



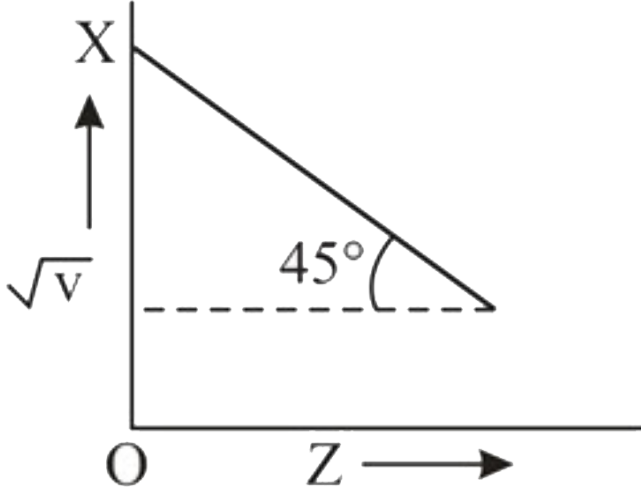
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 86

Chemistry

1. In the graph between \sqrt{v} and Z for the Mosley's equation, $\sqrt{v} = a(Z - b)$, the Mosley's equation, $\sqrt{v} = a(Z - b)$, the intercept OX is 1 on \sqrt{v} axis.



What is the frequency ν when the atomic number Z is 52?

A. $7.14s^{-1}$

B. $7s^{-1}$

C. $2401s^{-1}$

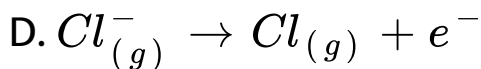
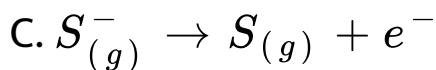
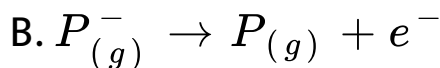
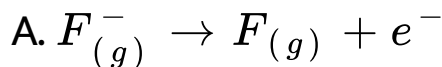
D. $2601s^{-1}$

Answer: D



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2. Which of the following transformation least energy is required?



Answer: B



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3. When but - 3 - en - 2 - ol reacts with $aqHBr$, we get

- A. 3 - bromobut -1- ene
- B. 1 - bromobut -2- ene
- C. a mixture of both A and B
- D. 2 - bromobut -2- ene

Answer: C



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4. The dipole moment of HBr is 2.6×10^{-30} esu.cm and the interatomic spacing is 1.41\AA . The percentage of ionic character in HBr is

A. 10.5

B. 11.5

C. 12.5

D. 13.5

Answer: B



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5. The simultaneous solubility of AgCN ($K_{sp} = 2.5 \times 10^{-6}$) and AgCl ($K_{sp} = 1.6 \times 10^{-10}$) in $1 \text{ M NH}_3(\text{aq})$ are respectively Given $K_f[\text{Ag}(\text{NH}_3)_2]^+ = 10^7$

A. $1.58 \times 10^{-3}, 1.26 \times 10^{-5}$

B. $0.04, 6.25 \times 10^{-8}$

C. $5.58 \times 10^{-8}, 0.037$

D. $0.037, 5.78 \times 10^{-8}$

Answer: D

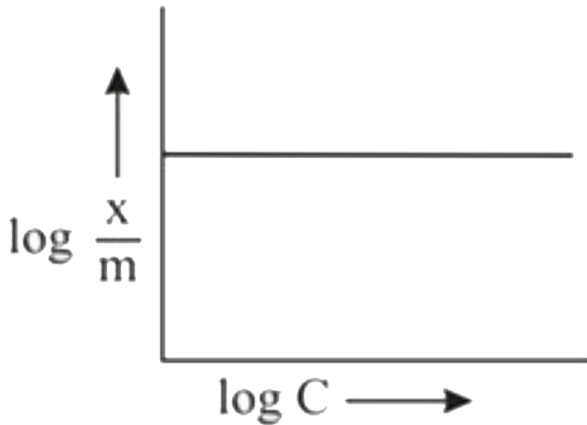


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6. The degree of adsorption of solution on solid surface depends on concentration of solution

$$\frac{x}{m} = KC^{\frac{1}{n}}$$

In which of the conditions, we get following type of graph?



A. $C = 0$

B. $\frac{1}{n} = 0$

C. $C = \text{constant}$

D. $C = 2 M$

Answer: B



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7. The solubility of metal halides depends on their nature, Lattice enthalpy and hydration enthalpy of the individual ions. Amongst fluorides of alkali metals, the lowest solubility of LiF in water is due to

- A. Ionic nature of lithium fluoride
- B. High lattice enthalpy
- C. High hydration enthalpy of lithium ion
- D. Low ionisation enthalpy of lithium atom

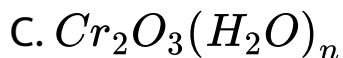
Answer: B



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8. The addition of $NaOH$ to Cr^{3+} solution produces the precipitate of

A. $Cr(OH)_3$



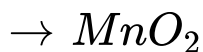
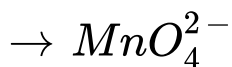
Answer: A

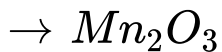


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9. MnO_4^- is good oxidising agent in different

medium changing to - $\rightarrow MnO_4^{2-}$





Changes in oxidation number respectively are -

A. $-1, -3, -4, -5$

B. $-5, -4, -3, -2$

C. $-5, -1, -3, -4$

D. $-2, -6, -4, -3$

Answer: C



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10. Arrhenius equation $k = Ae^{-E_a/RT}$ If the activation energy of the reaction is found to be equal to RT , then [given : $\frac{1}{e} = 0.3679$]

A. the rate of reactions does not depend upon initial concentration

B. the rate constant becomes about 37% of the Arrhenius constant A

C. the rate constant becomes equal to 73% of the Arrhenius constant A

D. the rate of the reaction becomes infinite of zero

Answer: B



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11. Two complexes $[Cr(H_2O)_6]Cl_3$ and $[Cr(NH_3)_6]Cl_3$ (B) are violet and yellow coloured, respectively. The incorrect statement regarding them is :

A. Δ_0 value of A is less than that of B

B. Δ_0 value of A and B are calculated from the energies of violet and yellow light, respectively

C. Both absorb energies corresponding to their complementary colours

D. Both are paramagnetic with three unpaired electrons

Answer: B



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12. Match the refining methods (Column I) with metals (Column II)

Column-I (Refining methods)	Column-II (Metals)
(I) Liquiation	(p) Zr
(II) Zone Refining	(q) Ni
(III) Mond process	(r) Sn
(IV) Van Arkel Method	(s) Ga

- A. (I) - (q), (II) - (r), (III) - (s), (IV) - (p)
- B. (I) - (q), (II) - (s), (III) - (p), (IV) - (r)
- C. (I) - (r), (II) - (p), (III) - (q), (IV) - (s)
- D. (I) - (r), (II) - (s), (III) - (q), (IV) - (p)

Answer: D



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13. A solution is prepared containing a 2:1 mol ratio of dibromoethane ($C_2H_4Br_2$) and dibromopropane ($C_3H_6Br_2$). What is the total vapour pressure over the solution assuming ideal behaviour?



A. 300 mm Hg

B. 158 mm Hg

C. 150 mm Hg

D. 142 mm Hg

Answer: B



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14. Which of the following expression is correct for packing fraction of NaCl if the ions along with face are diagonally removed?

A.
$$\frac{\frac{13}{3}\pi r_-^3 + \frac{16}{3}\pi r_+^3}{8(r_+ + r_-)^3}$$

B.
$$\frac{\frac{13}{3}\pi r_-^3 + \frac{4}{3}\pi r_+^3}{8(r_+ + r_-)^3}$$

$$\text{C. } \frac{\frac{16}{3}\pi r_-^3 + \frac{13}{3}\pi r_+^3}{8(r_+ + r_-)^3}$$

$$\text{D. } \frac{\frac{4}{3}\pi r_-^3 + \frac{13}{3}\pi r_+^3}{8(r_+ + r_-)^3}$$

Answer: A

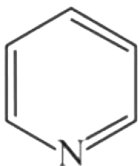
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15. Consider the following compounds

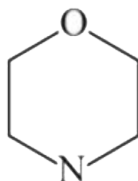


H

(1)



(2)



H

(3)



H

(4)

Order of basicity of these compound in decreasing order is

A. $4 > 1 > 2 > 3$

B. $1 > 3 > 4 > 2$

C. $2 > 3 > 4 > 1$

D. $1 > 3 > 2 > 4$

Answer: D



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16. Which of the following functional groups is generally least reactive towards nucleophilic substitution reaction?

A. Amide

B. Ester

C. Acid chloride

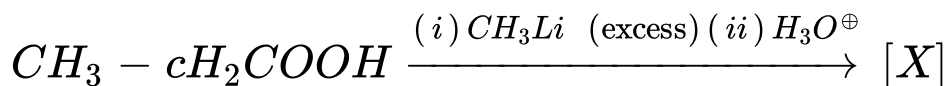
D. Acid Anhydride

Answer: A

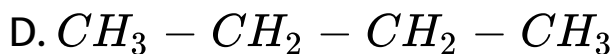
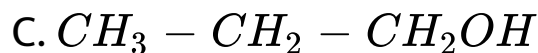
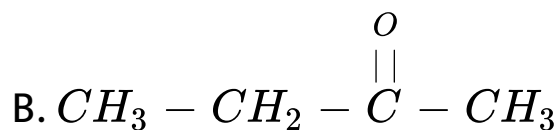
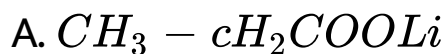


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17. In the given reaction



[X] will be

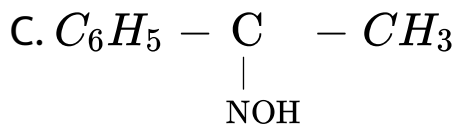
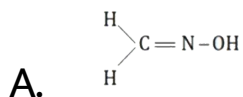


Answer: B



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18. Which one of the following will not give alkyl cyanide on treatment with P_2O_5



D. A and C

Answer: D



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19. Pick out the incorrect statement

A. MnO_2 dissolves in conc. HCl , but does not form Mn^{4+} ions

B. MnO_2 oxidizes hot concentrated H_2SO_4 liberating oxygen

C. K_2MnO_4 is formed, when MnO_2 is fused KOH is oxidized by air, KNO_2 , PbO_2 or $NaBiO_3$

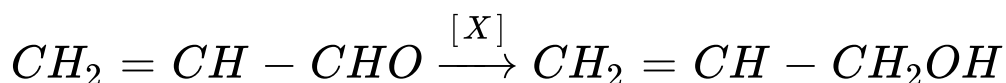
D. Decomposition of acidic $KMnO_4$ is not catalysed by sunlight

Answer: D



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20. In the given reaction



[X] will be

A. H_2, Ni

B. H_2, Pt

C. $NaBH_4$

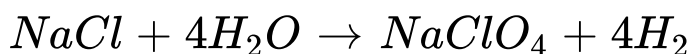
D. H_2 / Wilkinson catalyst

Answer: C



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21. Ammonium perchlorate, NH_4ClO_4 , used in the solid fuel in the booster rockets on the space shuttle, is prepared from sodium perchlorate, $NaClO_4$, which is produced commercially by the electrolysis of a hot, stirred solution of sodium chloride. How many faradays are required to produce 1.0kg of sodium perchlorate?



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22. The haemoglobin from the red blood corpuscles of most mammals contains approximately 0.33% of iron by weight. The molecular weight of haemoglobin is 67,200.

The number of iron atoms in each molecule of haemoglobin is (atomic weight of iron = 56):

A. 3

B. 11

C. 4

D. 5

Answer: C



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23. For the equilibrium $AB(g) \rightleftharpoons A(g) + B(g)$ at a given temperature, the pressure at which one-third of AB is dissociated is numerically equal to



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24. The number of constitutional isomers of the formula $C_5H_{11}Br$ is



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25. The volume strength of 3.57 M solution hydrogen peroxide (at STP) is Report your answer by rounding it upto nearest whole number

A. 20

B. 40

C. 25

D. 36

Answer: B



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