



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – NOVEMBER 2011

CH 3104/3102 - CHEMISTRY FOR BIOLOGISTS - I

Date : 09-11-2011

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

Part- A

Answer **ALL** questions.

(10 × 2 = 20 marks)

- Write the IUPAC nomenclature of following complexes
a) $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$ b) $[\text{Co}(\text{NH}_3)_5\text{Br}]\text{SO}_4$
- Give four properties of covalent bond.
- Draw the crystalline structure of CsCl.
- Calculate the Normality of the solution, if 16g of oxalic acid is dissolved in 1 liter of water.
- Define order.
- What is rate law?
- What is Tyndall effect?
- Draw the resonance structures of Aniline.
- Arrange the following in the increasing order of basicity
i) $\text{C}_6\text{H}_5\text{NH}_2$ ii) CH_3NH_2 iii) $(\text{CH}_3)_3\text{N}$ iv) $(\text{CH}_3)_2\text{NH}$
- What is chiral carbon? Give an example.

Part – B

Answer any **EIGHT** questions.

(8 × 5 = 40 marks)

- Explain the various factors influencing the formation of ionic bond.
- Discuss the Geometrical isomerism in square planar complexes.
- a) Write a note on dipole – dipole interaction.
b) Mention the type of Hydrogen bonding present in salicylaldehyde and methanol (2+3)
- Explain the mechanism of buffer action in basic buffers.
- Define the following terms. i) Molarity ii) Mole fraction.
- Discuss the application of enzymes in industries.
- Derive an expression for the rate constant of a first order reaction.
- Give a brief account on electrophoresis.
- How will you classify colloids based on dispersion phase and medium?
- Mention five differences between Enantiomers and Diastereomers.

21. What is polymerization? Explain its types with example.
22. How will you prepare the following
- i) Polyethylene ii) Neoprene.

Part-C

Answer any **FOUR** questions.

(4 × 10 = 40 marks)

23. i) Discuss the structure and magnetic behaviour of $K_4[Fe(CN)_6]$.
ii) State the following
- a) ligand b) Coordination Number. (6+4)
24. i) What is Hydrogen bonding? Explain the types with suitable example.
ii) Mention the biological importance of Chlorophyll. (7+3)
25. What are primary standard and secondary standard solutions? List five prerequisites of a primary standard. (5+5)
26. i) Differentiate homogeneous and heterogeneous catalysis?
ii) Write the important characteristics of a catalyst. (6+4)
27. i) Give a note on peptisation.
ii) Explain the optical isomerism in Tartaric acid. (3+7)
28. What is racemic mixture? Explain the various methods of resolution.
