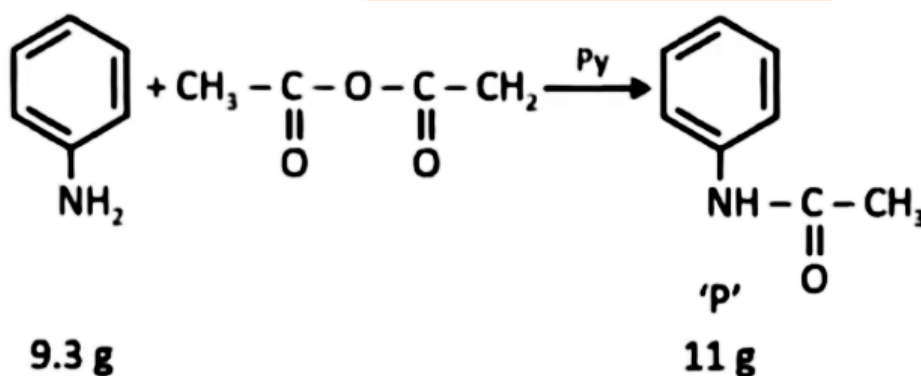(d) Statement I is incorrect but statement II is correct
Answer: (b)

Question: In a first order reaction, $t_{1/2}$ = 245 days of compound 'A'. After x days 75% of 'A' remains, then calculate the value of 'x'. (Take log 2 = 0.3 and log 3 = 0.48)
Options:
Answer: (98)

Question: Consider the following is (nearest integer)

If % yield of reaction is x, the value of x/10 is (nearest integer
Options:
Answer: (81)

Question: A compound $Cr(H_2O)_6 \cdot Cl_3$ show conductance similar to 1 : 2 electrolyte in aq. Solution. 9.6 g of this complex is passed through a cation exchanger then excess of $AgNO_3$ solution is added. Find mass of AgCl precipitated in gram?
[Molar of Cr = 52, Cl = 35.5]
Options:
Answer: (10)

Question: 0.18 M HQ solution has molar conductivity $\dfrac{1}{30}$ times the molar conductivity of 0.02 M HZ solution.
Find the value of $pK_a(HQ)$ - $pK_a(HZ)$. [Given that $\alpha \lll 1$]
Assume that $\lambda_m^\infty Q^\Theta = \lambda_m^\infty Z^\Theta$
Options:
Answer: (2)