JEE-Main-03-04-2025 (Memory Based)

[EVENING SHIFT]

Chemistry

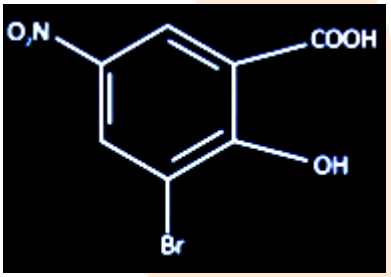
Question: Amount of magnesium (Mg) (in mg) required to liberate 224 mL of H_2 gas at STP, when reacted with HCl.

Options:

(a) 340 mg
(b) 450 mg
(c) 240 mg
(d) 100 mg

Answer: (c)

Question: The correct IUPAC Name of the given compound is:

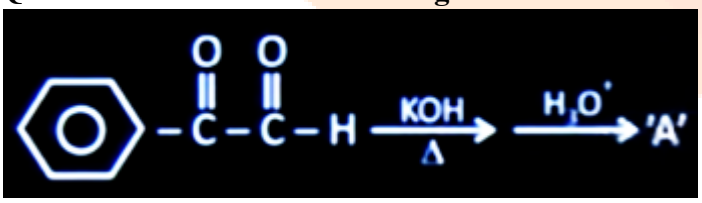


Options:

(a) 2-Hydroxy-3-bromo-5-nitrobenzoic acid
(b) 3-Bromo-2-Hydroxy-5-nitrobenzoic acid
(c) 5-Bromo-6-hydroxy-3-nitrobenzoic acid
(d) 3-Nitro-6-hydroxy-6-bromo-benzoic acid

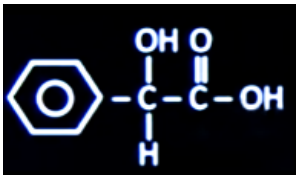
Answer: (b)

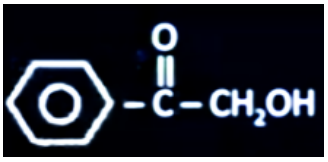
Question: Consider the following reaction.

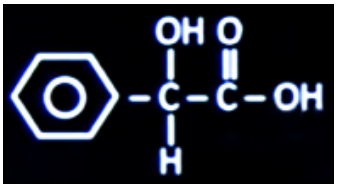


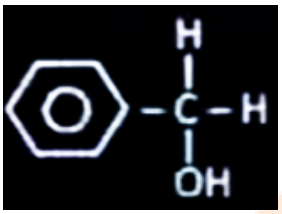
What is the product 'A'?

Options:

(a) 

(b) 

(c) 

(d) 

Answer: (a)

Question: At 715 mm pressure, 300 K, volume of $N_2(g)$ evolved was 80 mL by a 0.4 g sample of organic compound. Find % of N in organic compound Aq. tension at 300 K = 15 mm

Options:

(a) 20.95
(b) 25.85
(c) 30.25
(d) 15.83

Answer: (a)

Question: Statement-I: Wet cotton cloths made up of cellulose based carbohydrate Takes comparatively longer time to get dried than wet nylon based clothes
Statement-2: Intermolecular hydrogen bonding with water molecule is more in nylon based clothes than in cotton clothes.

Options:

(a) Statement-I and Statement-II are correct
(b) Statement-I and Statement-II are incorrect
(c) Statement-I is true and Statement-II is false
(d) Statement-I is true and Statement-II is true

Answer: (c)

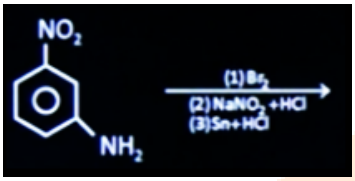
Question: Statement-I: Hyper conjugation is not a permanent effect
Statement-II: In general, greater the number of Alkyl groups attached to a positively charged carbon atom greater is the Hyper conjugation interaction and stabilization of the cation.

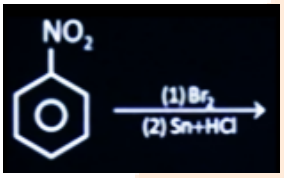
Options:

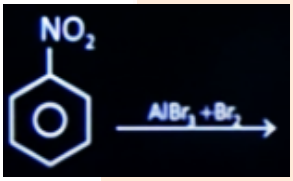
(a) Statement-I and Statement-II are correct
(b) Statement-I and Statement-II are incorrect
(c) Statement-I is true and Statement-II is false
(d) Statement-I is true and Statement-II is true

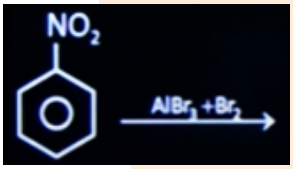
Answer: (d)

Question: Fat soluble vitamin is
Options:
(a) Vitamin B_1
(b) Vitamin C
(c) Vitamin B_{12}
(d) Vitamin K
Answer: (d)

Question: Which of the following reagent is used to prepare tribromoaniline
Options:
(a) 

(b) 

(c) 

(d) 

Answer: (d)

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

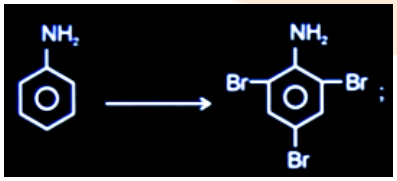
List-I (Groups)	**List-II (Elements)**
A. Pnictogens	**(I) Rn**
(B) Chalcogens	**(II) At**
(C) Halogens	**(III) Te**
(D) Noble gases	**(IV) Bi**

Options:
(a) A-I, B-II, C-III, D-IV
(b) A-IV, B-III, C-II, D-I
(c) A-IV, B-II, C-III, D-I
(d) A-I, B-III, C-II, D-IV
Answer: (b)

Question: Find orbital angular momentum for 2s and 2p energy levels
Options:
(a) $0, \frac{h}{(\sqrt{2})\pi}$
(b) $0, \frac{h}{\sqrt{2\pi}}$
(c) $\frac{h}{\pi}, \frac{h}{\pi}$
(d) $0, \frac{h}{2\pi}$
Answer: (a)

Question: Statement-I: Bohr model is applicable for hydrogen and hydrogen like species.
Statement-2: Bohr model does not consider electron-electron repulsion.
Options:
(a) Both Statements are correct
(b) Both Statements are incorrect
(c) Statement-I is incorrect and statement-2 is correct
(d) Statement-I is correct and statement-2 is incorrect
Answer: (a)

Question: Which of the following order is correct?
(A) Electronegativity : B > Tl > In . Ga > Al
(B) Ionisation energy: B > Tl > Ga > Al > ln
(C) Density: Tl > ln > Ga > Al > B
(D) Size: B > Al > Ga > ln > Al
Options:
(a) (A, B, C) only
(b) (B, C, D) only
(c) (A, B, D) only
(d) (A, B, C, D)
Answer: (a)

Question: 

Reagent X in this reaction is
Options:
(a) Br_2/CCl_4
(b) Br_2/H_2O
(c) HBr/H_2SO_4
(d) Br_2/acetone
Answer: (b)

Question: Statement-I: CrO_3 is a strong oxidizing agent

Statement-II: Cr^{+5} is more stable than Mo^{+6} considering the above 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) Both Statement-I is correct but Statement-II is incorrect

(d) Both Statement-I is incorrect but Statement-II is correct

Answer: (c)

Question: Which of the following compound or complex ions is/are diamagnetic in nature

(a) CrO_3 **(b) $[Fe(CN)_6]^{4-}$**

(c) $[Co(H_2O)_3F_3]$ **(d) $[Cr(NH_3)_6]^{3+}$**

Options:

(a) a and b only

(b) a, b and c only

(c) a, b, c and d

(d) c and d only

Answer: (b)

Question: 20 mL 1M NaOH is mixed with 10 mL 2M HCl which is further diluted to 100 mL. Find concentration for the final solution?

Options:

(a) 2×10^{-3} M

(b) 0.2 M

(c) 2×10^{-2} M

(d) 0.1 M

Answer: (b)

Question: Which of the following statements is correct w.r.t Arrhenius equation?

Options:

(a) Dimension of K and A are same

(b) K decreases with increase in temperature generally

(c) A decreases with increase in temperature always

(d) K increases as value of Ea increase

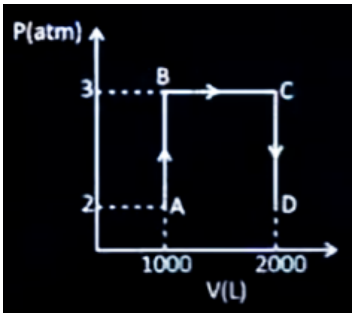
Answer: (a)

Question: Among Sc, Ti, Mn and Co, Calculate the spin only magnetic moment in +2 oxidation state of metal having highest heat of atomisation.

Options:

Answer: (3)

Question: Find out magnitude of work done in the process ABCD (in kJ) (1 atm. Lit = 101.3 J)



Options:

Answer: (304)

Question: Structural isomers of C_9H_{12} (with benzene ring)
Answer: (8)