



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

FIRST SEMESTER – NOVEMBER 2014

CH 1100 / CH 3104 - CHEMISTRY FOR BIOLOGISTS - I

Date : 01/11/2014

Dept. No.

Max. : 100 Marks

Time : 01:00-04:00

Part-A

Answer all the questions. Each question carries two marks:

(10 X 2 = 20)

1. What is retention factor? Mention its significance.
2. What are inaccuracy and imprecision?
3. Mention the nature of bonding in the compounds KCl and H_3O^+ .
4. What are ambidentate ligands? Give an example.
5. Calculate the molarity of a solution containing 0.5 g of NaOH dissolved in 500 mL water?
6. State the principle of volumetric analysis.
7. What is a zero order reaction? Give an example.
8. Name any two biologically significant enzymes.
9. Define the term saponification.
10. Differentiate between fat and oil.

Part-B

Answer any eight questions. Each question carries five marks:

(8 X 5 = 40)

11. What are the precautions to be made to store chemicals in cabinet and shelf?
12. Explain the column chromatography technique.
13. Discuss the types of error in analytical measurements.
14. Explain the types of hydrogen bonding with suitable examples.
15. Write the postulates of Werner's theory of coordination compounds.
16. Draw the structure and mention the functions of chlorophyll.
17. How is concentration of solution expressed in terms of i) molality and ii) ppm.
18. Derive Henderson-Hasselbalch equation.
19. Derive the expression for first order rate constant.
20. Discuss homogenous and heterogeneous catalysis with suitable example.
21. What are the importance of vitamin D and K?
22. Discuss the structure and functions of estrogen.

Part-C

Answer any four questions. Each question carries ten marks:

(4 X 10 = 40)

23. Explain the following terms: (a) stationary phase, (b) mobile phase, and (c) development of chromatogram.
- 24 a. Discuss the role of inventory control and labeling in safe handling and storage of chemicals. (5)
b. Explain the crystal structure of CsCl. (5)
25. Discuss the geometrical and optical isomerism in octahedral complexes with suitable examples.
- 26 a. Write a note on: (i) ionic product of water and (ii) buffer solution. (5)
b. What are primary and secondary standards in volumetric analysis? (5)
27. Derive the second order rate constant expression for two reactants of equimolar concentration.
28. Draw the structure and discuss the functions of vitamins A and E.
