



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – CHEMISTRY**

THIRD SEMESTER – **APRIL 2014**

**CH 3104 - CHEMISTRY FOR BIOLOGISTS - I**

Date : 05/04/2014

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

**Part-A**

**Answer all the questions. Each carries two marks.**

1. What is intermolecular hydrogen bonding? Give an example.
2. Draw the unit cell of CsCl.
3. Define molarity of a solution.
4. Give the IUPAC name of  $K_3[FeF_6]$  and  $[Cr(H_2O)_4Cl_2]Cl$ .
5. State the rate law.
6. Write any two examples of zero order reaction.
7. Define Tyndall effect.
8. What is an aerosol? Give an example.
9. Mention any two conditions for resonance.
10. Write an equation for the preparation of Buna-S prepared?

**Part-B**

**Answer any eight questions. Each carries five marks.**

11. Write the important postulates of VSEPR theory.
12. Discuss the geometrical isomerism exhibited by square planar complexes.
13. Write a note on dipole-induced dipole interactions.
- 14a. State volumetric law.  
b. What are primary and secondary standard solutions? Give an example for each.
15. What are buffer solutions? Explain the buffer action of an acidic buffer.
16. Differentiate between order and molecularity of a reaction.
17. Discuss the important characteristics of an enzyme as a catalyst.
18. Write a note on coagulation.
19. Give any five important applications of colloids.
20. Explain steric effect with suitable example.
21. Discuss the geometrical isomerism exhibited by maleic and fumaric acid.
22. What are polymers? Explain their classification with suitable examples.

**Part-C**

**Answer any four questions. Each carries ten marks.**

- 23a. Write the postulates of Werner's theory of coordination compounds. (5)  
b. Discuss the crystal structure of NaCl. (5)
- 24a. Discuss the shape of  $NH_3$  and  $H_2O$  using VSEPR theory. (6)  
b. Draw the structure of metal-EDTA complex. (4)
- 25a. What are homogeneous and heterogeneous catalysis? Give an example. (4)  
b. Derive an expression for the rate constant of first order reaction. (6)
- 26a. Write a note on electrophoresis. (5)  
b. Differentiate between lyophilic and lyophobic colloids. (5)
27. What is a racemic mixture? Explain any four methods to separate racemic mixture.
- 28a. Discuss the optical isomerism exhibited by tartaric acid. (6)  
b. How are PVC and Nylon-6,6 manufactured? (4)

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