FIRST REVISION TEST - 2024

Standard XII

CHEMISTRY

A

Reg No

Part - I

Time : 3.00 hrs

I. Choose the correct answer:

1 Which of the following is paramagnetic in nature?
a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ni(H_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2-}$

2 The magnetic moment of Mn^{2+} ion is
a) 5.92 BM b) 2.80 BM c) 8.95 BM d) 3.90 BM

3 Which of the following is not correct about Xenon hexafluoride?
a) Xe has an oxidation state of +6
b) Hybridisation of Xe is sp^3d^3
c) Shape of XeF_6 is distorted octahedron
d) On hydrolysis with water vapour, it gives X_e, HF and O_2

4 Which of the following is not sp^2 hybridised?
a) Graphite b) Graphene c) Fullerene d) dry ice

5 The correct statement is
a) Leaching of bauxite using aqueous alkali gives sodium meta aluminate
b) The blistered appearance of copper during the metallurgical process is due to the evolution of CO_2
c) Malachite is $CaCO_3.Cu(OH)_2$
d) The Hall-Heroult process is used for the production of Aluminium and Iron

6 Colourless ZnO turns yellow on heating because of
a) Frenkel defect b) Metal excess defect
c) Metal deficiency defect d) Schottky defect

7. The half life period of a radioactive element is 140 days. After 560 days, 1g of element will be reduced to
a) $(\frac{1}{2})$ g b) $(\frac{1}{4})$ g c) $(\frac{1}{8})$ g d) $(\frac{1}{16})$ g

8. Conjugate base for Bronsted acids H_2O and HF are
a) OH^- and H_2F^+ respectively b) H_3O^+ and F^- respectively
c) OH^- and F^- respectively d) H_3O^+ and H_2F^+ respectively

9. Assertion : Pure iron when heated in dry air, is converted with a layer of rust
Reason . Rust has the composition Fe_3O_4
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) assertion is true but reason is false
d) both assertion and reason are false

10. The coagulating power of an electrolyte for Arsenic sulphide sol decreases in the order
a) Na^+, Al^{3+}, Ba^{2+} b) $PO_4^{3-}, SO_4^{2-}, Cl^-$
c) Al^{3+}, Ba^{2+}, Na^+ d) $Cl^-, SO_4^{2-}, PO_4^{3-}$

11. Williamson synthesis of preparing dimethyl ether is a / an /
a) S_N1 reaction b) S_N2 reaction
c) electrophilic addition d) electrophilic substitution

12. The carboxylic acid that does not undergo HVZ reaction is
a) CH_3COOH b) $(CH_3)_2CH\,COOH$
c) $CH_3CH_2CH_2CH_2COOH$ d) $(CH_3)_3C\,COOH$

13. The correct increasing order of basic strength for the following compounds is

I) 
II) 
III) 

a) II < I < III b) III < I < II c) III < II < I d) II < III < I

14. Which one given below is a non-reducing sugar?
a) Glucose b) Sucrose c) Maltose d) Lactose

15. Which of the followng is a co polymer?
a) Orlon b) PVC c) PHBV d) Teflon

Part - II

II. Answer any 6 questions. (Q.No.24 is compulsory) 6 x 2 = 12

16. What are the differences between minerals and ores?
17. Write a note on zeolites
18. What are transition metals? Give example
19. Give any two characterstics of ionic crystals
20. Define half life period of a reaction.
21. What are promoters? Give example.
22. Write Schotten-Baumann reaction
23. Write Gattermann reaction.
24. Identify A and B Ethanoic acid $\xrightarrow{SOCl_2}$ A $\xrightarrow{Pd/BaSO_4}$ B

Part - III

III. Answer any 6 questions. (Q.No.33 is compulsory) 6 x 3 = 18

25. Show that So_2 is a reducing agent
26. What is lanthanoid contraction and what are the effects of lanthanide contraction?
27. In the complex, $[Pt(NO_2)(H_2O)(NH_3)_2]Br$, Identify the following
i) Central metal atom/ion ii) Ligands iii) Coordination number

28. State Ostwald dilution law and derive its mathematical expression.
29. Write the rate law for the following reactions
    a) A reaction that is 3/2 order in X and zero order in Y.
    b) A reaction that is second order in NO and first order in Br_2
30. Give the Gabriel Phthalimide synthesis of primary amines.
31. Give any three differences between DNA and RNA.
32. What are drugs? How are they classified?
33. Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160 mho cm^2 $equiv^{-1}$. Calculate the equivalent and molar conductance of the electrolyte $Al_2(SO_4)_3$ at infinite dilution.

Part - IV

IV. Answer all the questions. **5 x 5 = 25**

34. a) Explain Froth flotation process with an example. (5)

(OR)

b) i) How diborane is used for anit Markovnikov addition? (3)
   ii) Give the uses of Helium (2)

35. a) Write the oxidation state, coordination number, nature of ligand, magnetic property and electronic configuration in octahedral crystal field for the complex $K_4[Mn(CN)_6]$ (5)

(OR)

b) i) Derive integrated rate law for a first order reaction A → product. (3)
   ii) Which is stronger reducing agent Cr^{2+} or Fe^{2+} (2)

36. a) Differentiate physisorption and chemisorption. (5)

(OR)

b) i) Calculate the concentration of hydrogen ions in moles per litre of a solution whose pH is 5.4. (3)
   ii) State Kohlrausch Law. (2)

37. a) Calculate the packing efficiency of face centered cubic crystal. (5)

(OR)

b) i) Explain the mechanism of Aldol Condensation. (3)
   ii) There are two isomers with the formula CH_3NO_2. How will you distinguish between them. (2)

38. a) i) Explain Kolbe's reaction. (3)
    ii) How will you prepare acrolein? (2)

(OR)

b) i) What are bi degradable polymers? Give examples. (3)
   ii) Give two differences between Hormones and Vitamins. (2)

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