

12 P

Register No. 12A09

Time : 3.00 Hrs.

Half-Yearly Examination - 2023

CHEMISTRY

Marks : 70

PART - I

15 x 1 = 15

Choose the correct answer

1. The metal oxide which cannot be reduced to metal by Carbon is
a) PbO b) Al_2O_3 c) ZnO d) FeO
2. Which of the following compound is known as Inorganic benzene?
a) B_2H_6 b) H_3BO_3 c) $B_3N_3H_6$ d) B_2O_3
3. The basicity of pyrophosphorous acid ($H_4P_2O_5$) is _____
a) 4 b) 2 c) 3 d) 5
4. Which of the following ion is colourless?
a) Zn^{2+} b) Fe^{3+} c) CO^{2+} d) Ni^{2+}
5. A magnetic moment of 1.73 BM will be shown by one among the following
a) $TiCl_4$ b) $[CoCl_6]^{4-}$ c) $[Cu(NH_3)_4]^{2+}$ d) $[Ni(CN)_4]^{2-}$
6. Total number of atoms in one unit cell of FCC is _____
a) 1 b) 2 c) 3 d) 4
7. If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
a) 20 minutes b) 30 minutes c) 35 minutes d) 75 minutes
8. The pH of 10^{-5} M KOH solution will be
a) 9 b) 5 c) 19 d) none of these
9. The conductivity of a more viscous solution will be _____
a) High b) Low c) unchanged d) none of these
10. The most effective electrolyte for the coagulation of As_2S_3 sol is _____
a) NaCl b) $Ba(NO_3)_2$ c) $K_3[Fe(CN)_6]$ d) $Al_2(SO_4)_3$
11. Which one of the following is the strongest acid?
a) 2-nitrophenol b) 4-nitrophenol c) 4-Chlorophenol d) 3-nitrophenol.
12. In which of the following reactions new carbon-carbon bond is not formed?
a) Aldol Condensation b) Friedel Craft reaction c) Kolbe's reaction d) Wolf kishner reaction
13. Which of the following amines does not undergo acetylation?
a) t-butylamine b) ethylamine c) diethylamine d) triethylamine
14. Which one given below is a non-reducing sugar?
a) Glucose b) Sucrose c) Maltose d) Lactose.
15. Which one of the following is a bio-degradable polymer?
a) HDPE b) PVC c) Nylon 6 d) PHBV

PART - II

Answer any 6 questions. Question No.24 is compulsory.

(6 x 2 = 12)

16. Which type of ores can be concentrated by froth floatation method? Give two examples for such ores.
17. What is Inert pair effect?
18. Compounds of Cu^{2+} is coloured. But compounds of Zn^{2+} is colourless. Why?
19. Define Unit cell.
20. Write any four factors that affect rate of the reaction.
21. What is common ion effect?

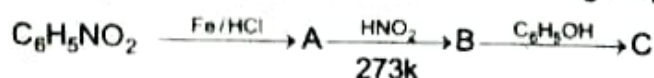
22. Write Williamson Synthesis method.
 23. How is terylene prepared?
 24. Write the (i) IUPAC name & (ii) Co-ordination number for the following compound. $[\text{Co}(\text{CO}_3)(\text{NH}_3)_4]\text{Cl}$

PART - III

Answer any 6 questions. Question No.33 is compulsory.

(6 x 3 = 18)

25. Differentiate white phosphorous & Red Phosphorous.
 26. Why d-block elements form complexes?
 27. What is pseudo first order reaction? Give an example.
 28. State Faraday's Laws of Electrolysis
 29. What are promoters? Give an example.
 30. What is picric acid? How is it prepared?
 31. How is Cinnamic acid prepared by Perkin's reaction?
 32. Explain the formation of peptide bond with suitable example.
 33. Identify compounds A, B & C in the following sequence of reactions.

**PART - IV**

Answer all the questions:

5 x 5 = 25

34. a) (i) Explain the principle of electrolytic refining of Silver (3)
 (ii) Write notes on gravity separation (2)
 (OR)
 b) (i) Explain the structure of diborane. (3)
 (ii) Write any two uses of Silicones (2)
35. a) (i) Differentiate Lanthanides & Actinides (3)
 (ii) Give any two properties of Interhalogen compounds (2)
 (OR)
 b) Explain Werner's theory of Co-ordination compounds (2)
36. a) (i) Explain Frenkel defect with suitable example. (3)
 (ii) Differentiate order and molecularity (2)
 (OR)
 b) (i) Derive an expression for Ostwald's dilution law. (3)
 ii) What is peptisation? (2)
37. a) Derive Nernst Equation (5)
 (OR)
 b)(i) How will you prepare acrolein? (3)
 (ii) Write Kolbe's reaction (3)
38. a) (i) Write the mechanism of Cannizzaro reaction (3)
 (ii) HVZ reaction (3)
 (OR)
 b) (i) Write Carbylamine reaction (3)
 (ii) Give any two advantages of food additives (2)