JAIN COLLEGE

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Date: ***SUBJECT: CHEMISTRY***

II PUC
MOCK II

Timings Allowed: 3 Hrs 15 Minutes ***Total Marks: 70***

Instructions:

1. *The question paper has four parts: A, B, C and D. All parts are compulsory.*
2. *Write balanced chemical equations and draw labeled diagrams wherever required.*
3. *Use log tables and the simple calculator if necessary.*

(Use of scientific calculators is not allowed)

PART-A

I. Answer ALL of the following. (Each question carries 1 mark) **10x1=10**

1. What is racemic mixture?
2. Give the composition of rust.
3. Define order of a reaction.
4. What are azeotropes?
5. What is an emulsion?
6. Mention the function of hormone insulin.
7. Give an example of synthetically prepared semipermeable membrane.
8. State Kohlrausch law.
9. Write the IUPAC name of Cumene.
10. Name the monomer present in polyethene.

PART – B

II Answer any FIVE of the following. (Each question carries 2 marks) **5 x 2 = 10**

11. Differentiate between n- type and p- semiconductor.
12. What is Pseudo first order reaction? Give example.
13. How does acetaldehyde reacts with ammonia?
14. How do you prepare chlorine from $KMnO_4$?
15. What is an acidic oxide? Give example.
16. How is anisole prepared by Williamson's synthesis?
17. What are diamagnetic substances?

PART-C

III. Answer any FIVE of the following (each question carries 3 marks) **5 x 3 = 15**

19. Explain the geometry and magnetic property of $[Co(NH_3)_6]^{3+}$ using VBT [Co Z =27]
20. Explain Ostwald's process for the manufacture of nitric acid.
21.(a) What IS spectrochemical series?
(b)Explain hydrate isomerism with an example.
22. What is concentration of ore? Name a suitable method to concentrate bauxite and copper pyrite.
23(a) Calculate the magnetic moment of Cr^{3+} [Z = 24]
(b)Among Sc^{3+} and Fe^{3+} which gives coloured aqueous solution.
24. Explain electrolytic refining with a neat labelled diagram.

25. Complete the following reaction.

(a) $4Al + 3O_2 \xrightarrow{\text{heating}}$ _____

(b) PbS+ $\xrightarrow{\text{heating}}$ _____ + _____

(c) $NO + O_3 \longrightarrow$ _____ + _____

26.(a) Explain laboratory preparation of $KMnO_4$

(b) Write the general electronic configuration of 3d series of transition elements.

PART-D

IV. Answer any THREE of the following (each question carries 5 marks) 3 x 5 = 15

27(a) Mention the differences between Schottky and Frenkel defects in solids.

(b)Calculate the number of atoms in BCC.

(C) Give an example for hydrogen bonded molecular solid.

28(a)if 1.17g of sugar (molar mass = 342) is dissolve in 500cm^3 of a solution at 300K. what will be its osmotic pressure? (Given R = 0.083Lbar/K/mol)

(b)Differentiate between ideal and non-ideal solutions.

29 (a) The rate constant of a first order reaction becomes 5 times when the temperature is raised from 350 K to 400 K. Calculate the activation energy for the reaction. (R = 8.314J/K/mol)

(b)The decomposition of ethane to methyl radicals is a I order reaction with a rate constant of $5.39 \times 10^{-4}\ s^{-1}$ at 700^o C. calculate the half-life of the reaction in minutes.

30.(a) A zinc rod is dipped in 0.095 M solution of $ZnSO_4$ at 298 K. Calculate the electrode potential of zinc electrode. ($E^O_{Zn^{2+}/Zn}$ = -0.76V)

(b)Mention the methods used to prevent corrosion.

31.(a) Explain Bredig's electric arc method of the preparation of colloids.

(b)Write a note on dialysis.

V. Answer any FOUR of the following (each question carries 5 marks) 4 x 5 = 20

32. (a) Explain Kolbe's reaction.

(b) How do you manufacture phenol from Cumene?

33.(a) Complete the following reaction

$C_6H_6 + Zn \longrightarrow$ _____ + _____

$RCHO + 4[H] \longrightarrow$ _____ + _____

(b)Differentiate between S_N1 and S_N2 mechanism.

34(a) Write the reactions taking place in the preparation of ethanol from Molasses.

(b)Arrange the following in the increasing order of acidity and give reason.

Phenol, o-nitrophenol, o-cresol

35(a) Write the Harworth's structure of lactose.

(b) Mention any 2 importance of nucleic acids.

(C) What is glycosidic linkage?

36(a) How are polymers classified based on source?

(b) Explain the preparation of neoprene with equation.

(C) Name the dicarboxylic acid used as one of the monomer in the manufacture of terylene.

37(a) How do you convert aniline to BDC?

(b) Give reasons.

i. Primary amines have higher boiling point than tertiary amines.

ii. Carboxylic acids are more acidic then phenols.

iii. Fluor acetic acid is stronger acid than chloroacetic acid.

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