



II PUC

CHEMISTRY (34) QUESTION PAPERS 2

Time: 3:15 Hrs.

Max. Marks: 70

Instruction:

1. The question paper has four parts. All parts are compulsory.
2. Part-A carries 20 Marks. Each question carries 1 Mark.
Part-B carries 08 Marks. Each question carries 2 Marks.
Part -C carries 12 Marks. Each question carries 3 Marks
Part -D carries 30 Marks. Each question carries 5 Marks
3. Write balanced chemical equations and draw diagrams wherever necessary.
4. Use log tables and simple calculators if necessary. (Use of scientific calculator is not allowed)

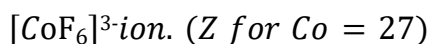
PART-A

I. Select the correct option from the given choices.

1 x 15 = 15

1. If the solute dissociate then molecular mass is
 - a) Increases
 - b) Decreases
 - b) First increases then decreases
 - d) Remains unchanged
2. Quantity of electricity required for reduction of one mole of Mg^{2+} ion is.
 - a) 96500 C
 - b) 95500 C
 - c) 193000 C
 - d) 19300 C
3. Which of the following is the example for inert electrode?
 - a) Gold electrode
 - b) Copper electrode
 - c) Zinc electrode
 - d) Silver electrode
4. A reaction is second order with respect to reactant. How is the rate of reaction affect. If concentration of reactant is doubled.
 - a) Rate = 2K
 - b) Rate = 4K
 - c) Rate =8K
 - d) Rate =16K
5. The maximum oxidation state shown by the transition element is
 - a) Manganase
 - b) Mangnassium
 - c) Chromium
 - d) Copper
6. The coordination number of a metal in coordination compound is
 - a) Same as primary valency
 - b) Sum of primary and secondary valencies
 - c) Same as secondary valencies
 - d) None of the above
7. The geminal dihalids is
 - a) 2,2 – dichloropropane
 - b) 1,2 - dichloroethane
 - c) Vinyl chloride
 - d) Allyl chloride
8. The most acidic compound among the following is
 - a) Phenol
 - b) p-cresol
 - c) p-nitrophenol
 - d) Picric ac
9. Ethylene glycol is an example for
 - a) Monohydric alcohol
 - b) Dihydric alcohol
 - c) Trihydric alcohol
 - d) Non of this
10. Tollen's reagent is
 - a) Silver nitrate solution
 - b) Ammonical silver nitrate solution
 - c) ammonium nitrate solution
 - d) Silver chloride solution

30. Using VBT explain the geometry, hybridisation and magnetic property of



31. a) What are homoleptic complexes? Give an example. **2m**

b) Write the IUPAC name of the complex $\text{K}_4[\text{Fe}(\text{CN})_6]$ **1m**

32. a) Draw the energy level diagram to show splitting of degenerated orbitals in an octahedral crystal field. **2m**

b) Write the type of isomerism exhibited by coordinate complexes having ambidentate ligands. **1m**

V. Answer any TWO of the following. Each question carries 3 marks **2 x 3 = 6**

33. What are maximum boiling azeotropes? Give example.

34. Define molar conductivity? How is it related to concentration and conductivity?

35. a) State Kohlrausch law of independent migration of ions. **2m**

b) Write the mathematical expression for limiting molar conductivity of sodium chloride **1m**

36. Derive integrated rate equation for the rate constant of a zero order reaction.

PART-D

VI. Answer any FOUR of the following. Each question carries 5 marks **4 x 5 = 20**

37. a) Explain $\text{S}_{\text{N}}1$ mechanism taking alkaline hydrolysis of t-butyl bromide as example. **3m**

b) Explain Finkelstien reaction with an example. **2m**

38. a) How is phenol manufactured from cumene process? Give its chemical reaction. **3m**

b) What is the product formed when formaldehyde is treated with Grignard reagent. Write its reaction. **2m**

39. a) How do you prepare methoxy ethane by Williamson reaction? **2m**

b) How does anisole react with nitrating mixture? Write equation. **2m**

c) Name the major product obtained when phenol is treated with zinc dust. **1m**

40. a) Explain the mechanism of addition of HCN to aldehyde in the presence of NaOH. **3m**

b) How do you prepare acetaldehyde from acetyl chloride? Name the reaction. **2m**

41. a) How does benzene react with acetyl chloride in the presence of anhydrous AlCl_3 ?

Give equation **2m**

b) Explain Cannizzaro reaction with an example. **2m**

c) Complete the reaction: **1m**



42. a) Explain Hoffmann bromamide degradation for the preparation of aniline. 2m
- b) How do you convert benzene diazonium chloride into chlorobenzene by Gatterman reaction? Give equation. 2m
- c) Arrange Ammonia, Aniline and Methanamine in the increasing order of their basic strength. 1m
43. a) Write chemical reaction to elucidate, 3m
- i) Six carbon atoms is glucose are in straight chain.
- ii) The presence of carbonyl group.
- iii) Presence of aldehyde functional group.
- b) What are reducing Sugars? Give an example. 2m

PART – E (PROBLEMS)

VII. Answer any THREE of the following. Each question carries THREE marks. 3 x 3 = 9

44. The boiling point of benzene is 353.23 K. When 1,80 g of non volatile solute is dissolved in 90g of benzene the boiling point of solution is raised to 354.11 K. Calculate molar mass of solute. (K_b for benzene is 2,53K Kg per mol).
45. A solution is prepared by dissolving 18 gm of glucose in 150 g of water. The resulting solution was found to have boiling point of 100.34⁰ C. Calculate Ebullioscopic constant for water.
46. The resistance of M/10 solution is found to be 2.5×10^3 ohms. Calculate the molar conductance. (Cell constant = 1.15 cm^{-1})
47. Calculate the EMF of the cell in which the following reaction takes place.
- $$Ni_{(s)} + 2Ag^+(0.002M) \rightarrow Ni^{+2}(0.16M) + 2Ag_{(s)} (E_{\text{cell}}^{\circ} = 1.05 V)$$
48. Calculate time in seconds for the decomposition of nitrogen pentaoxide which follows first order kinetics when concentration of N_2O_5 is dropped from 0.1 M to 0.001 M ($K=6,22 \times 10^{-4} \text{ s}^{-1}$)
49. The rate of a reaction increases by 4 times when the temperature of the reaction is raised from 340 K to 360 K. Calculate the energy of activation of the reaction. Given $R=8.314 \text{ J/K/mol}$.