



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – ADVANCED ZOOLOGY AND PLANT BIOLOGY

FIRST SEMESTER – APRIL 2018

CH 1100- CHEMISTRY FOR BIOLOGISTS - I

Date: 28-04-2018
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 × 2= 20)

1. What are antidotes?
2. Mention the use of alumina in column chromatography.
3. What are the factors that influence the formation of an ionic bond?
4. Write the functions of chlorophyll.
5. Calculate the pH of 0.001M HCl.
6. State the law of volumetric analysis.
7. Write the units of rate constant for a i) second order ii) third order reaction.
8. Distinguish between the terms end point and equivalence point.
9. Draw the structure of vitamin E.
10. Define the term saponification.

Part-B

Answer any EIGHT questions.

(8 × 5= 40)

11. Explain the first aid procedure to be followed in the laboratory.
12. Differentiate column and paper chromatography.
13. How are toxic and poisonous chemicals stored in the laboratory?
14. Explain the crystal structure of CsCl.
15. Describe the optical isomerism exhibited by square planar complex.
16. Draw the structure of haemoglobin. Mention its function.
17. Derive the Henderson-Hasselbalch equation for an acidic buffer.
18. Give the definitions of a) Normality b) ppm.
19. What are homogeneous and heterogeneous catalysts? Explain with suitable examples.
20. Briefly explain the role of enzymes in biological system and industry.
21. What are vitamins? How are they classified? Give an example.
22. Write the functions of thyroxin and androgens.

Part-C

Answer any FOUR questions.

(4 × 10= 40)

23. Discuss the principle and applications of thin layer chromatography.

- 24a. Write a note on systematic errors. How can these errors be minimized? (5)
- b. Predict the hybridization and geometry of the following molecule i) H_2O ii) NH_3 . (5)
- 25a. Write the postulates of Werner's theory of coordination complexes. (5)
- b. Explain inter and intra molecular hydrogen bonding with suitable examples. (5)
- 26a. What are the criteria for a primary standard? Cite an example for primary and secondary standard. (5)
- b. Explain the following i) ionic product of water ii) buffer solution. (5)
- 27a. Differentiate order from molecularity. (5)
- b. Derive the expression for first order rate constant. (5)
28. Draw the structure and discuss the biological functions of the following
- a) Vitamin C b) adrenaline (5+5)
