

Roll No.

Total Pages : 03

LMDQ/D-23

6531

INORGANIC CHEMISTRY (GENERAL)

CHEM-301

(CBCS-LOCF)

Time : Three Hours]

[Maximum Marks : 45

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) Explain the structure and function of Hemerythrin. **3**
- (b) Write and explain the ilkovic equation. **2**
- (c) What is the interference of O₂ in the determination of Metal ion in polarography ? **2**
- (d) Define the terms vertical and adiabatic ionization. **2**

Unit I

2. (a) Describe the basic structural features of hemoglobin and myoglobin and explain their biological functions. **5**
- (b) Explain that cytochrome p-450 is a monooxygenase. **4**

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3. (a) What are the electron carriers ? Describe the role of iron-Sulphur proteins as electron carrier in biological system. 5
- (b) Write a short note on model synthetic complexes of cobalt. 4

Unit II

4. (a) Explain the determination of coordination number of complexes with the help of $E_{1/2}$. 4
- (b) Describe the term hydrogen voltage and explain its volume, Erdy and Gruss theory. 5
5. (a) Determine and depict the IR active modes of SF_4 (AX_4 type) by using group theoretic approach. 5
- (b) On the basis of IR spectroscopy, explain the coordination behavior of β -diketones with transition metal ions. 4

Unit III

6. (a) Explain the term isomer shift and quadrupole splitting in Mossbauer. 4
- (b) Define photoelectric effect. Draw and explain the possible peaks for N_2 molecule in photoelectron spectrum. 5

7. (a) Give the principle of ESCA. What chemical information is obtained from ESCA ? 5
- (b) Explain the adiabatic and vibrational ionization energies in PES by using vibrational structure for a molecule. 4