CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 47

Chemistry

1. When vapours of an alcohol are passed over hot reduced copper, it gives an alkene. The alcohol is

A. Primary

B. Secondary

C. Tertiary

D. None of these

Answer: C

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2. Consider the following gaseous equilibria with equilibrium constants K_1 and K_2 respectively.

$SO_2(g) + \frac{1}{2}O_2(g) \rightarrow SO_3(g), 2SO_3(g) \rightarrow 2SO_2(g) + O_2(g)$

The equilibrium constants are related as :

A. $2K_1 = K_2^2$

B. $K_1^2 = \frac{1}{K_2}$

C. $K_2^2 = \frac{1}{K_1}$

D. $K_2 = \frac{2}{K_1^2}$

Answer: B

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3. Polarization of electrons in acrolein may be written as:

A. $\overset{-\delta}{C}H_2 = CH - \overset{+\delta}{C} = O$

B. $\overset{-\delta}{C}H_2 = CH - CH = \overset{+\delta}{O}$

C. $\overset{-\delta}{C}H_2 = \overset{+\delta}{C}H - CH = O$

D. $\overset{+\delta}{C}H_2 = CH - CH = \overset{-\delta}{O}$

Answer: D

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4. $CH_3 - CH_2 - OH \xrightarrow{\text{Alkaline} KMnO_4 + \text{Heat}} CH_3 - COOH$

In the above given reaction, alkaline $KMnO_4$ acts as

A. RCOOH

B. $RHCO$

C. RCH_2OH

D. None of these

Answer: A

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5. Arrange the following in correct order of Lewis acidity BF_3, BCl_3, BBr_3.

A. $BF_3 > BBr_3 > BCl_3$

B. $BF_3 > BCl_3 > BBr_3$

C. $BF_3 < BCl_3 < BBr_3$

D. $BBr_3 < BF_3 < BCl_3$

Answer: C

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6. The smallest ketone and its next homologue are reacted with NH_2OH to form oxime.

A. 1

B. 2

C. 3

D. 4

Answer: C

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7. The minimum voltage required to electrolyse alumina in the Hall-Herout process is

[Given, $\Delta G^{\circ}_{(f)\,(Al_2O_3)} = -1520kJ/mol$ and $\Delta G^{\circ}_{(f)\,(CO_2)} = 394kJ/mol$]

A. 1.575 V

B. 1.60 V

C. 1.312 V

D. $-2.62V$

Answer: B

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8. Which one of the following mixture does not act as a buffer solution?

A. Boric acid and borax

B. Sodium Phosphate & disodium hydrogen phosphate

C. Sodium propionate and propionic acid

D. Sodium acetate and sodium propionate

Answer: D

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9. The enthalpy of neutralization of NH_4OH and CH_3COOH is – 10.5 kcal/mole and enthalpy of neutralization of strong base and CH_3COOH is – 12.5 kcal/mole. Calculate the enthalpy of dissociation of NH_4OH-

A. $4.0\ \text{kcal mol}^{-1}$

B. $3.0\ \text{kcal mol}^{-1}$

C. $2.0\ \text{kcal mol}^{-1}$

D. $3.2\ \text{kcal mol}^{-1}$

Answer: C

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10. Lattice energy of an ionic compound depedns upon :

A. Charge on the ion only

B. Size of the ion only

C. Packing of ions only

D. Charge and size of the ion

Answer: D

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11. Which product will be obtained by Gridnard reaction, when Formaldehyde reacts with Ethyl magnesium lodide?

A. 2 - Propanol

B. 1 - Propanol

C. Ethanol

D. 2 - Methyl, 2 - Propanol

Answer: B

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12. Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S , Se and Ar ?

A. $Ba < Ca < Se < S < Ar$

B. $Ca < Ba < S < Se < Ar$

C. $Ca < S < Ba < Se < Ar$

D. $S < Se < Ca < Ba < Ar$

Answer: A

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13. Compound that is both paramagnetic and coloured is:

A. $K_2Cr_2O_7$

B. $(NH_4)_2[TiCl_6]$

C. $VOSO_4$

D. $K_3\left[Cu(CN)_4\right]$

Answer: C

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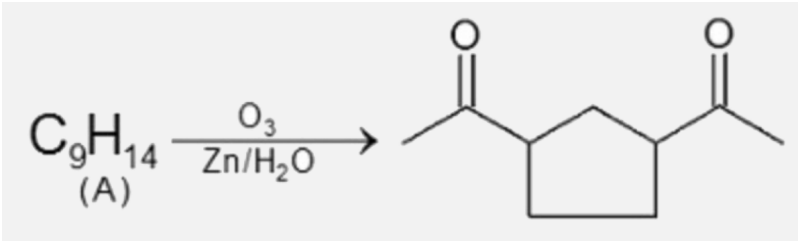
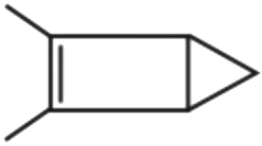
14. 

The reactant A is

A. 

B. 

C. 

D. 

Answer: B

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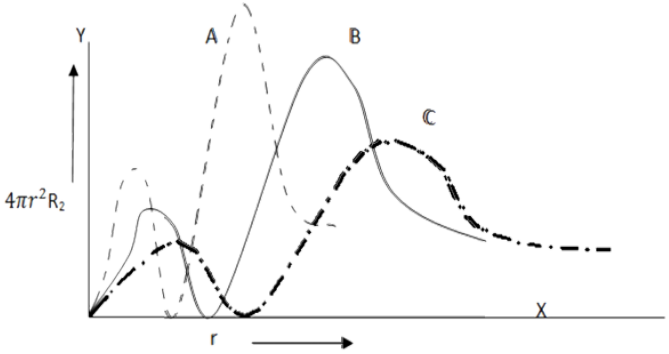
15. Out of the following, which is the correct match for the radial probability of finding the electron for 2s orbital



A. $A-H, B-He^+, C-Li^{2+}$

B. $A-He^+ B-H, C-Li^{2+}$

C. Can't say

D. $A - Li^{2+}, B - He^{+}, C - H$

Answer: D

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16. The rate of decomposition of NH_3 on platinum surface is zero order. What are rate of production of N_2 and H_2 if $k = 2.5 \times 10^{-4} Ms^{-}$?

A. $1.25 \times 10^{-4} Ms^{-1}, 3.75 \times 10^{-4} Ms^{-1}$

B. $3.00 \times 10^{-4} Ms^{-1}, 7.50 \times 10^{-4} Ms^{-1}$

C. $2.50 \times 10^{-4} Ms^{-1}, 1.25 \times 10^{-4} Ms^{-1}$

D. $3.75 \times 10^{-4} Ms^{-1}, 2.50 \times 10^{-4} Ms^{-1}$

Answer: A

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17. In which of the solution hydrogen peroxide neither acts as oxidising agent nor reducing agent ?

A. $PbS + H_2O_2 \rightarrow$

B. $SO_3^- + H_2O_2 \rightarrow$

C. $PbO_2 + H_2O_2 \rightarrow$

D. $Na_2CO_3 + H_2O_2 \rightarrow$

Answer: D

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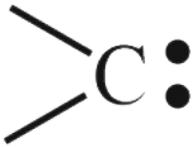
18. The intermediate never formed during chain growth polymerization is

A. $-\overset{|}{\underset{|}{C}}^{-}$

B. $-\overset{|}{\underset{|}{C}}^{\oplus}$

C. 

D. $-\overset{|}{\underset{|}{C}}\cdot$

Answer: C

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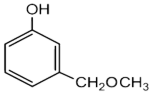
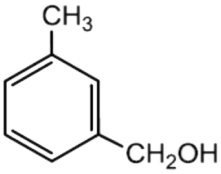
19. The product A is

A. 

B. 

C. 

D. 

Answer: B

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20. The density of KBr is $2.75gcm^{-3}$ length of the unit cell is $654pm$. $K = 39, Br = 80$, then what is true about the predicted nature of the solid ?

A. Solid has face centred cubic system with co - ordination number = 6

B. Solid has simple cubic system with co - ordination number = 8

C. Solid has face centred cubic system with co - ordination number = 12

D. None of the above

Answer: A

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21. Calculate the number of hours of service that can be derived at 1 atm, 300 K from an acetylene lamp containing 640 g calcium carbide. Given that the lamp requires 50 L acetylene gas at 1 atm 300 K for one hour. $[\text{Take} \quad 0.0821 \times 300 = 25]$

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22. 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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23. How many among the following species can be classified as Lewis acids?

$\overset{\oplus}{C}H_3, Cl^{\oplus}, CO_2, CCl_2, BCl_3, BI_3, Fe^{+2}, AlCl_3$

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24. What weight of glucose dissolved in $100g$ of water will produce the same lowering of vapour pressure as one gram of urea dissolved in $50g$ of water at the same temperature

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25. A 1.0 M solution of Cd^{2+} is added to excess iron and the system is allowed to reach equillibrium. What is the

concentration of Cd^{2+} ?

$$Cd^{2+}(aq) + Fe(s) \rightarrow Cd(s) + Fe^{2+}(aq), E^{\circ} = 0.037$$

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