12 **R**

Reg. No. | | | | | | | |

Time : 3.00 hrs.

First Revision Test - 2023
CHEMISTRY

Max. Marks : 70

PART - I

Note : i) Answer all the questions. ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer **15 x 1 = 15**

1. The incorrect statement among the following is
   a) Nickel is refined by Mond's Process b) Titanium is refined by Van Arkel's Process.
   c) Zinc blende is concentrated by froth floatation d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution.
2. Inorganic benzene is
   a) B_2H_6 b) $B_3N_3H_6$ c) H_3BO_3 d) $H_2B_4O_7$
3. Assertion : bond dissociation energy of flourine is greater than chlorine gas.
   Reason : Chlorine has more electronic repulsion than fluorine.
   a) Both assertion and reason are true and reason is the correct explanation of the assertion.
   b) 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
4. $CH_3 - CHO + CO \xrightarrow{Rh/Ir\ complex} ?$
   a) Poly propylene b) Butane - 1 - al c) Acetic acid d) Acetone
5. 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) $[Ni(CN)_4]^{2-}$
6. Packing efficiency of body centred cubic unit cell.
   a) 52.31% b) 68% c) 86% d) 52.13%
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. Which of the following is not likely to act as Lewis base?
   a) BF_3 b) PF_3 c) CO d) F^-
9. How many Faradays of electricity are required for the following reaction to occur $MnO_4^- \rightarrow Mn^{2+}$
   a) 5F b) 3F c) 1F d) 7F
10. Hair cream is
    a) gel b) emulsion c) solid sol d) sol
11. Williamson synthesis of preparing dimethyl ether is a
    a) SN^1 reaction b) SN^2 reaction c) Electro philic addition d) electrophilic substitution
12. $CH_3Br \xrightarrow{KCN} (A) \xrightarrow{H_2O} (B) \xrightarrow{PCl_5}$ (C) Product (C) is
    a) acetyl chloride b) chloro acetic acid c) α - chlorocyano ethanoic acid d) none of these
13. The product formed by the reaction of an aldehyde with primary amine
    a) carboxylic acid b) aromatic acid c) Schiff's base d) Ketone
14. The number of SP^2 and SP^3 hybridised carbon in fructose are respectively.
    a) 1 and 4 b) 4 and 2 c) 5 and 1 d) 1 and 5
15. Which one of the following is a bio-degradable polymer?
    a) HDPE b) PVC c) Nylon 6 d) PHBV

PART - II

Note : Answer any six questions. Question No.24 is compulsory. **6 x 2 = 12**

16. Give the uses of zinc.
17. What is inert pair effect?
18. What are interhalogen compounds? Give one example.

19. Write IUPAC name of the following ligand. a) $C_2O_4^{2-}$ b) H_2O
20. Write two differences between rate and rate constant.
21. Define equivalent conductance.
22. Write a short note on Gattermann reaction.
23. How is terylene prepared?
24. In the reaction $C_2H_5OH \xrightarrow{PC\ell_5} X \xrightarrow{\text{alc KOH}} Y$ find X and Y

PART - III

Note : Answer any six questions. Question No.33 compulsory. **6 x 3 = 18**

25. Describe a method for refining nickel by Mond Process.
26. How will you prepare bleaching powder?
27. Give the uses of sulphuric acid.
28. What are interstitial compounds.
29. Explain Schottky defect?
30. Calculate pH of 0.001 M HCℓ solution.
31. Write a note on electro osmosis.
32. Give three differences between DNA and RNA.
33. Identify A, B and C

$CH_3COOH \xrightarrow{SOC\ell_2} A \xrightarrow{Pd/BaSO_4} B \xrightarrow{NaOH} C$

PART - IV

Note : Answer all the questions. **5 x 5 = 25**

34. a) i) Explain zone refining process with an examine. 3
    ii) How is potash alum prepared? 2
    (OR)
    b) i) Write a short note on Holmes signal. 23
    ii) Compare the properties of Lanthanides and actinides. 3
35. a) Write the oxidation state, coordination number, nature of ligand, Magnetic property and electronic configuration in octahedral crystal field for the complex $K_4[Mn(CN)_6]$ **(OR)**
    b) i) Calculate the percentage efficiency of packing in case of body centered cubic crystal. 3
    ii) Write anote on Frenkel defect. 2
36. a) i) Derive an expression for Ostwald's dilution law. 3
    ii) Define solubility product. 2
    (OR)
    b) i) Explain intermediate compound formation theory of catalysis with an example. 3
    ii) Write short note on Tyndall effect. 2
37. a) i) Explain Kolbe's reaction. 2
    ii) What is urotropine? How will you prepare urotrophine? Write the uses of Urotrophine? 3
    b) Write short notes on the following. 2
    i) Gabriel phthalimide synthesis. (2) ii) Carbylamine reaction (2) iii) Gomberg reaction (1) 2
    1
38. a) i) Derive an expression for Nernst equation. 3
    ii) What are harmones? Give examples. 2
    (OR)
    b) i) Write three test to differentiate alcohol and phenols. 3
    ii) Write a note on co-polymers.