

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
PROTEIN ENGINEERING
(Bio-Technology)**

Time: 3 hours

Max Marks: 80

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

1. Describe about Sanger's method to determine amino acid sequence? [16]
2. What are the factors that affect the protein stability? [16]
3. "Amino acid sequence of final protein is not same as dictated by Gene Sequence"
Justify above statement? [16]
4. Discuss various types of DNA polymerases? Compare and contrast the properties
of DNA Pol I, DNA Pol II and DNA Pol III. [16]
5. Describe the structure and function of bacteriorhodopsin. [16]
6. Describe the sequence of events following the absorption of photon of light by
photosynthetic reaction center pigment of PS-II. Describe the comparable events
in PS-I. How are two photosystems linked to one another? [16]
7. Write short notes on
 - (a) PRINTS
 - (b) IDENTIFY [8+8]
8. Explain the importance of protein designing in the field of Drug designing. [16]

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1. (a) Classify amino acids based on their chemical nature
(b) Describe any four general properties of amino acids. [4+12]
2. Discuss about Tertiary structure prediction methods? [16]
3. Describe Posttranslational modifications by proteolytic cleavage. [16]
4. Describe DNA binding proteins in detail. [16]
5. (a) What are proteases.
(b) Describe different classes of proteases with examples.
(c) Explain the action of serine proteases in details. [5+6+5]
6. (a) What are Immunoglobulins.
(b) Describe the structure of Immunoglobulin.
(c) Describe the various classes of Immunoglobulins and their properties. [5+5+6]
7. (a) Describe few examples of engineered proteins.
(b) Describe the different data bases available for storage of protein resources. [8+8]
8. (a) What do you mean by protein design?
(b) What are the goals of protein design? [8+8]

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1. Define Secondary Structure? Explain in detail about Secondary structure of Proteins? [16]
2. Write short notes on
 - (a) Fibrous proteins
 - (b) Globular proteins [8+8]
3. "Amino acid sequence of final protein is not same as dictated by Gene Sequence" Justify above statement? [16]
4. Write short notes on
 - (a) Cro proteins
 - (b) DNA Polymerase III [8+8]
5. Name the membrane protein which is present in Halobacterium salinarum ? Explain about mechanisms of light driven proton pump in Bacteriorhodopsin? [16]
6.
 - (a) What are Immunoglobulins.
 - (b) Describe the structure of Immunoglobulin.
 - (c) Describe the various classes of Immunoglobulins and their properties. [5+5+6]
7. Write short notes on
 - (a) PRINTS
 - (b) IDENTIFY [8+8]
8. Describe the basic principles with respect to protein design. [16]

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1. What is Secondary Structure of protein? Discuss in details. [16]
2. Describe the role of hydrogen bonds in tertiary structure of protein. [16]
3. (a) What are the protein which assist in protein folding.
(b) Write their classification and their function. [8+8]
4. Describe the zinc finger and their function. [16]
5. Write in detail about Protein phosphorylation a principle mechanism for signaling? [16]
6. (a) What are Immunoglobulins.
(b) Describe the structure of Immunoglobulin.
(c) Describe the various classes of Immunoglobulins and their properties. [5+5+6]
7. Write about Pattern databases for storing information about protein families and motifs? [16]
8. (a) What do you mean by protein design?
(b) What are the goals of protein design? [8+8]
