

(2)

- (a) What is acidity and basicity ? Explain with examples. 4
- (b) Explain ambivalent nucleophile with examples. 4
- (c) Describe Bronsted acid and base catalysis. 12

Unit-II

2. (a) Describe the effect of electrolyte on critical micelle concentration (CMC). 6
- (b) Explain the thermodynamics of micellization. 6
- (c) Describe the Laplace's equation. How many solutions does Laplace equation have ? 8

OR

- (a) Describe Gibbs adsorption isotherm. 10
- (b) Discuss the factors affecting the critical micelle concentration (CMC) value. 10

Unit-III

3. (a) Explain Non-stoichiometry imperfect and perfect crystals with example. 8
- (b) Discuss thermodynamics of Schottky defect. 8
- (c) Explain formation of color centres. 4

OR

(3)

- (a) Explain Schottky and Frankel defects with example. 4
- (b) Give the thermodynamics of Frenkel defect. 8
- (c) Describe electronic properties and band theory of semiconductors. 8

Unit-IV

- 4. (a) Define polymers. Mention various types of polymers. Discuss the free radical mechanism of polymerization. 12
- (b) Describe the viscometry method of determination of molecular mass. 8

OR

- (a) Discuss the kinetics of polymerization. 4
- (b) Give brief account of chain topology and crystal structure of polymers. 6
- (c) Derive expression for calculation of average dimensions of various chain structures. 10