CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 32

Chemistry

1. Heating mixture of Cu_2O and Cu_2S will give

A. $Cu + SO_2$

B. $Cu + SO_3$

C. $CuO + CuS$

D. Cu_2SO_3

Answer: A

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2. A redox reaction always involves

A. A change in oxidation number.

B. A change in phase

C. The transfer of protons

D. the formation of ions

Answer: A

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3. How many isomers are possible for the alkyl group C_4H_9- ?

A. Two

B. Three

C. Four

D. Five

Answer: C

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4. What is obtained when chlorine is passed in boiling touence an dproduct is hydrolysed?

A. o - cresol

B. p - cresol

C. 2, 4 - dihydroxytoluene

D. Benzyl alcohol

Answer: D

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5. The solubility product of AgCl is 1.8×10^{-10}. Precipitation of AgCl will occur only when equal volumes of solutions of :

A. 10^{-4} M Ag^{+} and 10^{-4}M Cl^{-}

B. $10^{-7}\mathrm{M}\ \mathrm{Ag}^{+}$ and $10^{-7}\mathrm{M}\ \mathrm{Cl}^{-}$

C. $10^{-5}\mathrm{M}\ \mathrm{Ag}^{+}$ and $10^{-5}\mathrm{M}\ \mathrm{Cl}^{-}$

D. $10^{-10}\mathrm{M}\ \mathrm{Ag}^{+}$ and $10^{-10}\mathrm{M}\ \mathrm{Cl}^{-}$

Answer: A

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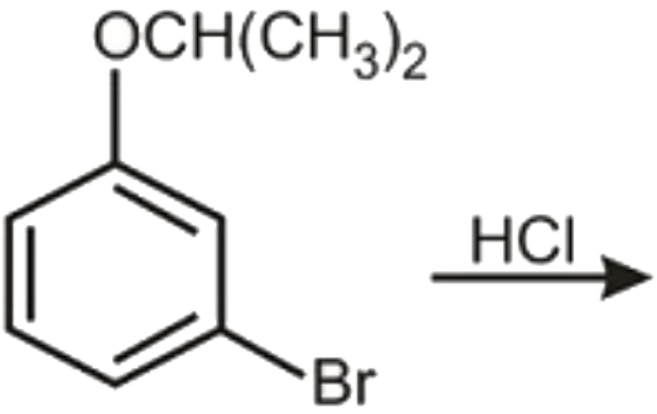
6. What are product of the reaction shown ?



A. $(CH_3)_2CHCl$ and m - bromophenol

B. $(CH_3)_2CHCl$ and m - bromo chlorobenzene

C. $(CH_3)_2CHOH$ and m - bromophenol

D. $(CH_3)_2CHOH$ and m - bromo chlorobenzene

Answer: A

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7. In a first order reaction the concentration of reactant decreases from 800 mol/dm to $50mol/dm^3$ in $2 \times 10^2 s$. The rate constant of reaction in s^{-1} is

A. $2 \times 10^{-4} s^{-1}$

B. $1.386 \times 10^{2} s^{-1}$

C. $3.45 \times 10^{5} s^{-1}$

D. $2 \times 10^{4} s^{-1}$

Answer: B

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8. Increasing order of density is

A. $Li < K < Na < Rb < Cs$

B. $Li < Na < K < Rb < Cs$

C. $Li < Na < K < Cs < Rb$

D. $K < Li < Na < RB < Cs$

Answer: A

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9. Which of the following statement is correct ?

A. H_3PO_3 is tribasic and reducing

B. H_3PO_3 is tribasic and non - reducing

C. H_3PO_3 is diabasic and non - reducing

D. H_3PO_3 is diabasic and reducing

Answer: D

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10. A miscible mixture of $C_6H_6 + CHCl_3$ can be separated by

A. Sublimation

B. Distillation

C. Filtration

D. Crystallisation

Answer: B

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11. Aqueous solution of orthoboric acid can be titrated against sodium hydroxide using phenolphthalein indicator only in presence of

A. trans - glycerol

B. catechol

C. cis-glycerol

D. both (B) and (C)

Answer: D

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12. Which of the following is not optically active?

A. $\left[Co(en)_3\right]^{3+}$

B. $\left[Cr(\otimes)_3\right]^{3-}$

C. $cis-\left[CoCl_2(en)_2\right]^{+}$

D. $trans-\left[CoCl_2(en)_2\right]^{+}$

Answer: D

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13. Yellow dye can be prepared by a coupling reaction of benzene diazonium chloride in acid medium with x. Identify X from the following

A. Aniline

B. Phenol

C. Cumene

D. Benzene

Answer: A

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14. When benzene or its derivative is treated with carbon monoxide and hydrogen chloride

in the presence of anhydrous aluminium chloride, it gives

A. Benzaldehyde

B. Benzophenone

C. Benzyl alcohol

D. Benzal chloride

Answer: A

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15. Which of the following reaction is involved in the preparation of primary amines :

(i) Hofmann's bromamide reaction and

(ii) Gobriel phthalimide synthesis

A. (i)

B. (ii)

C. Both of these

D. None of these

Answer: C

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16. Cerium $(Z = 58)$ is an important nember of the lanthanoids . Which of the following statements about cerium is incorrect ?

A. The common oxidation states of cerium are $+3$ and $+4$

B. The $+3$ oxidation state of cerium is more stable than $+4$ oxidation state

C. Cerium (III) acts as an oxidising agent

D. The $+4$ oxidation state of cerium is known in solution

Answer: C

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17. $CH_3CCl_3 \xrightarrow{\text{hydrolysis}} \text{acid - 2}$

Correct answer is

A. $(pK_a)_{HCN} > (pK_a)_{\text{acid - 2}}$

B. $(pK_a)_{\text{HCN}} = (pK_a)_{\text{acid - 2}}$

C. $(pK_a)_{\text{HCN}} < (pK_a)_{\text{acid-2}}$

D. All of these

Answer: A

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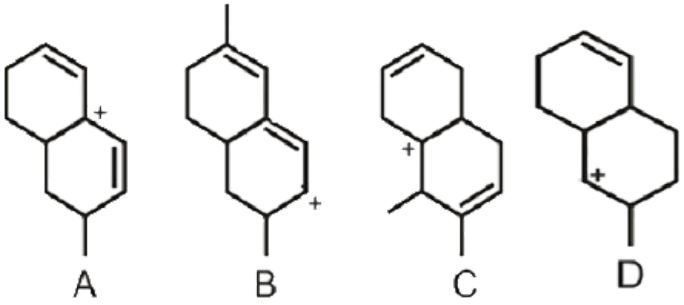
18. Rank the following carbocations in order of stability (1 = most stabe)



A. $A \rightarrow 2, B \rightarrow 1, C \rightarrow 3, D \rightarrow 4$

B. $A \rightarrow 4, B \rightarrow 2, C \rightarrow 1, D \rightarrow 3$

C. $A \rightarrow 4, B \rightarrow 3, C \rightarrow 2, D \rightarrow 1$

D. $A \rightarrow 1, B \rightarrow 2, C \rightarrow 3, D \rightarrow 4$

Answer: A

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19. The bond dissociation energy of $B-F$ in BF_3 is $646kJmol^{-1}$ whereas that of $C-F$ in CF_4 is $515kJmol^{-1}$. The correct reason for higher $B-F$ bond dissociation energy as compared to that of $C-F$ in CF_4 is

A. Smaller size of B atom as compared to that of C atom

B. Stronger σ bond between B and F BF_3 as Compared to that between C and F in

CF_4

C. Lower degree of $p\pi - p\pi$ interaction between B and F in BF_3 than that between C and F I CF_4

D. Significant $p\pi - p\pi$ interaction between B and F in BF_3 whereas there is no possibility of such interaction between C and F in CF_4

Answer: D

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20. One mole of $N_2O_4(g)$ at 300 K is kept in a closed container under one atmosphere. It is heated to 600K when 20% by mass of N_2O_4(g) decomposes to NO_2(g). The resultant pressure is:

A. 1.2 atm

B. 2.4 atm

C. 2.0 atm

D. 1.0 atm

Answer: B

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21. How many millilitres of 0.5 M H_2SO_4 are needed to dissolve 0.5 g of copper (II) Carbonate ?

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22. 100g of liquid A(molar mass 140g mol^{-1}) was dissolved in 1000g of liquid B(molar mass

$180 \mathrm{g\ mol}^{-1}$). The vapour pressure of pure liquid B was found to be 500 torr. Calculate the vapour pressure of pure liquid A and its vapour pressure in the solution if the total vapour pressure of the solution is 475 torr.

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23. How many stereoisomers can be drawn for the following molecule?

$H_3\mathrm{CCH}_2CH = CHCH_2CH(Cl)CH_3$

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24. Calculate the concentration (in percentage by weight) of a solution obtained by mixing 300 g $25\ \%$ by weight solution of NH_4Cl and 150 g of $40\ \%$ by weight solution of NH_4Cl

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25. Copper sulphate solution $(250ML)$ was electrolyzed using a platinum anode and a copper cathode. A constant current of $2mA$ was passed for $16min$. It was found that after

electrolysis the absorbance of the solution was reducted to 50% of its original value . Calculate the concentration of copper sulphate in the solution to begin with.

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