



JAIN COLLEGE

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SUBJECT: CHEMISTRY

**II PUC
MOCK - I**

Timings Allowed: 3 Hrs 15 Minutes

Total Marks: 70

Instructions: i) The question paper has four Parts.

ii) Parts A, B, C and D are common to all candidates.

iii) Part A carries 10 marks. Each question carries one mark. Part B carries 20 marks. Each question carries two marks. Part C carries 40 marks. Each question carries five marks. In Part D-D₁ carries 10 marks and D₂ carries five marks.

iv) Write balanced chemical equations and draw diagrams wherever necessary.

PART A

I. Answer the following.

10X 1= 10

1. How molar conductivity varies with dilution?
2. Write the IUPAC name for $CH_3-CH(CH_3)-CH_2Cl$.
3. What is the effect of increase in temperature on the solubility of gas in a liquid?
4. Which noble gas does not occur in nature?
5. Define osmotic pressure.
6. Name the method used for refining of Zirconium.
7. Name the product obtained when acetaldehyde reacts with Hydroxyl amine.
8. What is a racemic mixture-?
9. For the reaction $A+B \rightarrow \text{products}$. the rate becomes doubled when concentration of only A is increased by two times, the rate is increased by four times, when the concentration of B alone is doubled what is the order of the reaction?
10. Give the coordination number of hexagonal close packing structure

PART B

II. Answer any five of the following.

5 x 2= 10

11. Give any four condition for non-ideal solution showing -ve deviation.
12. What is lanthanide contraction? What is the cause for it
13. Write two applications of Kohlrausch law
14. How do you prepare diethyl ether by dehydration of ethanol?
15. How does Acetyl chloride react with Anisole in presence of anhydrous aluminum chloride Catalyst. Write the chemical equation of the reaction
16. How do you convert sodium phenate to salicylic acid give the equation
17. Write the reaction at anode and cathode of lead storage batteries
18. What is Schottky defect give an example of crystal showing this defect

PART C

III. Answer any five of the following

5x 3= 15

19. How is pure alumina obtained from Bauxite by leaching process?
20. Write the reactions that takes place during the manufacture of nitric acid by Ostwald's process.
21. a) Transition metals show variable oxidation states. Explain
b) Which metal of 3d-series exhibit maximum number of oxidation state?

22. With the help of valence bond theory account for the geometry & magnetic property of $[\text{Co}(\text{NH}_3)_6]^{3+}$
23. Write any three postulates of Werner's theory of complexes.
24. What are interstitial compounds? Write any two characteristics of interstitial compounds
25. a) Explain the action of Conc. HCl on KMnO_4 crystals
b) Write the structure of perchloric acid.
26. . How potassium dichromate is prepared from the chromite ore?

PART D

IV. Answer any THREE of the following.

3 x 5 = 15

- 27 a). Calculate the packing efficiency in body centered cubic crystals (3)
b). Calculate the number of particles per unit cells in f.c.c.
28. a). The boiling point of benzene is 353.23K .when 1.80 g of a nonvolatile, non Electrolytic solute was dissolved in 90 g of benzene, the boiling point was Raised to 354.11 K calculate the molar mass of the solute [K_b for benzene = 2.53K.kg mol⁻¹]
b). Write two differences between ideal and non ideal solutions of two liquids
29. a) Standard EMF of the cell; $\text{Cu} | \text{Cu}^{2+}(1\text{M}) || \text{Ag}^+(1\text{M}) | \text{Ag}$ is 0.46 V at 25°C. Find the value of Standard free energy change for the reaction that occurs in the cell. 3
b) Draw the neat labeled diagram of SHE and write its symbolic representation. 2
30. a) Derive the integrated rate equation for a zero order reaction 3
b) Give any two differences between order and molecularity of reaction 2
31. a) Write any two differences between lyophilic sols and lyophobic sols 2
b) What are the differences between physisorption and chemisorption 2
c) Give an example for homogeneous catalysis 1

V. Answer any FOUR of the following.

4X5= 20

- 32 a) Explain S_N^2 mechanism with an example 2
b) Name the product formed when chloromethane reacts with (i) aqueous KOH & (ii) Alcoholic AgCN 2
iii) Give an example of polyhalogen compound 1
33. a) Explain esterification reaction between acetic acid & ethyl alcohol as example 2
b) Boiling point of alcohol is greater than the boiling point of hydrocarbons of Comparable molar masses, why? 1
c) What is the effect of $-\text{NO}_2$ group on the acidic strength of phenol? Give reason 2
- 34.a). How is Benzoyl chloride converted into benzaldehyde? Name the reaction (3)
b). Write the chemical equation for the reaction between dilute NaOH and acetaldehyde,
35. a) How do you convert benzene diazonium chloride into chlorobenzene. Name the reaction 3
b) Explain Hoffmann Bromide reaction with an example 2
36. a) Write the Haworth structure of maltose 2
b) What are hormones? Give one biological function of insulin 2
c) What are nucleosides? 1
37. a) Name the monomers of nylon- 6
b) How is Neoprene prepared? Give equation 2
c) What is thermoplastic polymer? Give example 2
