

SECOND MIDTERM EXAM - 2022

CLASS : 12
TIME : 1.30 HRS

CHEMISTRY

MARKS : 50

PART - I

I. Answer all the question. Choose the Correct Answer.

10 x 1 = 10

1. The sum of primary valence and secondary valence of the metal M in the complex $[M(en)_2(ox)]Cl$ is
 a) 3 b) 6 c) -3 ~~d) 9~~
2. 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) $[Ni(CN)_4]^{2-}$
3. IUPAC name of $K_3[Al(C_2O_4)_3]$ is
 a) Potassium trioxalato aluminium (iii) b) Potassium trioxalato aluminate (ii)
 c) Potassium tris oxalato aluminate (ii) ~~d) Potassium trioxalato aluminate (iii)~~
4. Which type of isomerism is exhibited by $[Pt(NH_3)_2Cl_2]$?
 a) Coordination isomerism b) Linkage isomersim
 c) Optical isomerism ~~d) Geometrical isomerism~~
5. Which of the following electrolytic solution has the least specific conductance
 a) 2N ~~b) 0.002 N~~ c) 0.02 N d) 0.2 N
6. Laptops have
 a) Lead storage battery b) Fuel cell c) Mercury button cell ~~d) Lithium-ion battery~~
7. 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.~~
8. 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
9. Amines have odour.
~~a) Carbolic~~ b) mustard c) fishy d) garlic
10. The product formed by the reaction an aldehyde with a primary amine
 a) Carboxytic acid b) aromatic acid ~~c) Schiff's base~~ d) Ketone.

PART - II

II. Answer any FIVE of the following. Q.No.17 is compulsory.

5 x 2 = 10

- ①. Give the difference between double salts and coordination compounds (any two)
12. Calculate the magnetic moment and magnetic property of $[CoF_6]^{3-}$
- ⑬. What are the limitations of VB theory?
- ⑭. Why does conductivity of a solution decrease on dilution of the solution.

15. State KoWrausch Law.
 16. Write short notes on Diazotisation.
 17. Nitrobenzene does not undergo Friede/Crafts reaction - Give reason.

PART - III

III. Answer any FIVE of the following. Q.No.24 is compulsory.

5 x 3 = 15

18. What is Crystal field splitting energy.
 19. A solution of $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ is green. Whereas a solution of $[\text{Ni}(\text{CN})_4]^{2-}$ is colorless. Explain.
 20. Identify the ligand, co-ordination number and the central metal in the co-ordination compound $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$
 21. State Faraday's Laws of electrolysis.
 22. Define specific conductance.
 23. Account for Ethylamine is soluble in water whereas aniline is not.
 24. What is Chloroicrin? How is it prepaid?

PART - IV

IV. Answer all the questions.

3 x 5 = 15

25. Write the postulates of Werner's theory. (OR)
 Based on VB theory explain why $[\text{Cr}(\text{NH}_3)_6]^{3+}$ is paramagnetic, while $[\text{Ni}(\text{CN})_4]^{2-}$ is diamagnetic.
 26. Derive an expression for Nernst equation. (OR)
 Describe the electrolysis of molten NaCl using inert electrodes.
 27. How will you distinguish between primary, secondary and tertiary aliphatic amines. (OR)
 Identify A to E in the following frequency of reactions.

