



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 49

Chemistry

1. Choose the correct statement with respect to the bond length of CO and CO^+ :

A. The bond length in CO is 1.128 Å and CO^+ is 1.115

A because during conversion of CO to CO^+ ,

electron is removed from anti bonding orbital.

B. The bond length in CO is 1.115 Å and CO^+ is 1.128

Å because during conversion of CO to CO^+

electron is removed from bonding orbital.

C. During conversion of CO to CO^+ bond length

does not vary because bond order remain same.

D. The bond length in CO is 1.115 Å and CO^+ is

1.1284 Å because bond order decreases during

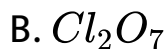
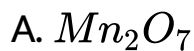
conversion of CO to CO^+ .

Answer: A



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2. Which of them is most acidic among given oxides?



Answer: B



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3. When hydrogen peroxide reacts with ozone, the role of hydrogen peroxide in the reaction is:

A. An oxidising agent

B. a reducing agent

C. oxidising agent when concentration of H_2O_2 low

and reducing agent when concentration is high

D. There is no reaction possible between these

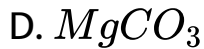
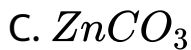
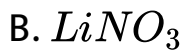
Answer: B



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4. Which of the following compound gives one amphoteric and one acidic oxide on heating ?

A. $CaCO_3$

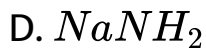
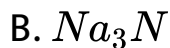


Answer: C



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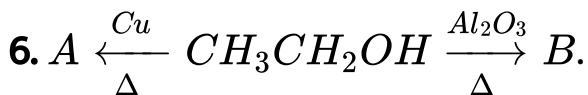
5. Sodium dissolves in liquid ammonia to form a blue colored solution which is a good conductor of electricity. On heating the solution turns bronze. On passing dry ammonia over heated sodium a compound (X) is formed which on hydrolysis form ammonia. Then the compound (X) is :-



Answer: D



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Find product A and B?

A. Alkene, alkanal

B. Alkyne, alkanal

C. Alkanal, alkene

D. Alkene, alkyne

Answer: C



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7. n-butane can be formed by reduction of methylethyl ketone by:

A. The Meerwein-Ponndroff reduction

B. The Wolf-Kishner reduction

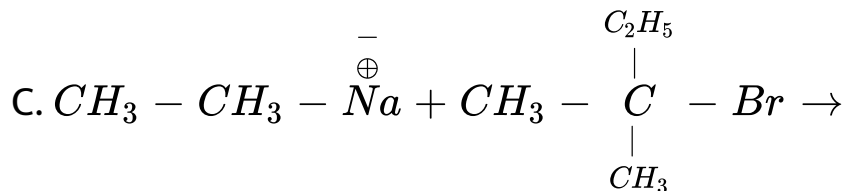
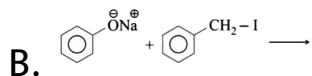
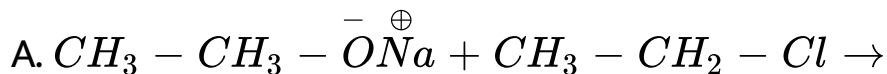
C. $Mg - Hg, H_2O$

D. All of the above

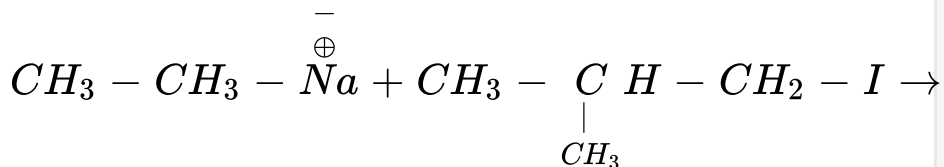
Answer: B

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8. Which of the following reaction will not give ether as a major product :-



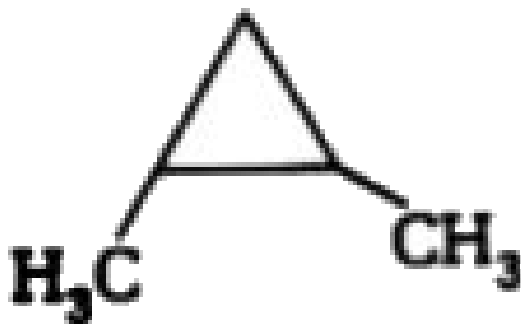
D.



Answer: C

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9. For the following structure, which option is correct ?



- A. Total stereoisomers = 4
- B. Number of chiral carbons = 1
- C. Number of optical isomers = 2

D. Number of meso compounds = 2

Answer: C



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10. In a first order reaction, the concentration of the reactant is decreased from 1.0 M to 0.25 M in 20 minute. The rate constant of the reaction would be:

A. 10min^{-1}

B. 6.931min^{-1}

C. 0.693min^{-1}

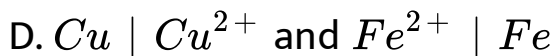
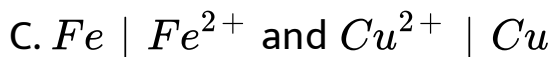
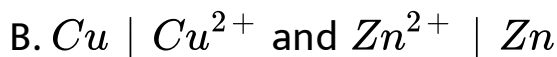
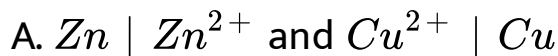
D. 0.06931min^{-1}

Answer: D



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11. What will be at anode and cathode respectively in a Daniel cell ?



Answer: A



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12. At 25°C the pH of water is 7. When temperature of water is increased to 70°C than pH of water and nature of water is:

- A. pH will decrease and the sample becomes acidic.
- B. pH will increase, but the sample will remain neutral.
- C. pH will remain constant as 7.
- D. pH will decrease, but the sample will remain neutral.

Answer: D

13. When Cl_2 gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from:

A. zero to +1 and zero to -5

B. zero to -1 and zero to +5

C. zero to -1 and zero to +3

D. zero to +1 and zero to -3

Answer: B

14. A solid has BCC structure. If the distance of closest approach between the two atoms is 1.73 Å. The edge length of unit cell is :-

A. 200 pm

B. $\frac{\sqrt{3}}{\sqrt{2}}$ pm

C. 142.2 pm

D. $\sqrt{2}$ pm

Answer: A



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15. The freezing point of benzene decreases by 0.45°C when 0.2g of acetic acid is added to 20g of benzene. If acetic acid associates to form a dimer in benzene, percentage association of acetic acid in benzene will be: (K_f for benzene = 5.12K kg mol^{-1})

- A. 0.946
- B. 64.6 %
- C. 80.4 %
- D. 74.6 %

Answer: A



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16. $A + 2B + 3C$ In the above reaction, 4.8 g of compound AB_2C_3 is formed as a product when 6.0 g of A, 6.0×10^{23} atoms of B, and 0.036 mol of C are react with each other. The atomic masses of A and C are 60 and 80 amu, respectively. Find out the atomic mass of B in amu. (Given:-Avogadro no= 6×10^{23})

A. 40 amu

B. 60 amu

C. 70 amu

D. 50 amu

Answer: D



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17. Which is correct about real gas :

A. Pressure of real gas is higher than ideal gas

B. volume of real gas is lower than ideal gas

C. Real gas follows ideal gas equation at very low pressure and high temperature.

D. Real gas behaves as ideal gas at high pressure and low temperature

Answer: C



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18. The factor on which the number of photoelectrons emitted per unit time depends in the photoelectric effect is:

A. Energy of incident radiations

B. Frequency of incident radiations

C. Intensity of incident radiations

D. Both frequency and intensity of incident radiation

Answer: C



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19. Which equation represents Freundlich adsorption isotherm (physical adsorption is basis of this theory)

A. $\frac{x}{m} = K(P)^{1/n}$ where x is amount of gas

adsorbed on mass ' m ' at pressure P

B. $\frac{\log x}{m} = \log K + \frac{1}{n} \log P$

C. $\frac{x}{m} = KP$ at low pressure and $\frac{x}{m} = K$ at high

pressure

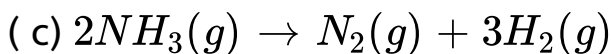
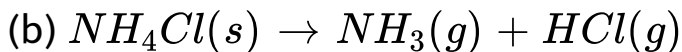
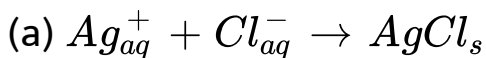
D. All of these

Answer: D



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20. Which of the following reactions has positive entropy change ?



A. a,b

B. only c

C. b,c

D. only

Answer: C



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21. The denticity of dimethylglyoximate ligand is:

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22. In how many of the following all bond lengths are not equal ?

CO_3^{-2} , O_3 , BF_3 , P_4 (white),

PCl_5 , SF_4 , CIF_3 , XeF_2 , XeF_4 , $[CIF_4]^+$

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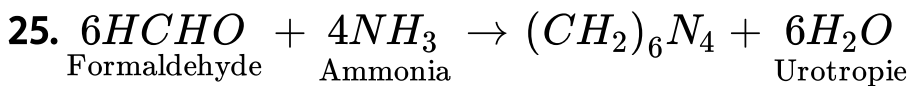
23. The total number of metals that can be the best refined by liquation method from following - Copper,

bismuth, silver, lead, gold, zinc, mercury ?

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24. The number of P - H bond(s) in phosphinic acid is:

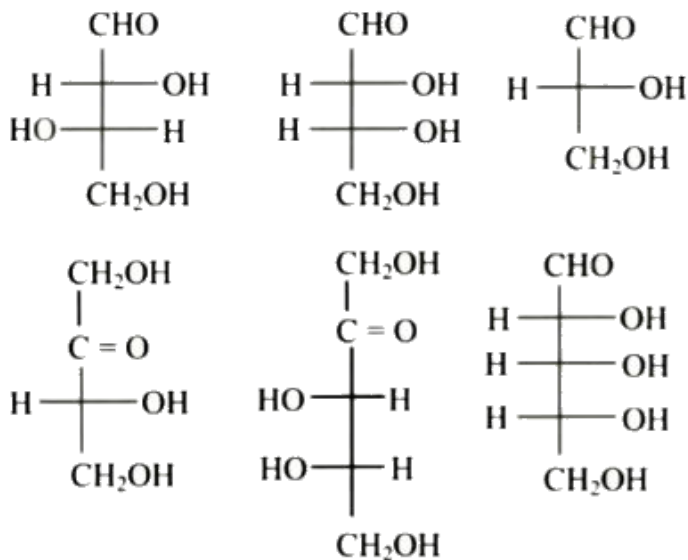
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The number of C - C bonds present in urotropine are _____.

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26. How many of the following belong to D-series ?



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27. Find how many of the following compounds will give positive iodoform test?

Butan-2-ol, 1-cyclobutylethanol, benzyl alcohol, ethanol,

propan-1-ol, phenol, propan-2-ol, pentan-3-ol, methanol,
2-methylpropan-1-ol, butan-1-ol,
1-phenylethanol.



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28. How many monochlorination products are possible for isopropylcyclopentane? (Exclude stereoisomers if any.)



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29. The overall oxidation state of iodine in iodic acid is



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