SECOND MID-TERM EXAMINATION—NOVEMBER 2024

12 - STD   **CHEMISTRY**

MAX. MARKS: 35   TIME: 1 Hr. 30 mts

PART - I

Answer all the questions.   (10 x 1 = 10)

1. Crystal Field stabilization energy for high spin d^5 octahedral complex is
   a) $-0.6\Delta_0$ b) 0   c) $2(P-\Delta_0)$ d) $2(P+\Delta_0)$

2. Fac-isomerism is shown by
   a) $[Co(NH_3)_4Cl_2]^+$ b) $[Co(en)_3]^{+3}$ c) $[Co(NH_3)_3Cl_3]$ d) $[Co(NH_3)_5Cl]SO_4$

3. The sum of primary and secondary valence of the metal M in the complex
   $[M(en)_2 OX]Cl$ is   a) 3   b) 6   c) -3   d) 9

4. Which among the following is homoleptic complex
   a) $[Co(NH_3)_3Cl_3]$ b) $[Fe(H_2O)_6]^{2+}$ c) $[Co(en)_2Cl_2]^+$ d) Both (a) and (c)

5. How many Faradays of electricity are required for the reaction
   $MnO_4^- \longrightarrow Mn^{2+}$ a) 5F   b) 3F   c) 1F   d) 7F

6. Which of the following electrolytic solution has the least specific conductance
   a) 2N   b) 0.002N   c) 0.02N   d) 0.2 N

7. Zinc can be coated on iron to produce galvanized iron but the reverse is not possible. It is because
   a) Zinc is lighter than iron b) Zinc has lower melting point than iron   c) Zinc has lower negative electrode potential than iron d) zinc has higher negative electrode potential than iron

8. Secondary nitro alkanes react with nitrous acid to form
   a) Red solution b) blue solution c) green solution   d) yellow solution

9. Ammonium salt of benzoic acid is heated strongly with P_2O_5 and the product so formed is reduced and then treated with $NaNO_2$ / Hcl at low temperature. The final compound formed is
   a) Benzene diazonium chloride b) benzyl alcohol c) phenol d) Nitroso benzene.

10. $CH_3CH_2Br \xrightarrow{aq.NaOH} A \xrightarrow{KMnO_4/H^+} B \xrightarrow{NH_3} C \xrightarrow{Br_2/KOH} D$

   D is a) bromomethane b) α-bromo sodium acetate c) methanamine d) acetamide

PART – II

ANSWER ANY THREE QUESTIONS.   (3 X 2 = 6)

11. Differentiate between double salt and co-ordination compound.

12. Explain Ionisation isomerism with example

13. State Kohlrausch's law

14. Define Molar conductance. What happens to it on dilution.

15. Aniline $\xrightarrow{NaNO_2/HCl} A \xrightarrow[\Delta]{H_2O} B$
    Find A and B

PART –III

ANSWER ANY THREE QUESTIONS.   (3 X 3 = 9)

16. Explain briefly Werner's Theory.

17. Write i) IUPAC name (ii) central metal ion (iii) lignad for the complex $K_4[Fe(CN)_6]$

18. Write IUPAC notation and cell reactions for Daniel Cell.

19. Give note on Gabriel-Pthalimide synthesis.

20. Give one reaction to differentiate Primary, Secondary and tertiary amines.

PART –IV

ANSWER ALL QUESTIONS.   (2 X 5 = 10)

21. a)Explain Magnetism of $[Ni(CN)_4]^{2-}$ by using VB theory.

     [OR].

     b) Give note on   i) Sand-Meyer reaction

                   ii) Gattermann reaction

                   iii) Chloropicrin

22. a) Derive Nernst Equation

     [OR]

     b) Explain reduction of nitrobenzene in various medium.

TK - 12 CHEM EM -2