



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIRST SEMESTER – APRIL 2025



UCH 1501 – BASIC CONCEPTS IN INORGANIC CHEMISTRY

Date: 23-04-2025

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A

Answer ANY FOUR of the following

(4 x 10 = 40)

1. Write a note on following Pauli's exclusion principle, Hund's rule and Aufbau principle.
2. Discuss the factors affecting the ionization energy.
3. Explain the properties of oxidizing and reducing agents with example.
4. Write a note on classification of solvents with examples.
5. How to predict the molecular shape by using Sidgwick-Powell theory?
6. Discuss the preparation and structure of interhalogen compounds, ClF and ClF₃.
7. Explain the band theory of metals.
8. Write a note on structure and properties of pseudohalogens of cyanide and thiocyanate.

SECTION B

Answer ANY THREE of the following

(3 x 20 = 60)

9. a) Discuss the advantages and disadvantages of modern periodic table. (10+10)
b) Write a note on Pauling and Mulliken scales of electronegativity.
10. a) How to balance the chemical reactions by using oxidation number and ion-electron methods. (10+10)
b) Distinguish between Arrhenius, Bronsted-Lowry and Lewis theories of acids and bases.
11. a) Discuss the characteristics of Liquid ammonia as a solvent. (10+10)
b) Explain the postulates of valence bond theory.
12. a) Draw the hybridization and geometry of following molecules BeCl₂, NH₃, CH₄, PCl₅, and SF₆. (10+10)
b) Explain the postulates of MOT.
13. a) Explain the MOT diagram of N₂ and O₂. (10+10)
b) Distinguish between the n- and p-type semiconductors with example.
14. a) Explain the anomalous behaviour of fluorine. (10+10)
b) Discuss the preparation and structure of interhalogen compounds, BrF₅ and IF₇.
