

**III B.Tech. II Semester Regular Examinations, April/May -2005**

**PROTEIN ENGINEERING**

**(Bio-Technology)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. Write an essay on Assembly of Primary Structure?
2. What are the factors that affect the protein stability?
3. Explain in detail Biosynthetic folding of Proteins?
4. Describe the action of restriction enzyme in detail.
5. (a) What are proteases.  
(b) Describe different classes of proteases with examples.  
(c) Explain the action of serine proteases in details.
6. Write in detail about basic structure and function of Immunoglobulin?
7. What do you mean by structural classification of Databases. Explain?
8. (a) What is Levinthal paradox? Discuss in detail.  
(b) Describe the problems in protein folding in detail.

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1. Discuss about General properties of Proteins Secondary structure?
2. Describe the role of hydrogen bonds in tertiary structure of protein.
3. (a) What are chaperons?  
(b) Describe types of chaperons and their role in folding of protein.
4. Write Short notes on
  - (a) TBP
  - (b) TF II D
  - (c) TF II A
  - (d) Inducible Transcription factors
5. Write a note on interactions of proteins in membrane with a neat sketch showing various classes of proteins associated with the lipid bi-layer?
6. Explain in detail Immunoglobulin domains?
7. (a) Describe few examples of engineered proteins.  
(b) Describe the different data bases available for storage of protein resources.
8. Describe the basic principles with respect to protein design.

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1. Write about the methods employed in detection of Amino acids, Peptides and Proteins?
2. Elaborate the role of disulphide bond in tertiary structure.
3. (a) What are chaperons?  
(b) Describe types of chaperons and their role in folding of protein.
4. Describe the action of restriction enzyme in detail.
5. Name the membrane protein which is present in Halobacterium salinarium ? Explain about mechanisms of light driven proton pump in Bacteriorhodopsin?
6. Explain the make up of photosynthetic center and their action with respect to their structure.
7. Write short notes on
  - (a) PRINTS
  - (b) IDENTIFY
8. (a) What do you mean by protein design?  
(b) What are the goals of protein design?

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1. (a) Describe the assembly of  $\beta$ - sheets in detail.  
(b) Explain the role of hydrogen bonds in  $\beta$ -sheets
2. Describe the role of hydrogen bonds in tertiary structure of protein.
3. Explain the concept of Levinthal's Paradox in Protein Folding?
4. Write short notes on
  - (a) Zinc fingers
  - (b) Leucine zippers
5. Describe general mechanisms of Enzyme action.
6. Explain the production of Insulin by r DNA technology?
7. Write short notes on
  - (a) PROSITE
  - (b) BLOCKS
8. Describe the basic principles with respect to protein design.

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