CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 66

Chemistry

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1. Find out the axis in which nodal plane in the it-bond of c_2H_4 is located. (inter-nuclear axis = Z)

A. XY plane

B. The molecular plane itself

C. A plane perpendicular to the molecular plane which bisects the C- C bond.

D. A plane perpendicular to the molecular plane which contains the C-C bond.

Answer: B

2. Consider the process: $A(g) \xrightarrow{-e^-} A + (g)$

If $\triangle H_{IE}$ for the process is $21.4eV/$atom. What will

be the value of $\triangle H_{eg}$ electron gain enthalpy for

A^+ (g) (in eV/atom)?

A. -21.4

B. 42.8

C. 21.4

D. -42.8

Answer: A

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3. In BF_3 , the three B— F bonds are oriented at an

angle of 120°. In water molecule, the two O – H bonds

are oriented at an angle of $104.5°$. In BeF_2 , the two $Be - F$ bonds are oriented at an angle of 180º.

Which of the following will have highest dipole moment?

A. BeF_2

B. BF_3

C. H_2O

D. All have zero dipole moment

Answer: C

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4. When copper ore is mixed with silica, in a reverberatory furnace copper matte is produced. The copper matte contains:
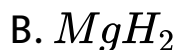
   A. Sulphides of copper (II) and iron (II)

   B. Sulphides of copper (II) and iron (III)

   C. Sulphides of copper (I) and iron (II)

   D. Sulphides of copper (I) and iron (III)

Answer: C

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5. Among the following, the most stable polymeric hydride is:

A. CaH_2

B. MgH_2

C. BaH_2

D. SrH_2

Answer: B

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6. Which statement is incorrect :-

A. $Ni(CO)_4 \rightarrow$ tetrahedral, paramagnetic

B. $Ni(CN)_4^{-2} \rightarrow$ square planar, dimagnetic

C. $Ni(dmg)_2 \rightarrow$ square planar, dimagnetic

D. None
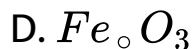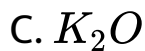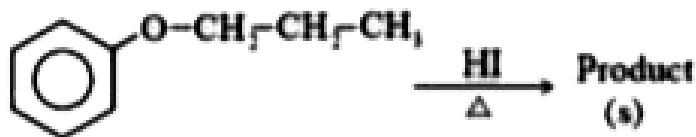
Answer: A

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7. Which of the following oxide is not a part of the composition of portland cement?

A. Al_2O_3

B. SO_3

C. K_2O

D. Fe_oO_3
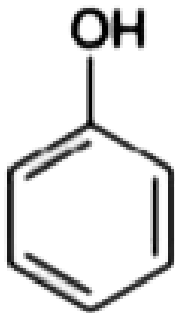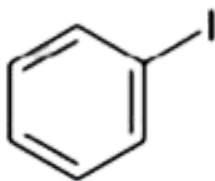
Answer: C

8.
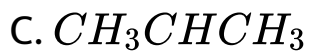
Among the following, which product is not formed in the above reaction?

A.

B. $CH_3CH_2CH_2I$

C. CH_3CHCH_3
   $|$
   I

D.
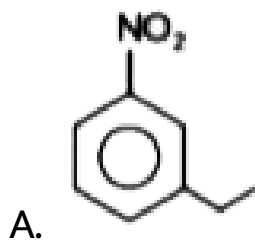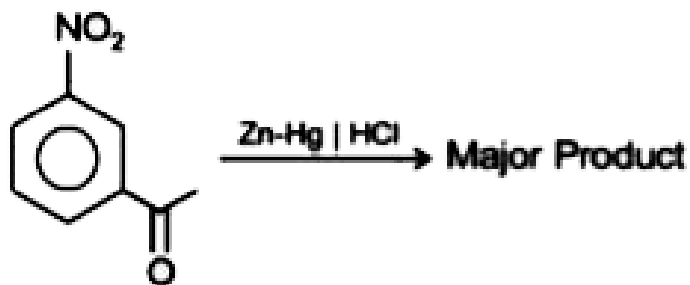

Answer: D

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9. What is the major product of following reaction?

NO_2-substituted benzene with a ketone group

$$\xrightarrow{\text{Zn-Hg} \mid \text{HCl}} \text{Major Product}$$

A.

NO_2

B.

NH_2 ... OH

C.

D.
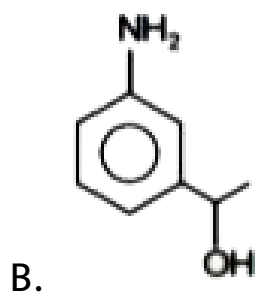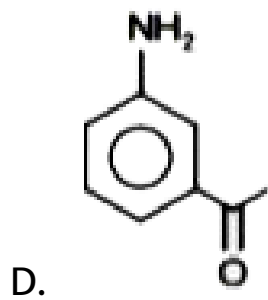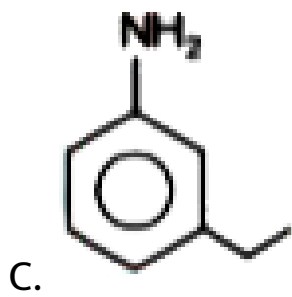
Answer: C

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10. The IUPAC name of

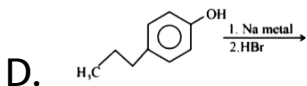$$H_3C - \underset{\underset{CH_3}{|}}{N} - \underset{\underset{C_2H_5}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2CH_3$$
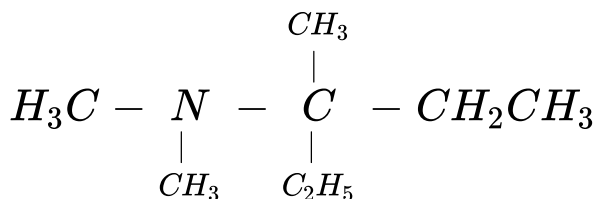
A. N, N-Dimethyl-2-ethylbutan -2-amine

B. N, N-Dimethyl-3methylpentan–3-amine

C. N, N-Dimethyl-1-ethyl-1methyl propan-1-amine

D. N, N-Dimethyl-1-diethyl ethnamine

Answer: B

11. Choose the best synthesis of phenyl n-propyl ether:-

A.

(1) Nametal
(2) CH₃CH₂CH₂Br/Polar aprotic solvent

B.

CH₃   OH   1. Na metal
              2. Ph-Br

C.

CH₃
O
1. Na metal
2. CH₃ – CH₂ – Br

D.

H₃C   OH   1. Na metal
              2. HBr

Answer: A

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12.

 $\xrightarrow[\text{uv/500K}]{3Cl_2}$ A $\xrightarrow{\text{Zn/HCl}}$ B

Product (B) is :

A.

B.

C.
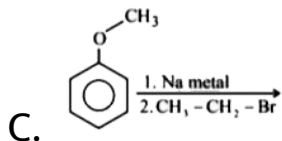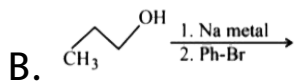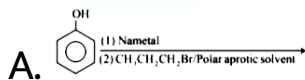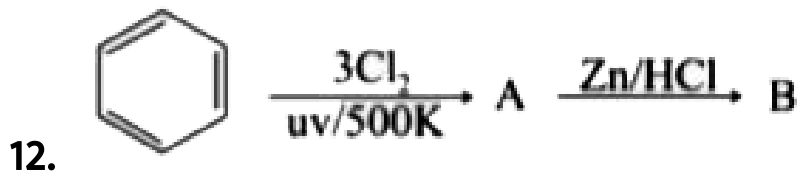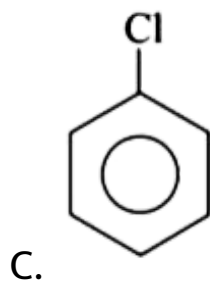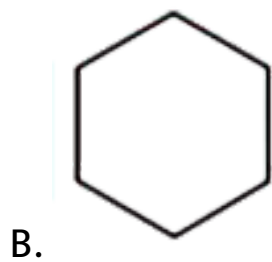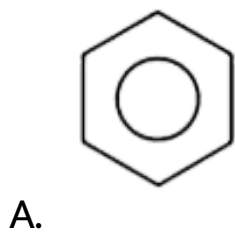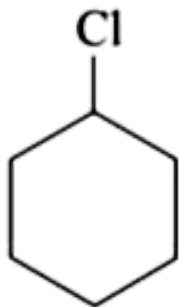
D.

Answer: B

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13. Chosse the correct IUPAC name of the compound:

$$CH_2 = \underset{\underset{CH_3}{|}}{C} - CH_2 - C \equiv CH$$
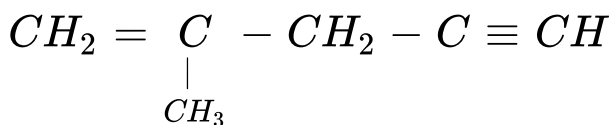
A. 4 - Methyl – 2 – penten - 1 – yne

B. 4 – Methyl – 4 – penten – 1 – yne

C. 2 – Methyl – 2 – penten – 4 – yne

D. 2 – Methyl – 1 – penten – 4 – yne

Answer: D

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14.

$$CH_3CH_2COOAg \xrightarrow{Cl_2/CCl_4} CH_3CH_2Cl + AgCl + CO_2$$
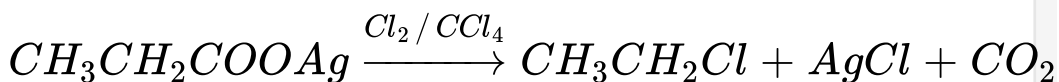
The above reaction is known as :-

A. HVZ reaction

B. Perkin reaction

C. Hunsdiecker reaction

D. Etard reaction

Answer: C

15. Which of the following is an example of tranquilizer?

A. Aspirin

B. Penicillin

C. Equanil

D. Paracetamol

Answer: C

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16. If the pressure of H_2 (g) is increased from 1 atm to 100 atm keeping $[H^+]$ constant at $1M$, the change in reduction potential of hydrogen half cell at 25°C will be :-

    A. 0.059 V

    B. $-0.059V$

    C. 00.0295 V

D. 0.118 V

Answer: B

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17. When two gases A and B of 20 ml and 40 ml each are added to 40 ml flask at a pressure of 1 atm and 2 atm respectively. Find the Value of K_p if 10 ml of gas C is formed at an equilibrium pressure of 2.25 atm (Assume A, B and C are ideal gases).

A. 0.57

B. 2×10^{-4}

C. 1.75.

D. 4×10^{-2}.

Answer: A

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18. At 40°C, the vapour pressure (in torr) of methyl alcohol (A) and ethyl alcohol solution is represented by:

$P = 120X_A + 138$, where X_A is mole fraction of methyl alcohol. The value of P_B° at

$\lim X_A \to 0$ and $P_A{}^\circ$ at

$\lim X_B \to 0$ are :

A. 138, 258

B. 258, 138

C. 120, 138

D. 138, 125

Answer: A

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19. In the given reaction:
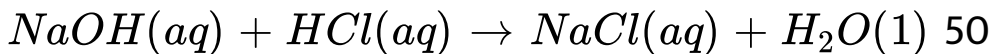
$$NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(1)$$ 50

ml of HCl containing 7.3 g of HCl per litre and 100 ml

solution of NaOH containing 4 g NaOH per litre

reacts, at any instant 0.5 g of NaCl is formed. Hence, the amount of NaOH which did not react is:

A. 0.06 g

B. 3.66 g

C. 10.8 g

D. 0.63 g

Answer: A

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20. Which one of the following sets of quantum numbers represents an impossible arrangement ?

A. $\overset{n}{3} \quad \overset{l}{2} \quad \overset{m}{-2} \quad \overset{s}{+1/2}$

B. $\overset{n}{4} \quad \overset{l}{0} \quad \overset{m}{0} \quad \overset{s}{+1/2}$

C. $\overset{n}{3} \quad \overset{l}{2} \quad \overset{m}{-3} \quad \overset{s}{+1/2}$

D. $\overset{n}{5} \quad \overset{l}{3} \quad \overset{m}{0} \quad \overset{s}{-1/2}$

Answer: A

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21. The difference in the number of unpaired electrons in $Co^{2}+$ ion in its high-spin and low-spin octahedral complexes is _____ .
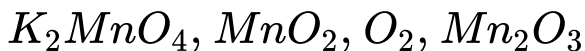
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22. The general electronic configuration for halogens are given by ns^2np^x. The value of x will be:

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23. How many of the following are obtained on heating Potassium permanganate?

K_2MnO_4, MnO_2, O_2, Mn_2O_3

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24. A tetrapeptide is made of naturally occurring alanine, serine, glycine and valine. How many total numbers of possible sequences of the tetrapeptide is possible if the ECterminal amino acid is alanine?

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25. $3 - \text{Methylpent} - 2 - \text{ene} \xrightarrow[H_2O_2]{\text{Hbr}} Z$ The number of stereoisomers possible for the product $'Z'$ is

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26. In LiH, the oxidation state of H is

27. A metal having atomic weight 75 u crystallizes in a cubic unit cell having edge length $5\overset{\circ}{A}$. If the density is 2 g cm^{-3}, then the radius of the metal atom is____pm.

$[N_A = 6.0 \times 10^{23} mol^{-1}, \sqrt{3} = 1.7]$

28. 296 L of H_2 was collected at 1 atm pressure and 27ºC temperature during an experiment. What will

be the weight of H_2 approximately? (atomic mass of

H= 1)

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29. By what factor approximately, the rate of reaction

increases for every $10°$ rise in temperature?

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30. What will be the maximum work done(in kcal) of 2

moles of ideal gas in an isothermal reversible

expansion of at 300K from 1.10 L to 11.0 L?

$\left(\mathrm{R}=2 \mathrm{cal} \mathrm{K}^{-1} \mathrm{mol}^{-1}\right)$