

Time: 2½ hours.

Total Marks: 60

Note: 1. Answer all five questions.

2. All questions carry equal marks.

3. Draw neat and labelled diagrams where necessary.

- Q1. a) Discuss in brief Protein folding disorders. **06**  
b) Write short notes on role of enzymes in protein folding (PDI, PPI). **06**

OR

- Q1. Explain basic concepts for design of a new protein/enzyme molecule with suitable example. **12**

- Q2. a) Describe the role of covalent catalysis in the enzyme catalysis. **06**  
b) Discuss the Hill's equation coefficient. **06**

OR

- Q2. Describe the methods and applications of immobilized enzymes. **12**

- Q3. a) Explain the term nutrigenomics with suitable examples. **06**  
b) Describe the methods of detection of metabolites. **06**

OR

- Q3. Discuss the basic concepts and technology of transcriptomics. **12**

- Q4. a) Write a note on applications of Nanobiology in field of Life Sciences. **06**  
b) Comment on role of electron microscopy for the characterization of nanomaterials. **06**

OR

- Q4. Explain in detail the liposomal formulation. **12**

- Q5. Write short notes on **any three**: **12**

- a. Chaperonins
- b. Effect of amino acids on structure of proteins
- c. Chymotrypsin
- d. KNF models
- e. EST
- f. Membrane nanodiscs

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