

B.E./B.TECH. Degree Examination, December 2020

Fifth Semester

BT16501 - Protein Structure, Function and Proteomics

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer ALL questions**PART A - (8 X 2 = 16 marks)**

1. Number of chiral centers in isoleucine is
 - a). 1
 - b).2
 - c).3
 - d).4
2. A tripeptide has _____
 - a) 3 amino acids and 1 peptide bond
 - b) 3 amino acids and 2 peptide bonds
 - c) 3 amino acids and 3 peptide bonds
 - d) 3 amino acids and 4 peptide bonds
3. Which of the following does not possess a quaternary structure?
 - a). Myoglobin
 - b) Lactate dehydrogenase
 - c) Immunoglobulin M
 - d) Creatine Phospho Kinase
4. The most abundant immunoglobulin is _____
 - a). IgA
 - b). IgE
 - c). IgG
 - d).IgM
5. What is the role of hydrophobic interactions in determining the structure of proteins?
6. State the significance of peptide mapping.
7. Define proteins Domains structure.
8. What are protein arrays? Give an example.

PART B - (4 X16 = 64 marks)

09. (a) (i) Explain the role of EMR in the elucidation of protein structure. **(8)**
 - (ii) Write the three and single letter codes of amino acids. **(8)**

(OR)

- (b) (i) Explain the significance of covalent, ionic and *Vander walls* interactions in the formation of protein structure. (8)
- (ii) Write the molecular properties of proteins in detail. (8)

10. (a) (i) How is automated *Edman* degradation method useful to determine the peptide sequencing of any proteins? Explain with an example. (8)
- (ii) Discuss the beta pleated sheet structure of proteins with an example. (8)

(OR)

- (b) (i) Explain any two secondary structure of proteins with examples. (8)
- (ii) Elaborate on any two super secondary structures of proteins with examples. (8)

11. (a) (i) Write any two tertiary structures of proteins with examples. (8)
- (ii) How are the substrate binding sites of enzymes predicted? Explain with an example. (8)

(OR)

- (b) (i) Explain the trans-membrane structure of bacterio-rhodopsin with a diagrammatic illustration. (8)
- (ii) Discuss about the transcription factor proteins. (8)

12. (a) (i) What is proteomics? Explain its compositions. (8)
- (ii) Write the importance of proteomics in biological functions. (8)

(OR)

- (b) (i) How do you analyse proteomes using cross linking and affinity methods? Explain the above two procedures in detail. (8)
- (ii) How do you analyse proteomes using yeast two hybrid systems? Explain (8)