



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – ALLIED

THIRD SEMESTER – APRIL 2019

CH 3102 / CH 3104– CHEMISTRY FOR BIOLOGISTS – THEORY / CHEMISTRY FOR BIOLOGISTS - I

Date: 13-04-2019

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

## Part A

Answer any **FOUR** questions

(4 x 10 = 40)

1. a) Describe the structure of CsCl. (4)  
b) Write the postulates of Werner's theory (6)
2. a) Discuss the geometrical isomerism in square planer complexes. (6)  
b) Write a note on Van der Waal's forces. (4)
3. a) Write the differences between lyophilic and lyophobic colloids. (5)  
b) Derive the ionic product of water. (5)
4. Derive the rate expression for the rate constant of a first order reaction.
5. a) Define the following a) electrophoresis b) electro osmosis (5)  
b) Explain the application of colloids in medicine and agriculture. (5)
6. a) Discuss the optical isomerism exhibited by lactic acid. (6)  
b) How will you prepare terylene? Give its applications. (4)
7. a) Differentiate order and molecularity of a reaction. (5)  
b) Give difference between inter and intra molecular hydrogen bonding. (5)
8. What are polymers? How will you prepare PVC? Give its uses. (3+4+3)

## Part B

Answer any **THREE** questions.

(3 x 20 = 60)

9. a) Discuss the crystal structure of NaCl. (6)  
b) Draw structure and give the important functions of chlorophyll. (8)  
c) Predict the hybridization and shape of the following molecules. (6)  
(i) NH<sub>3</sub>      (ii) CH<sub>4</sub>

10. a) Write a short note on dipole - dipole interactions. (6)
- b) Explain the significance of primary and secondary standard solutions. (6)
- c) Discuss the principle of column chromatography. (8)
11. a) What is a buffer solution? Discuss the buffer action of a mixture of ammonium hydroxide and ammonium chloride. (10)
- b) Mention the role of an enzyme as a catalyst in biological system and in industry. (10)
12. a) Discuss the optical property of colloids. (10)
- b) Explain the principle and applications of TLC (10)
13. a) What is hormone? Give in detail the structure and functions of sex hormones. (2+4+4)
- b) Explain in detail the structure and functions of hemoglobin. (10)
14. a) Describe the geometrical isomerism in maleic and fumaric acid. (10)
- b) What is racemic mixture? How will you separate it? (10)

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