SECOND MID TERM EXAMINATION - 2024

LASS : 12

ime : 1.30 Hours

CHEMISTRY

Reg.No.

Maximum Marks : 50

PART - I

I **Choose the correct answer:** **10x1 =10**

1. Which of the following reagent can be used to convert nitrobenzene to aniline

   a) Sn/HCl b) Zn. Hg/NaOH c) Zn/NH_4Cl d) All of these

2. Which one of the following is most basic?

   a) 2,4 - di chloro aniline b) 2,4 - di methyl aniline

   c) 2,4 - di nitro aniline d) 2,4 - di bromo aniline

3. The number of electrons that have a total charge of 9650 C is

   a) 6.22×10^{23} b) 6.022×10^{24} c) 6.022×10^{22} d) 6.022×10^{-34}

4. Molar conductivity (Λ_m) of solution on dilution is

   a) Increases b) Decreases c) No effect d) First increase and decrease

5. Primary battery used in electronic watches is

   a) Mercury button cell b) Leclanche cell c) Dry cell d) Lead - acid Battery

6. Insulin, a hormone chemically is

   a) Carbohydrates b) Fat c) Steroid d) Protein

7. Which one given below is non - reducing sugar

   a) Glucose b) Sucrose c) Maltose d) Lactose

8. Identify relationship between D - glucose and D - manose

   a) C2 - epimers b) C4 - epimers c) Anomers d) Tautomers

9. Identify Paramagnetic complex in the given

   a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ni(H_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2-}$

10. Find out correct chemical structure of Zigler - Natta Catalyst.

    a) $TiCl_4 + Al(C_2H_5)_3$ b) $[Rh(PPh_3)_3Cl]$ c) $[Ni(DMG)_2]$ d) None of the above

PART - II

II **Answer any 5 questions Question no : 16 is compulsory.** **5x2=10**

11. Give any two examples for bidentate ligand.

12. Write formula for spin only magnetic moment. Calculate spin only magnetic moment for $[Mn(H_2O)_6]^{2+}$

13. Write Carbylamine reaction.

14. Give example for the following

a) Achiral amino acids. b) Globular protein.

15. State Kohlrausch law.

16. Complete the following. $C_6H_5NH_2 \xrightarrow[273 - 278K]{NaNO_2 / HCl} A \xrightarrow[P^H(4-5)\ 273 - 278K]{Aniline} B$

PART - III

III Answer any 5 questions : (Question no:22 is compulsory) **5x3= 15**

17. Write following reaction.

(i) Gomberg reaction (ii) Mendius reaction

18. Name vitamins whose deficiency cause (i) Scurvy (ii) Rickets (iii) Beri - Beri

19. (i) Write possible Isomer for Co-ordination compound $[Co\ Cl_3\ (CN)_3]$

(ii) Write IUPAC name of comples, $[Ag(NH_3)_2]Cl$.

20. Give any three difference between DNA and RNA.

21. Write reactions involving for preparation of Chloropicrin.

22. Calculate E^0_{cell} and write cell representation for following cell reaction.

$Zn + Cu^{2+}$ --------> $Zn^{2+} + Cu$. The standard reduction potentials of Cu^{2+}/Cu and Zn^{2+}/Zn are + 0.34V and -0.76V respectively.

PART - IV

IV Answer all questions : **3 x 5 = 15**

23. (a) State Faraday's Law of electrolysis. (3)

(b) Write functions of H_2 - O_2 fuel cell. (2)

[OR]

a) Derive Nernst equation

24. (a) Write postulates of Werner's theory. (5)

[OR]

(a) What is crystal field splitting Energy? (2)

(b) Draw a diagram for crystal field splitting for octahedral complex. (3)

25. (a) How will you prepare following from Benzene diazonium chloride. (5)

(i) Chloro benzene (ii) Phenol (iii) Iodo benzene (iv) Benzene (v) Phenyl hydrazine

[OR]

(a) Write Zwitter ion structure of Alanine. (1)

(b) How are Vitamins classified? (2)

(c) Define denaturation of proteins. (2)