



www.zigya.com

Previous Year Paper

Chemistry - 2014



Match The Following

1. Match the following:

A. Molal depression constant	(i) Infinite dilution
B. Acetaldehyde	(ii) $\text{mol l}^{-1} \text{sec}^{-1}$
C. Rate of reaction	(iii) Iodoform
D. Rate of reaction	(iv) K Kg mol^{-1}
E. Kohlrausch's law	(v) Lactic acid

Answer



Fill In the Blanks

2. Fill in the blanks by choosing the appropriate word/words from those given in the brackets:

(increases, formic acid, decreases, less, zero, small, paired, atoms, unpaired, ions, pentagonal bipyramidal, electrical, more,

(i) An electrochemical cell converts _____ energy to _____ energy.

(ii) The crystal of graphite is made up of _____ while that of sodium chloride is made up of _____.

(iii) Ethyl isocyanide, on hydrolysis with dilute sulphuric acid, gives _____ and _____.

(iv) The molar conductance of a solution _____ with dilution, while its specific conductance _____ with dilution.

(v) The Van't Hoff factor of acetic acid solution is _____ than one and the value of normal colligative property is _____ than the observed colligative property of this solution.

Answer



3. Complete the following statements by selecting the correct alternative from the choices given:-

Of the following terms used for denoting concentration of a solution, the one which does not get affected by temperature is:

- A. Molarity
- B. Molality
- C. Normality
- D. Formality

Answer

4. Complete the following statements by selecting the correct alternative from the choices given:-

The solubility of calcium hydroxide is s mol litre⁻¹. The solubility product under the same condition will be:

- A. $4s^3$
- B. $2s^3$
- C. $2s^2$
- D. $2s^2$

Answer

5. Complete the following statements by selecting the correct alternative from the choices given:-

A current liberates 0.50g of hydrogen in 2 hours. The weight of copper (at.wt.= 63.5) deposited at the same time by the same current through Copper sulphate solution is:

- A. 63.5 g
- B. 31.8 g
- C. 15.9 g
- D. 15.9 g

Answer

6. Complete the following statements by selecting the correct alternative from the choices given:-

Natural rubber is a:

- A. Polyester

Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

C. Polyisoprene

Study, Assignments, Solved Previous Year Papers . Questions and Answers. Free Forever.

D. Polyisoprene

Answer

7. Complete the following statements by selecting the correct alternative from the choices given:

Among the following halogens, the one which does not form an oxyacid is:

- A. Fluorine
- B. Chlorine
- C. Bromine
- D. Bromine

Answer

Short Answer Type

8. Answer the following questions:

What is the $[\text{OH}^-]$ concentration of an acid whose pH is 5 at 25°C ?

Answer

9. Answer the following questions:

What happens when a nickel rod is dipped into a copper sulphate solution? Justify your answer.

$E^\circ_{\text{Ni}^{2+}/\text{Ni}} = -0.25 \text{ V}$ and $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = +0.34 \text{ V}$

Answer

10. Answer the following:

Write the equation for the preparation of acidanilide from aniline.

Answer

11. Answer the following:

Define Raoult's law for the elevation of the boiling point of a solution.

Answer

12. An ionic compound is made up of A cations and B anions. If A cations are present at the alternate corners and B anion is present on the body of the diagonal, what is the formula of the ionic compound?

Answer

13. What will be the vapour pressure of a solution containing 5 moles of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) in 1 kg of water, if the vapour pressure of pure water is 4.57 mm of Hg?

[C = 12, H = 1, O = 16]

Answer

14. A 2 molal solution of sodium chloride in water causes an elevation in the boiling point of water by 1.88 K. What is the value of Van't Hoff factor? What does it signify? [$K_b = 0.52 \text{ K kg mol}^{-1}$]

Answer

-
15. (i) Write the mathematical expression relating the variation of rate constant of a reaction with temperature. Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

(ii) How can you graphically find the activation energy of the reaction from the above

expression?

(iii) The slope of the line in the graph of $\log k$ (k = rate constant) versus $1/T$ is -5841 . Calculate the activation energy of the reaction.

Answer

16. Define Frenkel defect in solid crystal.

Answer

17. Explain giving reasons why:

Ionic solids conduct electricity in molten state, but not in solid state.

Answer

18. Explain giving reason:

Solution of sodium chloride has no effect on litmus, but a solution of zinc chloride turns blue litmus red.

Answer

19. In a crystal of diamond:

(i) How many carbon atoms are present per unit cell?

(ii) What type of lattice does diamond crystallize in?

(iii) How many carbon atoms surround each carbon atom?

(iv) How are they arranged?

Answer

20. (i) What is standard hydrogen electrode?

(ii) 0.05 M NaOH solution offered a resistance of 31.6 ohm in a conductivity cell at 298 K. If the cell constant of the cell is 0.367 cm^{-1} , calculate the molar conductivity of the NaOH solution.

Answer

21. State the effect of the following on the reaction $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g}) + 189.4 \text{ kJ}$ at equilibrium:

(i) Temperature is increased.

(ii) Concentration of SO_2 is increased.

(iii) Pressure is decreased.

(iv) Helium is added at constant pressure.

Answer

22. (i) 0.3605 g of a metal is deposited on the electrode by passing 1.2 amperes of current for 15 minutes through its salt solution. The atomic weight of the metal is 96. What is the valency of

the metal?

Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

23. Explain why phenolphthalein is used as an indicator in acid-base titration.

Answer Study, Assignments, Solved Previous Year Papers . Questions and Answers. Free Forever.

24. Write the formula of the following compounds:

(i) Triamminetriaquachromium(III)chloride

(ii) Potassiumhexacyanoferrate(III)

Answer

25. Name the types of isomerism shown by the following pairs of compounds:

(i) $[\text{CoCl}(\text{H}_2\text{O})(\text{NH}_3)_4]\text{Cl}_2$ and $[\text{CoCl}_2(\text{NH}_3)_4]\text{Cl} \cdot \text{H}_2\text{O}$

(ii) $[\text{Pt}(\text{NH}_3)_4][\text{PtCl}_6]$ and $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2][\text{PtCl}_4]$

Answer

26. For the complex ion of $[\text{Co}(\text{NH}_3)_6]^{3+}$:

(i) State the hybridisation of the complex.

(ii) State the magnetic nature of the complex.

Answer

27. Write balanced chemical equations for the following reactions:

(i) Ozone and lead sulphide.

(ii) Chlorine is passed through hot concentrated NaOH solution.

(iii) Sulphuric acid is treated with phosphorous

Answer

28. Give reasons for the following:

(i) Zn^{+2} salts are white but Cu^{2+} salts are blue in colour.

(ii) Fluorine gives only one oxide but chlorine gives a series of oxides.

Answer

29. How is potassium dichromate prepared from a sample of chromite ore? Give balanced equations for the chemical reactions involved.

Answer

30. For the molecule IF_7 :

(i) Draw the structure of the molecule.

(ii) State the hybridisation of the central atom.

(iii) State the geometry of the molecule

Answer

31. How can the following conversions be brought about:

(i) Acetic acid to methyl cyanide.

(ii) Acetaldehyde to formaldehyde.

(iii) Nitrobenzene to 2, 4, 6 tribromoaniline.

Answer Like, Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com



Study Assignments, Solved Previous Year Papers, Questions and Answers. Free Forever.



Answer

33. The deficiency of which vitamin will cause the following diseases:

- (i) Scurvy
- (ii) Haemorrhages

Answer

34. Give one chemical test to distinguish between the following pairs of compounds:

- (i) Ethanol and 2 propanol.

- (ii) Aniline and ethylamine

Answer

35. Write the structures of all enantiomers possible for lactic acid.

Answer

36. Give balanced equations for the following reactions:

- (i) Acetaldehyde is heated with hydroiodic acid in the presence of red phosphorous.
- (ii) Calcium acetate is subjected to dry distillation.
- (iii) Sodium ethoxide is treated with ethyl bromide.
- (iv) Benzaldehyde is treated with sodium bisulphite.

Answer

37. An organic compound A with molecular formula C_7H_8 on oxidation by chromylchloride in the presence of CCl_4 gives a compound B which gives positive tollen's test. The compound B on treatment with NaOH followed by acid hydrolysis gives two products C and D. C on oxidation gives B which on further oxidation gives D. The compound D on distillation with soda lime gives a hydrocarbon E. Below 60°C , concentrated nitric acid reacts with E in the presence of concentrated sulphuric acid forming a compound F. Identify the compounds A, B, C, D, E and F.

Answer

38. Give balanced equations for the following name reactions:

- (i) Clemmensen's reduction.
- (ii) Kolbe's electrolytic reaction.
- (iii) Balz-Schiemann's reaction.

Answer

39. (i) What do you observe when glucose is treated with bromine water?

- (ii) What is isoelectric point?

Answer

40. Answer the following:

- (i) What is biuret test?

- (ii) Write balanced equation for the formation of biuret.

Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com



Study Assignments, Solved Previous Year Papers . Questions and Answers. Free Forever.

Long Answer Type

41. (i) K_c for the reaction $SO_2(g) + \frac{1}{2}O_2(g) \rightleftharpoons SO_3(g)$ is 61.7 at 60°C. What is its unit? Calculate K_p for the reaction and write its unit.

(ii) What happens to the equilibrium in a reversible reaction if a catalyst is added to it?

Answer