CHEMISTRY

AAKASH INSTITUTE ENGLISH

MOCK TEST 38

Example

1. The e.m.f and the standard e.m.f of a cell in the following reaction is 5 V and 5.06 V at room temperature,

$Ni(s) + 2Ag^{+}(n) \rightarrow Ni^{2+}(0.02M) + 2Ag(s)$

. What is the concentration of Ag+ ions?

A. 0.0125 M

B. 0.0314 M

C. 0.0625 M

D. 0.0174 M

Answer: D

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2. Product obtained when benzaldehyde and acetophenone undergo cross aldol condensation is

A. 1, 4 – Diphenylprop -2- en -1- one

B. 1,3 - Diphenylprop -2- en -1- one

C. 1,3- Diphenylprop -1- ene -2- one

D. 1, 4 – Diphenylprop -1- ene -2- one

Answer: B

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3. Calculate the electrode potential of the given electrode. Pt, Cl_2(2 bar)| $2Cl^-(0.02M)$; $E^o(Cl_2 \mid 2Cl^-)$ = 3.4 V

A. 3.51 V

B. 3.55 V

C. 1.26 V

D. 2.95 V

Answer: C

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4. A zinc rod dipped in n molar solution of $ZnSO_4$ has an electrode potential of -0.56 V. The salt is 98 percent dissociated at room temperature. What is the molarity of the solution? $\left(E^{\circ}\left(Z\frac{n^{+2}}{Z}n\right) = -0.5V\right)$

A. 8.44×10^{-3} M

B. 9.44×10^{-4} M

C. 8.44×10^{-4} M

D. 9.44×10^{-3} M

Answer: C

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5. Cannizzaro reaction is an example of

A. Disproportionation reaction

B. Decomposition reaction

C. Condensation reaction

D. Displacement reaction

Answer: A

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6. What is the pH of HCl solution when the hydrogen gas electrode shows a potential of -0.22 V at standard temperature and pressure?

A. 2.17

B. 2.98

C. 3.73

D. 3.14

Answer: B

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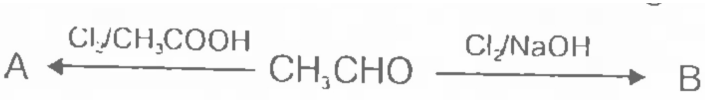
7. Identify products A and B in the following reaction



A.

B.

C.

D.

Answer: A

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8. Although the H-bonding in hydrogen fluoride is much stronger than that in water, yet water has a much higher boiling point than hydrogen fluoride. Why?

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9. IUPAC name of the following compound is 

A. 2-Methylcyclohex-5- enoic acid

B. 6-Methylcyclohex-2- enoic acid

C. 6-Methylcyclohex-2- enecarboxylic acid

D. 2-Methylcyclohex-5- enecarboxylic acid

Answer: C

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10. What is the number of electrons transferred in an equation if the Nernst equation is $E(cell) = E^{\circ}(cell) - 9.83 \times 10^{-3} \times \log_{10}$ (Anode / Cathode)?

A. 2

B. 4

C. 6

D. 1

Answer: C

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11. Acidic hydrolysis of 2-methylbenzamide followed by heating with alkaline potassium permanganate and acidic work up produces

A. Benzoic acid

B. Glutaric acid

C. Oxalic acid

D. Phthalic acid

Answer: D

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12. Find the number of electrons transferred in the equation $Cu(g) + 2Ag^{+}(aq) \rightarrow Cu^{2+}(aq) + 2Ag(s)$.

A. 1

B. 2

C. 3

D. 4

Answer: D

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13. What is the time taken to complete 75 percent of the reaction if the rate of the first-order reaction is 0.023 min-1?

A. 60.28 minutes

B. 69.28 minutes

C. 50.37 minutes

D. 65.97 minutes

Answer: B

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14. The rate constant of a reaction is k=3.28 × $10^{-4}s^{-1}$. Find the order of the reaction.

A. Zero order

B. First order

C. Second order

D. Third order

Answer: D

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15. Product obtained when cyclohexene is oxidised with acidic potassium dichromate will be

A. Succinic acid

B. Adipic acid

C. Benzoic acid

D. Terephthalic acid

Answer: B

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16. Incorrect statement with respect to physical properties of carboxylic acids is

A. Carboxylic acids have higher boiling point than alcohols of comparable molecular masses

B. Most carboxylic acids exist as dimer in the vapour phase

C. Solubility of carboxylic acids in water increases with increasing number of carbon atoms

D. Carboxylic acids are also soluble in less polar organic solvents like benzene,

ether, chloroform etc.

Answer: C

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17. For a reaction A +B → C, the experimental rate law is found to be $R = k[A]^1[B]^{\frac{1}{2}}$. Find the rate of the reaction when [A] = 0.5 M, [B] = 0.1 M and k=0.03.

A. $4.74 \times 10^{-2}\left(Lmol^{-1}\right)^{\frac{1}{2}} s^{-1}$

B. $5.38 \times 10^{-2}\left(Lmol^{-1}\right)^{\frac{1}{2}} s^{-1}$

C. $5.748 \times 10^{-2}\left(Lmol^{-1}\right)^{\frac{1}{2}} s^{-1}$

D. $4.86 \times 10^{-2}\left(Lmol^{-1}\right)^{\frac{1}{2}} s^{-1}$

Answer: C

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18. pK, value of trifluoroacetic acid, benzoic acid and acetic acid are respectively

A. 4.76, 4:19 and 0:23

B. 4-19, 4-76 and 0-23

C. 0-23, 4-76 and 4-19

D. 0:23, 4-19 and 4.76

Answer: D

19. For the reaction A + H2O → products, find the rate of the reaction when [A] = 0.75 M, k= 0.02.

A. $0.077S^{-1}$

B. $0.085S^{-1}$

C. $0.015S^{-1}$

D. $0.045S^{-1}$

Answer: B

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20. What is the concentration of the reactant in a first order reaction when the rate of the

reaction is 0.6 s-1 and the rate constant is 0.035?

A. 26.667 M

B. 17.143 M

C. 26.183 M

D. 17.667 M

Answer: B

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21. How many times will the rate of the elementary reaction $3X + Y \rightarrow X2Y$ change if the concentration of the substance X is doubled and that of Y is halved?

A. r2= 4.5r1

B. r2= 5r1

C. r2= 4r1

D. r2= 2r1

Answer: B

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22. The rate constant of a reaction is $0.01S^{-1}$, how much time does it take for $2.4molL^{-1}$ concentration of reactant reduced to 0.3 $molL^{-1}$?

A. $108.3S^{-1}$

B. $207.9S^{-1}$

C. $248.2S^{-1}$

D. $164.3S^{-1}$

Answer: D

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23. What time does it take for reactants to reduce to 3/4 of initial concentration if the rate constant is 7.5 x $10^{-3}S^{-1}$?

A. 38.4s

B. 40.2s

C. 39.3s

D. 36.8s

Answer: B

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24. One of the product formed in the electrolysis of sodium salt of succinic acid is

A. Ethane

B. Butene

C. Ethylene

D. Acetylene

Answer: C

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25. Carboxylic acid in which Hell-Volhard-Zelinsky reaction cannot be carried out?

A. 

B. 

C. 

D. 

Answer: B

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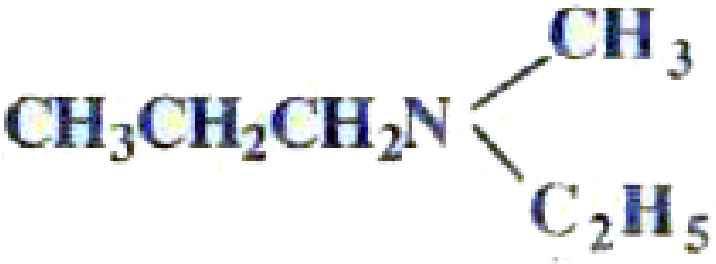
26. Write the IUPAC name of the following compound :



A. N-Methyl-N-ethylaniline

B. N-Ethyl-N-methylaniline

C. N-Ethyl-N-methylbenzenamine

D. N-Methyl-N-ethylbenzenamine

Answer: C

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27. A zero-order reaction is 25% complete in 30seconds. What time does it take for 50% completion?

A. 40s

B. 70s

C. 50s

D. 60s

Answer: B

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28. Amine produced by the Hoffmann degradation of benzamide is

A. Secondary amine

B. Aliphatic amine

C. Tertiary amine

D. Aromatic amine

Answer: D

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29. Identify the amine which cannot be prepared by Gabriel phthalimide synthesis

A. 

B. 

C. 

D. 

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30. For a certain reaction the values of Arrhenius factor and Activation energy are 4 x 10^{13} collision/sec and 98.6KJ/mol at 303K. Calculate the rate constant if reaction is 1st order?($R = 8.341 mol^{-1} K^{-1}$)

A. 6.07×10^{-3}

B. 3.02×10^{-5}

C. 4.07×10^{-4}

D. 7.42×10^{-3}

Answer: D

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