



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIO. AND PLANT BIOTECH. & ADV. ZOO.

THIRD SEMESTER – APRIL 2016

CH 3104 - CHEMISTRY FOR BIOLOGISTS - I

Date: 06-05-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

Part-A

Answer ALL questions.

(10 x 2= 20)

1. What are the factors affecting the formation of an ionic bond?
2. What is the difference between inter and intra molecular hydrogen bonding?
3. Define molarity.
4. Define pH of a solution. What is the pH of human blood?
5. Differentiate order and molecularity of a reaction.
6. State rate law.
7. What is Brownian movement?
8. What are colloids? Give an example.
9. What are enantiomers? Give an example
10. How will you prepare Buna-S rubber? Give its uses.

Part-B

Answer any EIGHT questions.

(8 x 5= 40)

11. Discuss the crystal structure of NaCl.
12. Draw the structure and give the important functions of chlorophyll.
13. Predict the hybridization and shape of the following molecules.
a) NH₃ (b) CH₄ (c) PCl₅
14. Write a short note on dipole - dipole interactions.
15. What are primary and secondary standard solutions? Give an example for each.
16. What is a buffer solution? Discuss the buffer action of a mixture of ammonium hydroxide and ammonium chloride.
17. Give the differences between homogeneous and heterogeneous catalysis.
18. Mention the role of an enzyme as a catalyst in biological system and in industries.
19. Explain the optical property of colloids.
20. What are polymers? How will you prepare PVC?
21. Describe the geometrical isomerism in maleic and fumaric acids.
22. What is racemic mixture? How will you separate it?

Part-C

Answer any FOUR questions.

(4 x 10= 40)

- 23a. Describe the structure of CsCl. **(4)**
b. Write the postulates of Werner's theory. **(6)**
- 24a. Discuss the geometrical isomerism in square planer complexes. **(6)**
b. Write a note on van der Waal's forces. **(4)**
- 25a. Write the differences between lyophilic and lyophobic colloids. **(5)**
b. Derive the ionic product of water. **(3)**
c. What is meant by coagulant? **(2)**
26. Define the rate constant and derive the rate expression for the rate constant of a first order reaction.
- 27a. Define the following a) electrophoresis b) electroosmosis **(5)**
b. Explain the application of colloids in medicine and agriculture. **(5)**
- 28a. Discuss the optical isomerism exhibited by lactic acid. **(6)**
b. How will you prepare terylene? Give its applications. **(4)**
