



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PHYSICS, MATHS

THIRD SEMESTER – APRIL 2014

CH 3202 – ADV. GENERAL CHEMISTRY FOR PHYSICS & MATHS

Date : 10/04/2014

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

Part-A

Answer all the questions. Each carries two marks.

1. Arrange the following in their increasing order of boiling point and justify your answer.
HCl, HBr, and HI.
2. Account for the solubility of ethanol in water.
3. What is penicillin? Draw its structure.
4. Mention the nitration reaction of naphthalene.
5. What is heat of combustion?
6. State Hess's law of constant heat summation.
7. What are lyases? Give an example.
8. What are disaccharides? Cite an example.
9. Mention the importance of manures.
10. Draw the structure of DDT. Mention its uses.

Part-B

Answer any eight questions. Each carries five marks.

11. Explain lanthanide contraction and mention its consequences.
12. What are chromophores and auxochromes? Give examples for each.
13. How is aspirin synthesized? Mention its uses.
14. Explain the classification of hydrogen bonding with relevant examples.
15. How is congo-red dye prepared? Give its uses.
16. Derive Kirchoff's equation.
17. State and explain Kohlrausch's law.
18. Explain Born-Haber cycle.
19. Mention the factors which affect enzyme reaction.
20. Explain the lock and key mechanism of enzymes.
21. Explain nuclear fission reaction.
22. Discuss the various types of soil.

Part-C

Answer any four questions. Each carries ten marks.

- 23a. How are lanthanides separated by ion exchange method.
- b. Why does ice float in water? (8+2)
- 24a. Write any two methods for the preparation of pyridine?
- b. Explain the Haworth's synthesis of naphthalene. (5+5)
- 25a. How is sulphanilimide synthesized?
- b. Explain the principle of strong acid-strong base titration by conductometric method.
- 26a. How is K_a calculated from conductance measurements.
- b. Describe the working principle of a calomel electrode. (5+5)
- 27a. How are carbohydrates classified?
- b. Discuss the primary structure of protein. (5+5)
- 28a. How is urea manufactured?
- b. Write a short note on renewable energy. (5+5)
