CHEMISTRY

BOOKS - NTA MOCK TESTS

JEE MOCK TEST 18

Chemistry

1. The angular momentum of an electron in He^+ moving in an orbit is h/π. The debrogile wavelength associated with electron is : [a_0 is radius of first bohr's orbit of H - atom]

A. $2\pi a_0$

B. πa_0

C. $4\pi a_0$

D. $\dfrac{\pi a_0}{2}$

Answer: A

2. For the reaction

$2HI(g) \Leftrightarrow H_2(g) + I_2(g)$. The value of K_c is 4. If 2 moles of H_2, 2 moles of I_2 and 2 moles of HI are present in one litre container then moles of I_2 present at equilibrium is :

A. 0.8

B. 3.2

C. 2.4

D. 4.4

Answer: C

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3. At what temperature would N_2 molecules have same average speed as CO molecules at 200 K.

    A. $-73°C$

    B. $200°C$

    C. $700°C$

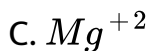   D. none

Answer: A

4. Which of the following ions have maximum hydration energy?
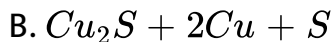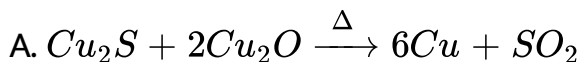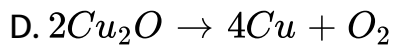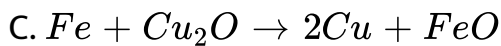
A. Sr^{+2}

B. Ca^{+2}

C. Mg^{+2}

D. Be^{+2}

Answer: D

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5. In the extraction of copper, the metal formed in the Bessemer converter is due to the reaction

A. $Cu_2S + 2Cu_2O \xrightarrow{\Delta} 6Cu + SO_2$

B. $Cu_2S + 2Cu + S$

C. $Fe + Cu_2O \rightarrow 2Cu + FeO$

D. $2Cu_2O \rightarrow 4Cu + O_2$

Answer: A

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6. K_2HgI_4 is 55% ionized in aqueous solution. The value of Van't Hoff factor is

A. 2.1

B. 4.3

C. 1.9

D. 3.7

Answer: A

7. The radius ratio of KF is 0.98. The structure of KF is of the type

A. $NaCl$

B. ZnS

C. $CsCl$

D. CaF_2

Answer: C

8. Combustion of hydrogen in a fuel cell at 300 K is represented as $2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$. If ΔH and ΔG are

$-241.60 kJmol^{-1}$ and $-228.40 kJmol^{-1}$ of H_2O. The value of ΔS for the above process is

A. $+44. \mathrm{JK}^{-1} \ \mathrm{mol}^{-1}$

B. $-88 \ \mathrm{JK}^{-1} \ \mathrm{mol}^{-1}$

C. $+88 \ \mathrm{JK}^{-1} \ \mathrm{mol}^{-1}$

D. $-44.7 \ \mathrm{JK}^{-1} \ \mathrm{mol}^{-1}$

Answer: D

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9. A current strength of 0.965 amperes is passed through excess fused $AlCl_3$ for 5 hours. How many litres of chlorine will be liberated at STP ? ($F = 96500C$)
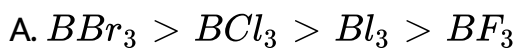
A. 2.016

B. 1.008

C. 11.2

D. 20.16

Answer: D

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10. The correct Lewis acid order for boron halides is

A. $BBr_3 > BCl_3 > Bl_3 > BF_3$

B. $BI_3 > BF_3 > BBr_3 > BCl_3$

C. $BF_3 > BCl_3 > BBr_3 > Bl_3$

D. $BI_3 > BBr_3 > BCl_3 > BF_3$
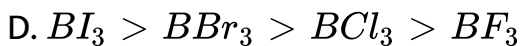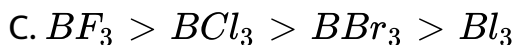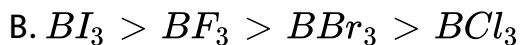
Answer: D

11. Incorrect match among the following is :

    A. Vitamin $B_{12} - Cu$

    B. Cis - platin - Pt

    C. Wilkinson catalyst - Rh

    D. Chlorophyll - Mg

Answer: A

12. Incorrect statement among the following is :

A. Oxidation state of chromium in chromate and dichomate

   is same

B. Oxidation of manganese is different in manganate and

   permanganate

C. Colour of chromate and dichromate is orange

D. Chromate ion gets converted into dichromate ion in

   acidic medium

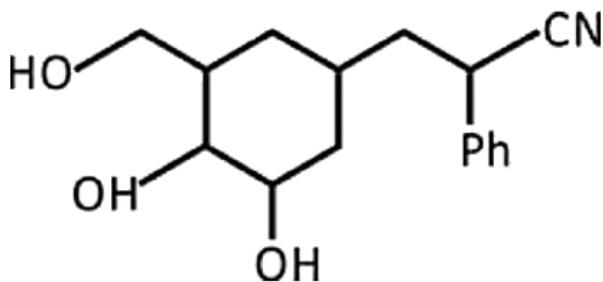**Answer: C**

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13. The pair of compounds which have different hybridisation

but same shape

A. SO_3, ClF_3

B. BF_3, PCl_3

C. XeF_2, CO_2

D. XeF_4, SF_4
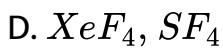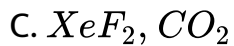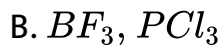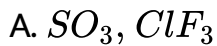
Answer: C

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14.

What is the IUPAC name of given compound ?

A. 3-(3, 4- dihydroxy - 5 hydroxymethylcyclohexyl)-2-phenylpropane nitrile

B. 3-(4, 5- dihydroxy -2 hydroxymethylcyclohexyl) -2-phenylpropane nitrile

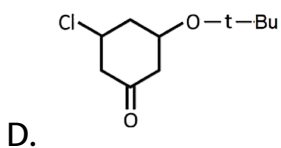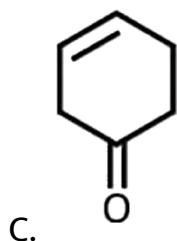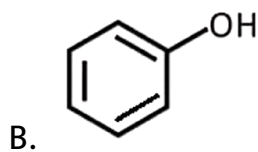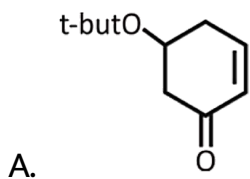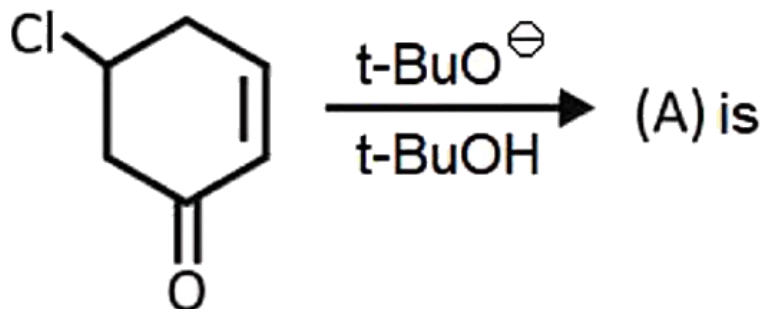C. 5-(2-cyano -2-phenyl)ethyl-3-hydroxylmethylcyclohexane - 1,2 diol

D. 4 - (2- cyano -2- phenyl) ethyl - 6-hydroxylmethylcyclohexane1,2 diol

Answer: A

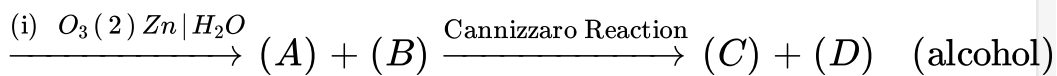▶ **Watch Video Solution**

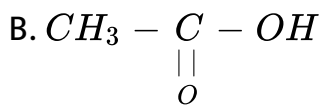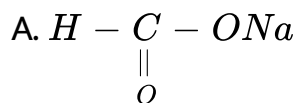## 15. Find the final product of the reaction

$$\text{(starting material)} \xrightarrow[\text{t-BuOH}]{\text{t-BuO}^\ominus} \text{(A) is}$$

A.

t-butO

B.

OH

C.

D.

Cl— ...O—t—Bu

Answer: B

16.

$$\xrightarrow{\text{(i)} \ O_3 \ (2) \ Zn \,|\, H_2O} (A) + (B) \xrightarrow{\text{Cannizzaro Reaction}} (C) + (D) \quad (\text{alcohol})$$
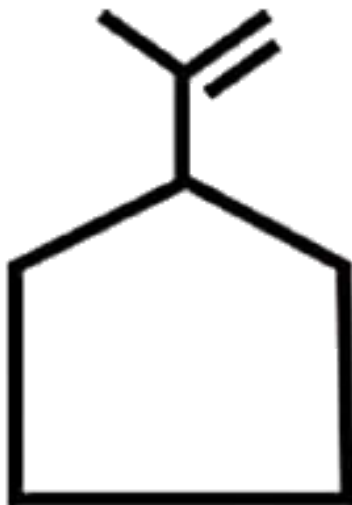
Identify at the possible product

A. $H - C - ONa$
$\quad\quad\;\; \overset{||}{O}$

B. $CH_3 - C - OH$
$\quad\quad\quad\; \overset{||}{O}$

C. $CH_3 - OH$

D. none of these

Answer: A::C

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17. What are A, B and C in the following

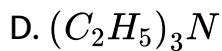A. in all case

B. in all case

C.

D.
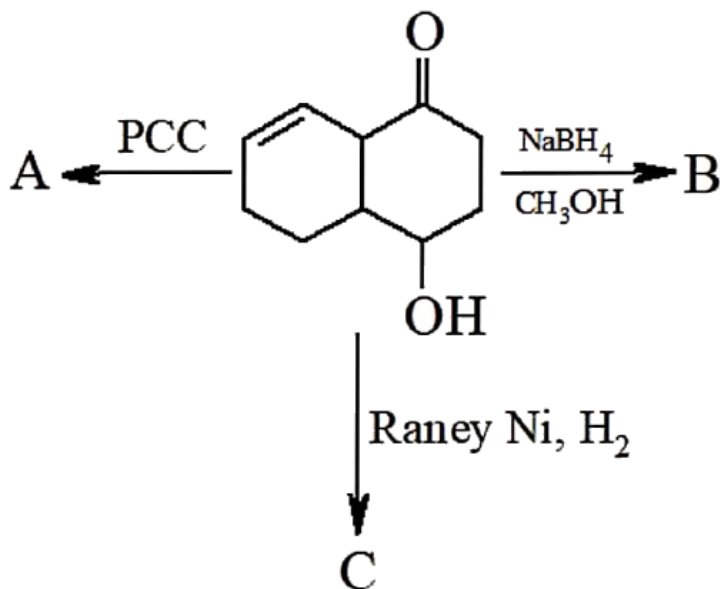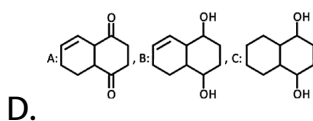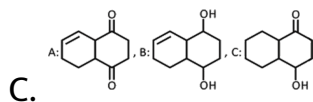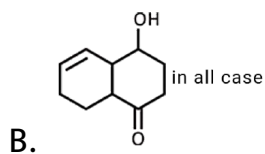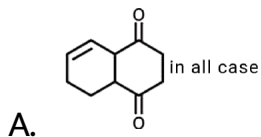
Answer: D

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18. The strongest base amongst the following in (In aqueous state):

A. NH_3

B. $C_2H_5NH_2$

C. $(C_2H_5)_2N$

D. $(C_2H_5)_3N$
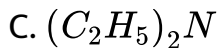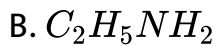
Answer: C

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19. Highest electron affinity is shown by

A. F^-

B. Cl^-

C. NA^+

D. Li^+
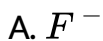
Answer: D

20. A metal M forms the sulphate $M_2(SO_4)_3$. A 0.596 gram sample of the sulphate reacts with excess $BaCl_2$ to give 1.220 g $BaSO_4$. What is the atomic mass of M ?
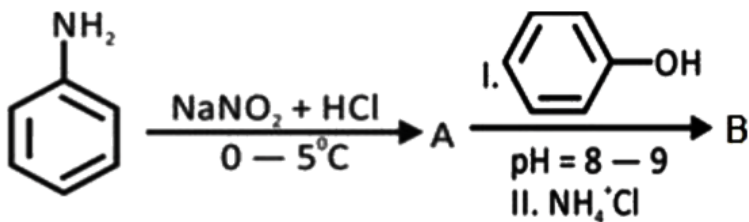
A. 26.9

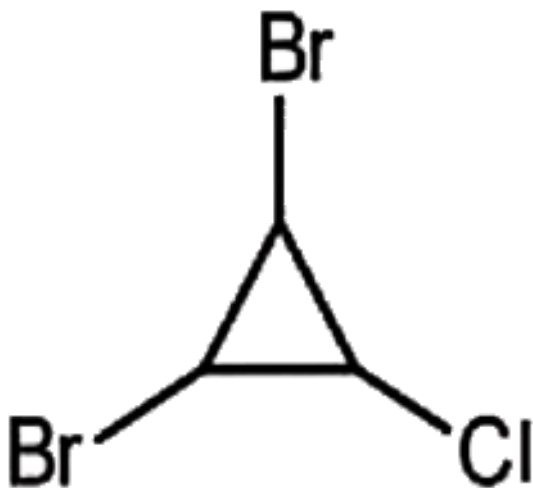B. 69.7

C. 55.8

D. 23

Answer: A

21.

If molar mass of compound B is x then find $\dfrac{x}{2}$

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22. Find the value of $\dfrac{x+5}{2}$ where x = total structural isomers

with molecular formula C_6H_{12} containing cyclo propane ring.

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23. Number of stereoisomers possible for the following

compound is

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24. One litre of 1 M solution of an acid $HA(K_a = 10^{-4}$ at $25°C)$ has pH = 2. It is diluted by water so the new pH becomes double. The solution was diluted to $y \times 10^z ml$. The value of $\dfrac{y + z}{2}$ is :

25. Total number of elements which do not form hydrides are

Mo, Ca, Fe, Pd, Co, Ru, W, Cr