

B.E./B.TECH. Degree Examination, December 2020
Fifth Semester
BT18504 – Protein Engineering and Proteomics
(Regulation 2018)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. Which of the following amino acid shows hydrophilic nature?
a) Leucine b) Glycine c) Valine d) Serine
2. Regular secondary structures such as alpha-helices or the strands of beta-sheets are often connected by a stretch of a polypeptide that changes direction abruptly. What are these structures?
a) Incomplete sheets b) Inverse helix c) Small helix d) Turns or beta-bends
3. Which of the following radiations carry enough energy to ionize atoms and disrupt molecular bonds?
a) Visible radiation b) Infrared radiation c) UV radiation d) X – rays
4. Which of the following is not a way to measure enzyme activity?
a) Katal b) Turnover number c) International unit d) Unit of enzyme activity
5. What information pKa give us about amino acids?
6. Why does the alpha helix have a dipole moment?
7. What is more likely type of motif for membrane? Give one example.
8. In SDS – PAGE analysis, how many bands observed?

PART B - (4 X16 = 64 marks)

09. (a) (i) Analyze the different kinds of non-covalent interactions that stabilize protein structure. **(10)**
(ii) Why are globular proteins marginally stable in terms of ΔG despite the numerous interactions which maintain their tertiary structure? **(6)**
- (OR)**
- (b) (i) How do you validate the protein structure? explain with a suitable example. **(8)**
(ii) Design a step wise strategy for the determination of automated protein sequence. **(8)**
10. (a) Criticize the various forms of super secondary structures existing in protein with an example. **(16)**

(OR)

(b) Illustrate the up/down and TIM barrel models features with suitable (16)
example.

11. (a) How do you engineer the immunoglobulins to improve its antigen binding (16)
specificity?

(OR)

(b) Outline the DNA binding proteins regulatory mechanism with an example. (16)

12. (a) Categorize the various protein arrays based on their applications. (16)

(OR)

(b) Compare and contrast Yeast two hybrid system and Immunoprecipitation (16)
techniques in identification of PPI.