JEE-Main-24-01-2025 (Memory Based)
[MORNING SHIFT]
Chemistry

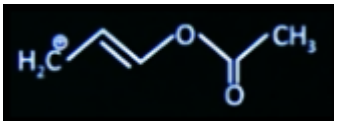
Question: Which of the following is the strongest oxidizing agent?
Options:
(a) Eu^{2+}
(b) Ce^{2+}
(c) Ce^{4+}
(d) Eu^{4+}
Answer: (c)

Question: The difference in melting point and boiling point of oxygen and sulphur can be explain
Options:
(a) Electronegativity
(b) Electron gain enthalpy
(c) Atomicity
(d) Ionisation energy
Answer: (c)

Question: Ribose present in DNA is
(A) It is a pentose sugar
(B) Present in pyranose form
(C) anomeric carbon is present
(D) Present in D configuration
(E) It is reducing sugar in free form Choose the correct statements :
Options:
(a) A, C & E only
(b) A, D & E only
(c) A, B, C, D & E
(d) A & E only
Answer: (b)

Question: Process is nonspontaneous at freezing point but spontaneous at boiling point, find ΔH and ΔS.
Options:
(a) Both are Positive
(b) Both are Negative
(c) ΔS Positive, ΔH Negative
(d) ΔS Negative, ΔH Positive
Answer: (a)

Question: Find the most stable carbocation among the following carbocations.
Options:

(a) 

(b) 

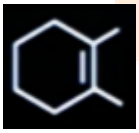
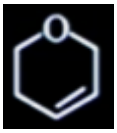
(c) 

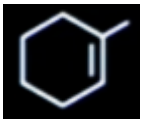
(d) 

Answer: (b)

Question: Which of the following is most reactive towards nucleophilic addition reaction?
Options:
(a) Para-nitro benzaldehyde
(b) Para-methyl benzaldehyde
(c) Benzaldehyde
(d) Acetophenone
Answer: (a)

Question: Which compound react fastest with HBr
Options:
(a) 

(b) 
(c) 

(d) 
Answer: (a)

Question: For an ideal mono atomic gas undergoing an isobaric process, the ratio of $\frac{\Delta Q}{DU}$ **is**
Options:
(a) 5/3
(b) 7/5
(c) 4/3
(d) 5/4
Answer: (a)

Question: In H_2O, and CH_4

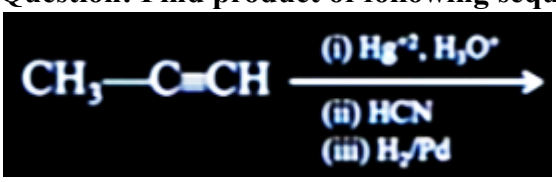
(A) All central atoms are sp^3 hybridised
(B) Order of dipole moment is $CH_4 < NH_3 < H_2O$
(C) NH_3 in H_2O is basic in nature, NH_3 and H_2O are Bronsted-Lowry acid and base respectively
(D) Bond angle of H_2O, NH_3 and CH_4 respectively are 104.5°, 107° and 109.5°
Options:
(a) A and B only
(b) A, B and C only
(c) A, B, C and D
(d) A, B and D only
Answer: (d)

Question: In the preparation of potassium permanganate from pyrolusite are (MnO_2), the fusion of pyrolusite ore is done with an alkali metal hydroxide like KOH in the presence of air or an oxidising agent like KNO_3, which first produces.
Options:
(a) K_2MnO_6
(b) K_2MnO_4
(c) $KMnO_4$
(d) K_2MnO
Answer: (b)

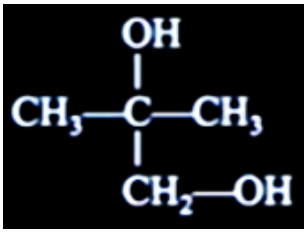
Question: Which of the following complex problem 2 mole of AgCl ppt in pressure of exceed amount of $AgNO_3$
Options:
(a) $CoCl_3.\ 4NH_3$
(b) $CoCl_3.\ 5NH_3$
(c) $CoCH_3.3NH_3$
(d) $CoCl_3.6NH_3$
Answer: (b)

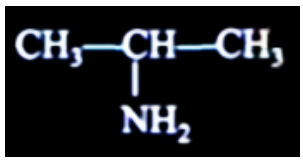
Question: In Duma's which gas evolved?
Options:
(a) N_2
(b) O_2
(c) SO_2
(d) SO_3
Answer: (a)

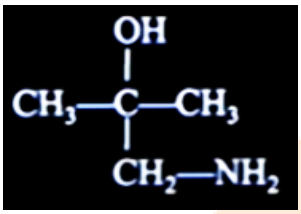
Question: Find product of following sequence of reaction is

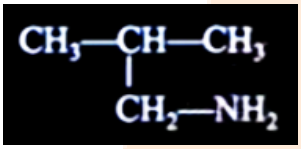


Options:

(a) 

(b) 

(c) 

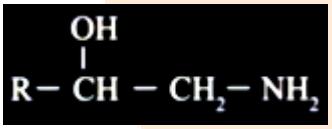
(d) 

Answer: (c)

Question: $R - CH_2 - OH \xrightarrow{PCC} A \xrightarrow{HCN} B \xrightarrow{Reduction} C$

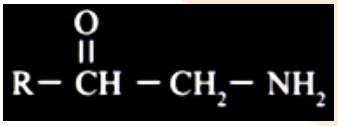
What is 'C' compound?

Options:

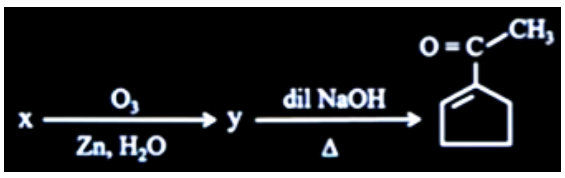
(a) 

(b) R - CH = CH - NH_2

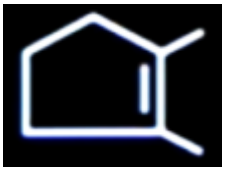
(c) R - CH_2 = CH_2 - NH_2

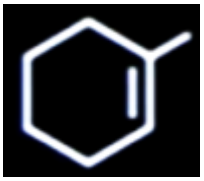
(d) 

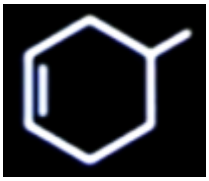
Answer: (a)

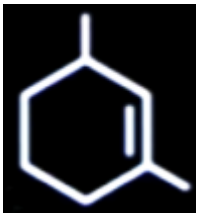
Question:  **x would be:**

Options:

(a) 

(b) 

(c) 

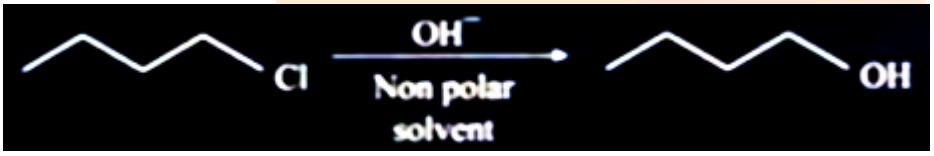
(d) 

Answer: (b)

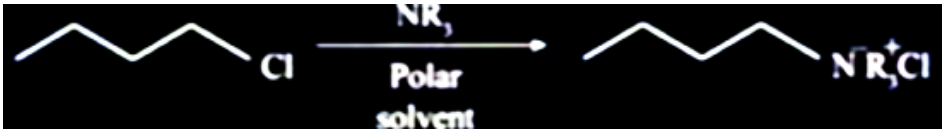
Question: Calculate the standard cell potential of the cell in which following reaction takes place:

$Ag^{+} + Fe^{2+}$ - > Ag + Fe^{3+}
Given that:
$E°(Ag^{+}/Ag)$ = x volt
$E°(Fe^{2+}/Fe)$ = y volt
$E°(Fe^{3+}/Fe)$ = z volt
Options:
(a) x + y - z
(b) x + 3y - 2z
(c) y - 2x
(d) x - 3z + 2y
Answer: (d)

Question: Statement-I



Statement-II



Options:
(a) Statement-1 is false, statement-2 is true
(b) Statement-1 is true, statement-2 is true, statement-2 is the correct explanation of statement-1
(c) Statement-1 is true, statement-2 is false
(d) Statement-1 is true, statement-2 is true, statement-2 is not the correct explanation of Statement-1

Answer: (d)

Question: If the K_{sp} of $Cr(OH)_3$ is 1.6×10^{-30} M^4. The molar solubility of salt in water is 1.56×10^{-x}, then value of x is

Answer: (8)

$1.6\times10^{-30} = 27s^4 \frac{160\times10^{-32}}{27} = s^4\ 1.56\times10^{-8} = s$

Question: If 10mol CO and 10 mol of Fe_3O_4 reacts according to $Fe_3O_4 + 4CO \rightarrow 4CO_2 + 3Fe$. What is the Weight of Fe produce?

Answer: (420g)