CHEMISTRY

BOOKS - ACCURATE PUBLICATION

MODEL TEST PAPER-10

Section A Mcq

1. The density of 2.05 M acetic acid in water is

`1.02 g/ml . Calculate the molality of solution.

A. 3.29

B. 0.229

C. 22.9

D. 2.29

Answer:

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2. What mass (in grams) of nickel could be electroplated from a solution of nickel (II)

chloride by a current of 0.25 amperes flowing

for 10 hours ?

A. 12 g

B. 5.5 g

C. 0.046 g

D. 2.7 g

Answer:

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3. Molal clevation constant is also called as

A. Cryoscopic Constant

B. gas constant

C. Ebullioscopic constant

D. freezing point depression constant

Answer:

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4. Which of the following mixture does not show positive deviation from the Raoult,s Law?

A. Benzene+ acetone

B. Acetone+ ethanol

C. Acetone+ chloroform

D. Water+ ethanol

Answer:

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5. Write complete balanced equation for the following reaction : ammonia + copper oxide → copper + nitrogen + water

6. Write complete balanced equation for the following reaction : aluminium sulphate + sodium hydroxide → aluminium hydroxide + sodium sulphate
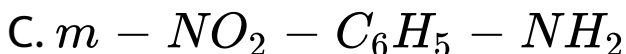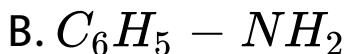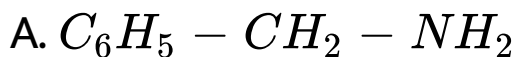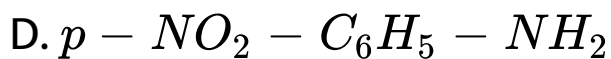
7. Write complete balanced equation for the following reaction : nitric acid + calcium hydroxide $\rightarrow$ calcium nitrate + water

8. Which of the following is strongest base ?

A. $C_6H_5 - CH_2 - NH_2$

B. $C_6H_5 - NH_2$

C. $m - NO_2 - C_6H_5 - NH_2$

D. $p - NO_2 - C_6H_5 - NH_2$

Answer:

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9. The property which is not characteristic of

transition metals is

A. variable oxidation states

B. tendency to form complexes

C. formation of coloured compounds

D. natural radioactivity.

Answer:

10. Pick out the correct statement with respect to $[Cr(NH_3)_6]^{3+}$

A. It is sp^2d^2 hybridised, tetrahedral

B. It is d^2sp^3 hybridised, octahedral

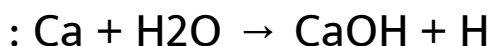C. It is dsp^2 hybridised, square planar

D. It is sp^3d^2 hybridised octahedral

Answer:

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11. Correct and balance the following equation

: Ca + H2O → CaOH + H

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12. Correct and balance the following equation

: N + H → NH3
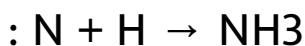
13. Write balanced equation from following equation : lime water reacts with carbon dioxide gas to produce calcium carbonate and water

14. Write balanced equation from following equation : aluminium burns in chlorine to give aluminium chloride

15. Which of the following gives aldol condensation reaction?

A. Formaldehyde

B. Acetaldehyde

C. Dimethyl ketone

D. Propionaldehyde

Answer:

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16. Balance the following equation : MnO_2 + HCl → $MnCl_2$ + Cl_2 + H_2O

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17. In nucleic, acids, the sequence is

A. phosphate - base - sugar

B. sugar- base-phosphate

C. base- sugar - phosphate

D. base- phosphate - sugar

Answer:

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18. The segment of DNA which acts as the instrumental manual for the synthesis of the protein is:

A. ribose

B. ribose

C. nucleoside

D. nucleotide

Answer:

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Section A Passage

1. Adsorption is surface phenomenon, while absorption concerns with the whole mass of the absorbent.

In adsorption, the substance is only retained on the surface and does not go into the bulk or interior of the solid or liquid. Absorption implies that substance is uniformly distributed throughout the body of the solid or liquid.

In adsorption, the concentration of the adsorbed molecules is always greater in the immediate vicinity of the surface tlian in the free phase. Absorption involves bulk

penetration of the molecules into the structure of the solid or liquid by some process of diffusion.

Adsorption is a rapid process and equilibrium is attained in a short time. In absorption the equilibrium takes place slowly.

Such substance is said to be sorbed and the phenomenon is known as sorption.

What is phenomenon of adsorption.

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2. Balance the chemical equation : $MgCO_3$ + $HCl \rightarrow MgCl_2 + CO_2 + H_2O$

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3. Balance the chemical equation : $Mg + CO_2 \rightarrow MgO + C$

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How does equilibrium affects by adsorption ?

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Section A True False

1. Acetanilide is less basic than aniline.

2. Boiling point of iodobenzene is more than that of bromobenzene.

3. Boiling point of iodobenzene is more than that of bromobenzene.

4. Phenetol reacts with HI at 373 K to give ethanol and iodobenzene.

5. Uracil occurs in DNA and not in RNA.

1. 2.1 g of non-electrolyte solute (molar mass 250 g/mol) was dissolved in 5.12 g of benzene. If the freezing point of depression constant, k_f of benzene is 5.12 K kg/mol, Calculate the freezing point of solution if freezing point of pure benzene is 5.5^0 C.

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2. Dissolving 120g of urea (mol.wt 60) in 1000g of water gave a solution of density 1.15g/ml. The molarity of solution is:

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3. Explain

ligand

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4. Explain

bridging ligand.

5. Explain the geometry of $[Ni(CO)_4]$ on basis of VBT.

6. Write the difference between molecularity and order of reaction?

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7. Among noble gases Xenon forms maximum number of compounds, why ?

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8. Explain the variation in molar conductivity of weak electrolyte with concentration.

9. $\left[Ti(H_2O)_6\right]^{3+}$ is coloured while $\left[Sc(H_2O)_6\right]^{3+}$ is colourless. Explain.

10. If $t_{1/2}$ is 0.693 sec. for a first order reaction.

Calculate reaction rate constant.

11. Prove that $t_{75} = 2t_{50}$ for 1st order reaction.

12. Why are Mn^{2+} compounds more stable

than Fe^{2+} compounds towards oxidation to

their +3 state ?

13. Write differences between ideal and non-ideal solutions.

14. Write down the units of K_b ?

15. Difference between osmosis and diffusion.

16. Mixture of acetone and chloroform shows negative deviation from Raoult's law. Why?

17. How does SO_2 react with

Cl_2

18. How does SO_2 react with

$K_2Cr_2O_7$

19. Draw the structures of XeO_4

20. Draw the structure of $XeOF_2$

21. Bleaching action of Cl_2 is permanent while that of SO_2 is temporary. Why?

Section C Long Answer Questions

1. Write NERNST equation also Calculate the cell e.m.f. and ΔG for the cell reaction at $25°C$

$$Cr(s)/Cr^{3+}(0.1M)//Fe^{2+}(0.01M)/Fe(s)$$

Given

$$E^0_{Cr^{3+}/Cr} = -0.75V, E^0_{Fe^{2+}/Fe} = -0.45V$$

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2. The resistance of 0.05 M NaOH solution in a cell having length 5 cm area of cross section

10 cm2 is 5.55×10^3 ohm. Calculate its molar

conductance.

3. How will you convert phenol into

phenolphthalein, picric acid and salol.

4. Write the following reactions

Distinguish test for $1°$, $2°$, $3°$ alcohols

5. Write the following reactions

Convert cholorobenzene into phenol

6. The rate constant for a first order reaction in $60 S^{-1}$. How much time will it take to reduce the concentration of the reactant to $\dfrac{1}{20^{th}}$ of its initial value ?

7. A first order reaction is 20% complete in the 10 minutes. Calculate the time period for 75% completion of the reaction.

8. Why the acid strengths of acids increase in the order :

$HClO < HClO_2 < HClO_3 < HClO_4$?

1. Give the following reactions:

Fitting reaction

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2. Write Wurtz reaction.

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3. Explain the following reactions :

Ulmann reaction

4. Write the following reactions :

Swarts reaction

5. Explain:

S_{N^2} mechanism by taking example.

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6. How will you convert :

Chlorobenzene to 1,2 dichlorobenzene

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7. How will you convert:

But-1-ene to But-2-ene

  ▶ **Watch Video Solution**

8. How will you convert:

Chlorobenzene to Benzoic acid

  ▶ **Watch Video Solution**

9. How will you convert :

Acetic acid into ethane

▶ **Watch Video Solution**

10. How will you convert :

methane into choloroform

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11. Why transition metals show catalytic properties?

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12. Transition metals form number of interstitial compounds. Explain.

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13. Write any two consequences of lanthanoids contraction.

14. Most of transition metals show variable oxidation states. Explain

15. Briefly explain, why are electronic configuration of lanthanides not known with certainty ?