



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – ADV. ZOO. AND BIOTE. & PLA. BIO. & PLA. BIOTE.

THIRD SEMESTER – NOVEMBER 2016

CH 3104 / CH 3102 - CHEMISTRY FOR BIOLOGISTS - I

Date: 12-11-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 × 2 = 20)

1. Write the factors that affect the formation of ionic bond.
2. What is dipole-induced dipole interaction?
3. Calculate the pH of 0.001N hydrochloric acid solution.
4. State the principle of volumetric analysis.
5. Define rate law.
6. What are heterogeneous catalytic reactions? Cite an example.
7. Mention any two applications of colloids.
8. What is a peptizing agent? Give an example.
9. Differentiate resolution from racemization.
10. Why trimethylamine is less basic than methylamine?

Part-B

Answer any EIGHT questions.

(8 × 5 = 40)

11. Draw and explain the crystal structure of NaCl.
12. Write the postulates of Werner's theory.
13. Explain the hybridization in NH₃ and predict the geometry of the molecule.
14. What are the characteristics of a primary standard substance?
- 15a. Define normality of a solution.
b. What is the molarity of solution containing 5.3 g of NaOH in 250 mL.
16. Distinguish between order and molecularity of a reaction.
17. Explain the role of enzyme as catalyst in chemical and biochemical reactions.
18. Discuss the optical and kinetic properties of colloids.
19. Differentiate lyophilic and lyophobic colloids with suitable examples.
20. Explain the different types of polymers with relevant examples.
21. What is inductive effect? Explain.
22. Discuss the optical isomerism exhibited by lactic acid.

Part-C

Answer any FOUR questions.

(4 × 10 = 40)

- 23a. Explain the structure and functions of chlorophyll. (5)
b. Discuss the geometrical isomerism exhibited by square planar complexes. (5)
24. What are buffer solutions? Explain the buffer action using acidic and basic buffers.
25. Derive the rate constant for the second order reaction involving same initial concentration of the reactant.
26. Explain electrophoresis and electro osmosis with neat diagrams.
- 27a. What is a racemic mixture? Explain any two methods to separate racemic mixture. (7)
b. Draw the resonance structures of phenol. (3)
- 28a. How are the following polymers manufactured? (6)
i) Nylon ii) Buna-S
b. Discuss the types of hydrogen bonding with suitable examples. (4)
