LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **MATHS & PHYSICS**

SECOND SEMESTER – NOVEMBER 2012

# CH 2100/2102 – GEN. CHEMISTRY FOR PHYSICS & MATHS

 Date : 03/11/2012 Dept. No. Max. : 100 Marks

 Time : 1:00 - 4:00

**PART-A**

Answer ***ALL*** questions: (10×2 = 20)

01. What are ligands?

02. Mention the role of chlorophyll in photosynthesis.

03. Define the following: (a) Chirality (b) Inductive effect

04. Cyclohexane chair conformer is more stable than its boat conformer.Why?

05. State Raoult’s law.

06. What is phase rule?

07. What is meant by replication of DNA?

08. Give the structure of thyroxin.

09. Give one example for each of the following:

 (i) Natural polymer (ii) Biopolymer

10. How is polystyrene prepared?

**PART-B**

Answer ***ANY EIGHT*** questions: (8 ×5 = 40)

11. Discuss the general properties of transition elements.

12. Explain the EAN principle with any one example.

13. How is hardness of water determined by EDTA? Explain.

14. Explain the mechanism of SN2 reaction.

15. Write any one aromatic electrophilic substitution reaction with mechanism.

16. How will you differentiate *cis*- and *trans*- isomers? Explain.

17. Discuss the different types of solutions with example.

18. Explain the determination of pH using glass electrode.

19. Derive half lifetime (t1/2) for the first order reaction.

20. Compare thermal and photochemical reactions.

21. Give the structure of the following compounds.

 (i) Cortisone (ii) prostaglandins

22. Write a note on vulcanization of rubber.

**PART-B**

Answer ***ANY FOUR*** questions: (4 ×10 = 40)

23. a) Discuss the postulates of Werner’s theory.

 b) Explain the applications of Pauling’s theory with any one example.

24. a) Define the following with the structure of tartaric acid.

 b) Discuss the conformational analysis of ethane.

25. Define the following:

 (i) Phase (ii) Component (iii) Degree of freedom

 (iv) Homogeneous catalysis (v) Heterogeneous catalysis

26. Write a note on (a) phenol-water system (b) Laws of photochemistry.

27. Discuss the structure of DNA with neat diagram.

28. (a) Write the electrochemical mechanism of corrosion.

 (b) Explain any two methods to prevent corrosion.

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