

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



**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & ADV. ZOOLOGY**

**THIRD SEMESTER – APRIL 2013**

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

Date : 04/05/2013

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

**Part-A**

Answer **ALL** questions.

(10 x 2 = 20 marks)

1. Mention the various factors affecting the formation of ionic bond
2. What is inter molecular hydrogen bonding? Give an example.
3. What is acidic buffer? Give an example.
4. Define molarity.
5. Give two examples for first order reaction.
6. State rate law.
7. What are colloids? Give an example.
8. Define Tyndall effect.
9. Draw the resonance structure of aniline.
10. Give an equation for the preparation of PVC.

**Part-B**

Answer any **EIGHT** questions.

(8 x 5 = 40 marks)

11. Discuss the crystal structure of NaCl.
12. Draw and explain the important functions of Haemoglobin.
13. Explain the various properties of ionic compounds.
14. a) Define mole fraction  
b) Calculate the mass in gm of 2N molecules of CO<sub>2</sub>.
15. What are primary and secondary standard solutions? Give an example for each.
16. Tabulate the differences between order and molecularity
17. Mention the important characteristics of an enzyme as a catalyst.
18. Write a note on peptisation.
19. Explain the kinetic property of colloids.
20. What is inductive effect? Explain its types.
21. Describe the geometrical isomerism in maleic and fumaric acid.
22. Discuss various methods of separation of racemic mixture.

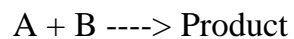
**Part-C**

Answer any **FOUR** questions.

(4 x 10 = 40 marks)

23. a) Describe the structure of BF<sub>3</sub> and PCl<sub>5</sub> based on VSEPR theory. (4)  
b) Write the important postulates of Werner's theory (6)
24. a) Discuss the geometrical isomerism in square planer complexes. (6)  
b) Write a note on dipole – dipole interactions. (4)

25. a) Describe the buffer action mechanism of basic buffer. (7)  
b) Define mole concept. (3)
26. a) Derive an expression for the determination of rate constant of second order reaction. (10)



27. a) What are lyophilic and lyophobic colloids? (5)  
b) Explain the application of colloids in medicine and Agriculture. (5)
28. a) Discuss the optical isomerism exhibited by lactic acid (6)  
b) How will you prepare the following? (4)  
i) Nylon ii) neoprene

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