LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

SECOND SEMESTER – **APRIL 2025**

UCH 2303 – CHEMISTRY FOR PHYSICS

Date: 05-05-2025 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

SECTION A

Answer ANY FOUR of the following **(4 x 10 = 40)**

1. Describe the characteristics of primary and secondary standards.
2. Explain the postulates of Werner's theory of coordination compounds.
3. Illustrate the working principle of lithium-ion battery with a neat diagram.
4. Compare and contrast thermal and photochemical reactions.
5. How will you estimate the hardness of water using EDTA titration method?
6. Explain the types of errors in analytical measurements.
7. Discuss the applications of coordination complexes.
8. Differentiate between electrochemical and electrolytic cells.

SECTION B

Answer ANY THREE of the following **(3 x 20 = 60)**

9. a) Outline the safety rules to be followed in storing and handling of chemicals. (10)
   b) Explain the following terms. (10)
   (i) Precision (ii) Accuracy (iii) End point (iv) Equivalence point
10. a) Write the IUPAC rules for naming the coordination complexes. (10)
    b) Explain the hybridization, geometry and magnetism of the following compounds based on VB theory. (10)
    (i) $K_4[Fe(CN)_6]$ (ii) $[Ni(CO)_4]$
11. a) Derive the Henderson equation and mention its significance. (10)
    b) Describe the principle and working of Lead -acid battery with a neat diagram. (10)
12. a) Discuss the factors affecting the rate of the reaction. (10)
    b) Explain Jablonski diagram to illustrate fluorescence and phosphorescence. (10)
13. a) Explain the purification of water by reverse osmosis process. (10)
    b) State the differences between addition and condensation polymerization. (10)
14. a) Derive the rate expression of the rate constant for second order reaction. (10)
    b) Write a short note on the following. (10)
    (i) Biodegradable polymers (ii) Thermosetting plastics
