

## INTERMEDIATE-IIYEAR CHEMISTRY

### Model Paper- 2

**Time:3hours**

**Maximum marks: 60**

#### SECTION-A

**Note: Answer all questions.**

**(10x2=20M)**

1. What is meant by the term 'coordination number? Give the coordination number of atoms in a body-centred cubic structure.
2. Calculate the amount of benzoic acid ( $C_6H_5COOH$ ) required for preparing 250 mL of 0.15 M solution in methanol.
3. How is  $E_0$  (standard potential) of the cell related to the equilibrium constant  $K_c$  of the cell reaction ?
4.  $CuSO_4 \cdot 5H_2O$  is blue in colour while  $CuSO_4$  is colourless. Why?
5. What is the role of cryolite in the metallurgy of aluminium?
6. Classify each of the following as being either a p-type or a n-type semiconductor:  
(i) Ge doped with In                      (ii) B doped with Si.
7. What is addition polymer? Give example.
8. What are the repeating monomeric units of Nylon-6 and Nylon-6, 6?
9. Explain why the alkyl halides though polar are immiscible with water.
10. Write the structures of the following organic halogen compounds.  
(i) 2-Chloro-3-methylpentane  
(ii) 1-Bromo-4-sec-butyl-2-methylbenzene

#### SECTION-B

**Note: Answer any Six of the following.**

**(6x4m=24marks)**

11. State Raoult's law. Calculate the vapour pressure of a solution containing 9gm of glucose in 162 gm of water at 298K. The vapour pressure of pure water at 298K is 17.535 mm of Hg.

12. What are emulsions? How are they classified? Give any two applications of emulsions.
13. How is alumina separated from silica in the bauxite ore associated with silica? Give equations.
14. How are xenon fluorides  $XeF_2$ ,  $XeF_4$  and  $XeF_6$  obtained?
15. Explain Werner's theory of coordination compounds with suitable examples.
16. Write the structures of maltose and Lactose. What are the hydrolysis products of maltose and lactose?
17. What are analgesics and food preservatives? Give example.
18. Complete the following conversions: Aniline to
  - i. Fluoro Benzene
  - ii. Cyano Benzene
  - iii. Benzene and
  - iv. Phenol

### SECTION-C

**Note: Answer any Two of the following questions. (8x2=16M)**

19. a) What is electrolysis? State Faraday's First and second laws of electrolysis.  
b) Give a detailed account of the collision theory of reaction rates bimolecular gaseous reactions.
20. a) Describe the manufacture of  $H_2SO_4$  by contact process.  
b) How does Chlorine react with the following?
  - a) Acidified  $FeSO_4$
  - b) Iodine
  - c)  $H_2S$
  - d)  $Na_2S_2O_3$
21. a) Explain the following with an example.
  - (i) Reimer-Tiemann reaction
  - (ii) Williamson ether synthesis.  
b) Describe the following.
  - (i) Acetylation
  - and
  - (ii) Aldol condensation