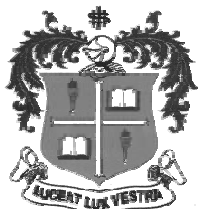


LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – PHYSICS & MATHEMATICS

SECOND SEMESTER – NOVEMBER 2013

CH 2102 - GENERAL CHEMISTRY FOR PHYSICS & MATHS

Date : 06/11/2013

Dept. No.

Max. : 100 Marks

Time : 1:00 - 4:00

Part-A

Answer all the questions. Each question carries two marks.

1. What are transition elements?
2. Mention any two conditions required for a molecule to exhibit resonance.
3. What are bidentate ligands? Give an example.
4. State Raoult's law.
5. Define phase and give an example.
6. Bring out any two differences between order and molecularity.
7. What is meant by quantum yield?
8. List the various types of RNA.
9. How is polystyrene prepared?
10. Give two postulates of Werner's theory.

Part-B

Answer eight questions. Each question carries five marks.

11. Discuss the magnetic and catalytic properties of transition elements.
12. State EAN rule and highlight the importance of Sidgwick's theory.
13. Discuss the mechanism of S_N2 reaction with an example.
14. Explain the biological importance of hemoglobin.
15. Differentiate thermal reactions from photo chemical reactions.
16. Draw and discuss the structure of RNA.
17. Explain any two methods used to determine the order of a reaction.
18. What are natural and synthetic polymers?
19. Mention the characteristics of a catalyst.
20. Explain the functions of sex hormones with structure.
21. How will you obtain crude rubber from natural rubber?
22. Discuss the mechanism of nitration of benzene.

Please go on to the next page

Part-C

Answer four questions. Each question carries ten marks.

23. Describe the geometrical isomerism exhibited by any four coordination complexes.
- 24a. What are the conditions for cis and trans isomerism? Give an example each.
- b. Explain the mechanism of Friedel-Craft's alkylation of benzene. (4+6)
- 25a. How will you determine the hardness of water using EDTA?
- b. Explain the structure of $[\text{Ni}(\text{CO})_4]$ using Pauling's theory. (4+6)
26. Derive an expression for the rate constant of the following second order reaction.
- $\text{A} + \text{B} \rightarrow \text{product}$.
- 27a. Explain the structure of DNA.
- b. What is meant by replication of DNA? (6+4)
- 28a. Explain the various causes of corrosion in metals.
- b. State Beer-Lambert's law. (6+4)
