LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

THIRD SEMESTER – **APRIL 2023**

CH 3104 – CHEMISTRY FOR BIOLOGISTS - I

Date: 29-04-2023   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

Part-A

*Answer **ALL** questions.*   (10 x 2 = 20 marks)

1. What is polydentate ligand? Give an example.
2. Identify the type of bond in the following molecules i) HBr   ii) I_2.
3. What are primary standard solutions?
4. Define ionic product of water.
5. What are zero order reactions? Give an example.
6. Mention the factors affecting enzyme catalysis.
7. Name any two methods to prepare colloidal systems.
8. What are lyophilic colloids?
9. Write a note on inductive effect.
10. How is Buna-S prepared?

Part-B

*Answer any **EIGHT** questions.*   (8 x 5 = 40 marks)

11. Explain the crystal structure of NaCl.
12. Describe the types of hydrogen bonding with suitable example.
13. Write the postulates of Werner's theory of coordination compounds.
14. Illustrate the principle of volumetric analysis.
15. Describe the types and applications of buffer solutions.
16. Derive the expression for first order rate constant.
17. Discuss heterogeneous and homogenous catalysis with suitable example.
18. Write the applications of colloids.
19. Differentiate electroosmosis and coagulation?
20. Discuss the isomerism exhibited by fumaric acid and maleic acid?
21. Write the advantages of vulcanization of rubber.
22. Draw and discuss the isomers of tartaric acid.

Part-C

*Answer any **FOUR** questions.*   (4 x 10 = 40 marks)

23. Explain the hybridization and geometry of the following molecules
    i) CH_4 ii) H_2O iii) NH_3.   (10)
24. Discuss the geometrical isomerism in octahedral complexes with suitable example. (10)
25. Explain the units of expressing the concentration of the solution.   (10)
26. Derive the differential equation of second order rate constant of a reaction $2A \rightarrow P$. (10)
27. Describe the following   (10)
    a) optical and kinetic properties of colloids   b) types of synthetic fibers.
28. a) Discuss the merits and demerits of natural and synthetic polymers.   (5)
    b) Explain the types of plastics.   (5)

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