LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2013**

CH 1100 - CHEMISTRY FOR BIOLOGISTS - I

Date : 07/11/2013   Dept. No.   Max. : 100 Marks
Time : 1:00 - 4:00

Part-A

Answer all questions. Each question carries two marks.

1. Define erratic errors with an example.

2. Mention two important prerequisites for solid adsorbents.

3. Account for the solubility of alcohol in water.

4. Give any two important factors required for the formation of ionic bond.

5. Define molarity of a solution.

6. What is a standard solution? Give an example.

7. Differentiate between order and molecularity of a chemical reaction.

8. Name any two biologically significant enzymes.

9. What are vegetable fats and animal fats? Give an example each.

10. What are known as antisterility factors and antihaemorhagic factors?

Part-B

Answer eight questions. Each question carries five marks

11. Explain the basic principle of solvent extraction. What are the necessary conditions for good solvent extraction?

12. Mention the quantitative methods to check the presence of peroxide linkage in ethers. How will you remove the peroxide linkage in ethers?

13. Discuss the crystal structure of NaCl.

14. Explain the geometrical isomerism exhibited by square planar complexes.

15. What are ligands? How are they classified? Give an example for each type.

16. Explain the different types of hydrogen bonding with relevant examples.

17. Explain the principle of volumetric analysis

18. How will you compare the strength of acids in terms of their pKa values?

19. Derive an expression for rate constant of second order reactions.

20. Write a note on the theory of heterogeneous catalysis.

21. How is hydrolysis of fats carried out?

22. Draw the structure of thyroxin and mention its function.

Please go on to the next page

Part-C

Answer four questions. Each question carries ten marks.

23. Give an account on the principle and applications of column chromatography.

24a. Describe the hydrogen bonding involved in amides and nucleic acids.

  b. Explain the structure and functions of hemoglobin.   (5+5)

25a. What are primary and secondary standards solutions? Give an example.

  b. What are buffer solutions? Discuss the action of acidic buffers.   (5+5)

26a. How will you express the concentration of solutions in terms of normality and ppm.

  b. Discuss the action of enzymes in biological system and industry.   (4+6)

27a. Write a note on enzyme catalysis with an example.

  b. What are vitamins? How are they classified?   (5+5)

28a. Discuss the structures and functions of vitamin A and E.

  b. Write a note on vander Waal's forces with relevant examples.   (6+4)

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