



CHEMISTRY

BOOKS - GURUKUL BOOKS & PACKAGING

CHEMISTRY (HINGLISH)

FEBRUARY 2016

Section I

1. What is ferromagnetism ? Iron ($Z = 26$) is strongly ferromagnetic. Explain.



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2. Define boiling point. Write the formula to determine molar mass of a solute using freezing point depression method.

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3. Write mathematical equations of first law of thermodynamics for the following processes:

(a) Adiabatic (b) Isochoric process

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4. Explain graphical method to determine activation energy of a reaction.

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5. Write the names and chemical formulae of any one ore of iron and zinc each.

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6. What is the action of

(a) Sodium on arsenic

(b) Magnesium on bismuth

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7. Define enthalpy of sublimation. How is it related to enthalpy of fusion and enthalpy of vaporization?

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8. What are ellingham diagrams? Write any two features of it.

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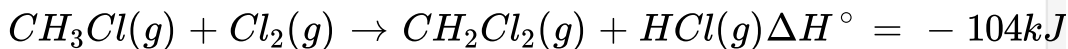
9. Silver crystallises in FCC structure. If density of silver is 10.51 g. cm^{-3} . Calculate the volume of unit cell. [Atomic mass of silver (Ag) = 108 gm^{-1}]

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10. The vapour pressure of pure benzene is 640 mm of Hg. 2.175×10^{-3} kg of non-volatile solute is added to 39 gram of benzene, the vapour pressure of solution is 600 mm of Hg. Calculate molar mass of solute (C = 12, H = 1).

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11. Calculate C - Cl bond enthalpy from following reaction :



If C-H, Cl - Cl and H - Cl bond enthalpies are 414, 243 and 431 kJ mol⁻¹ respectively.

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12. Define cell constant. Draw a neat and well labelled diagram of primary reference electrode.

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13. Write four points of difference between properties of nitrogen and other element of group 15.

Explain structure of ClF_3 .

Conductivity of a solution is $6.23 \times 10^{-5} \Omega^{-1} cm^{-1}$ and its resistance is 13710Ω . If electrodes are electrode. Why is molality of a solution independent of temperature?

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14. What are neutral oxides? Explain the nature of zinc oxide with the help of reaction. Define Molar Conductivity and Zero order reaction.

In a first order reaction $x \rightarrow 40\%$ of the given sample of compound rate constant of the reaction.

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15. The molecular formula of $H_2S_2O_2$ represents which oxoacid among the following

A. Hydrosulphurous acid

B. Thiosulphurous acid

C. Sulphuric acid

D. Pyrosulphurous acid

Answer:



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16. Iodine exists of.....

A. Polar molecular solid

B. Ionic acid

C. Nonpolar molecular solid

D. Hydrogen bonded molecular solid

Answer:



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17. Absolute entropies of solids, liquid and gases can be determined by

A. Measuring heat capacity of substance at various temperatures

B. Subtracting standard entropy of reactants from

C. Measuring vibrational motion of molecules

D. Using formula $\Delta S^\circ = S_T^\circ - S_0^\circ$

Answer:

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18. The determination of molar mass from elevation in boiling point is called as.....

- A. Cryoscopy
- B. Colorimetry
- C. Ebullioscopy
- D. Spectroscopy

Answer:

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19. The Process of leaching, alumina using the sodium carbonate is called.....

- A. Bayer's process
- B. Decomposition
- C. Cyanide process
- D. Hall's process

Answer:



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20. On calculating the strength of current in amperes if a charge of 840 C (coulomb) passes through an electrolyte in 7

minutes, it will be.....

A. 1

B. 2

C. 3

D. 4

Answer:



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21. $A \rightarrow B$ is a first order reaction with rate $6.6 \times 10^{-5} \text{ m} - \text{s}^{-1}$. When $[A]$ is 0.6 m , rate constant of the reaction is.....

A. $1.1 \times 10^{-5} \text{ s}^{-1}$

B. $1.1 \times 10^{-4} \text{ s}^{-1}$

C. $9 \times 10^{-5} \text{ s}^{-1}$

D. $9 \times 10^{-4} \text{ s}^{-1}$

Answer:

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22. Sc^{3+} is colourless in aqueous solution whereas Ti^{3+} is coloured.

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23. Double Salt and Coordination Compound

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24. How is chlorobenzene prepared from aniline? How is chlorobenzene converted into diphenyl?

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25. What is metamerism? Explain metamerism with suitable examples of ethers.

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26. What are ketones? How are ketones classified?

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27. How are (a) 1-nitropropane and (b) 2-nitropropane prepared from suitable oxime?

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28. Define antioxidants. Draw structure of BHT

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29. What are carbohydrates? Write the reaction for the preparation of Nylon-6

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30. What are f-block elements? Distinguish between lanthanoid and actinoid.

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31. Explain the terms:

(a) Optical activity (b) Ligand

(c) Interstitial compounds.

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32. Write the formula of Tetraminodichloroplatinum (IV) chloride. How is propene converted into 1-bromopropane and 2-bromopropane?

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33. What are broad-spectrum antibiotics? How are polythene and neoprene prepared?

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34. Explain the mechanism of esterification. Write the reactions involved in dehydration of 1° , 2° and 3° alcohols

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35. What are vitamins? Name any two diseases caused by deficiency of vitamins A. Write the structures of (a) nucleoside (b) nucleotide.

How are 1-nitropropane, 2-nitropropane and 2-methy-2

nitropropane are distinguished from each other using nitrous acids?

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36. The preparation of alkyl fluoride from alkyl chloride in presence of metallic fluorides is known as:

- A. Williamson's synthesis
- B. Finkelstein reaction
- C. Swarts reaction
- D. Wurtz reaction

Answer:

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37. Identify the weak acidic compound amongst the following

A. p-nitrophenol

B. p-chlorophenol

C. p-cresol

D. p-aminophenol

Answer:



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38. On acid hydrolysis, propane nitrile gives:

A. Propanal

B. Acetic acid

C. Propionamide

D. Propanoic acid

Answer:

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39. Which of the following amines yields foul smelling product with halofrom and alcoholic KOH?

A. Ethlyamine

B. Diethylamine

C. Triethylamine

D. Ethyl methylamine

Answer:



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40. Which of the following NOT present in DNA?

A. Adenine

B. Guanine

C. Thymine

D. Urasil

Answer:



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41. Phenylzine is used as:

A. Analgesic

B. Antiseptic

C. Antipyretic

D. Antidepressant

Answer:



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