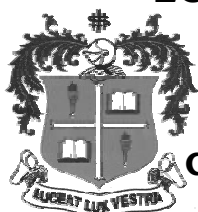


LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – MATHS & PHYSICS

THIRD SEMESTER – NOVEMBER 2013

CH 3202 - ADVANCED GENERAL CHEMISTRY FOR PHYS. & MATHS

Date : 13/11/2013

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

Part-A

Answer all questions. Each question carries two marks.

1. Ethanoic acid in benzene has molecular mass twice as expected. Why?
2. Account for the fact that H₂O exists as a liquid while H₂S exists as a gas.
3. Write the Reimer-Tiemann reaction of pyrrole.
4. Give a method for the preparation of furan.
5. Write the mathematical equation of first law of thermodynamics.
6. Define lattice energy.
7. What are disaccharides? Give an example.
8. How is a polypeptide bond formed?
9. Draw the structure of BHC. Mention its uses.
10. Mention the uses of 2,4-D and 2,4,5-T.

Part-B

Answer eight questions. Each question carries five marks.

11. What are the consequences of lanthanide contraction?
12. Explain why ortho isomer of nitrophenol is steam volatile but not the para- isomer?
13. How is malachite green prepared? Give its uses.
14. Explain the Haworth's synthesis of naphthalene.
15. Give any three methods of preparation of pyridine.
16. State and explain Kohlrausch's law.
17. How is a strong acid titrated conductometrically against a weak base?
18. Define the following with an example: (a) neutralization and (b) heat of formation.
19. How is N-terminal analysis of an amino acid determined?
20. How are enzymes classified?
21. Discuss the following: (a) thermal cracking and (b) catalytic cracking.
22. Write a short note on renewable energy.

Part-C

Answer four questions. Each question carries ten marks.

- 23a. Describe ion exchange method of separating lanthanides.
b. Explain the different types of hydrogen bonding with suitable examples. (5+5)
- 24a. How is aspirin synthesized? Mention its uses.
b. What are chromophore and auxochromes? Give examples for each. (5+5)
- 25a. Explain the bromination and nitration reactions of anthracene.
b. Derive Kirchoff's equation. (5+5)
- 26a. How is lattice energy calculated using Born-Haber cycle?
b. Describe the working principle of calomel electrode. (5+5)
- 27a. What are the factors affecting enzyme reaction?
b. Explain the Emil Fischer mechanism of enzymes. (5+5)
- 28a. Give a brief description on fractional distillation of petroleum.
b. Explain nuclear fission reaction. (5+5)
