QP Code:RA21BTECH810 Reg. No | | | | | | | | | | | AR 21

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Eighth Semester - Regular) Examinations, April – 2025

21BBTOE48011 - Protein Engineering

(Biotechnology)

Time: 3 hrs Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

		CO #	Blooms Level
Q.1.	Answer ***ALL*** questions		
a.	What do you mean by α-helix and β-sheet of protein?	CO1	K1
b.	List the factors that denature the protein?	CO2	K2
c.	Give the effect of pH and Temperature on protein?	CO2	K2
d.	How the stability of lysozyme can be increased?	CO3	K3
e.	Mention the role of FTIR in protein analysis?	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

	Answer ***all*** the questions	Marks	CO #	Blooms Level
2. a.	Discuss the hierarchical architecture of proteins with examples?	8	CO1	K1
b.	Explain the major forces stabilizing the protein structure?	7	CO1	K2
	(OR)			
c.	How protein-protein interactions can be determined? Discuss the techniques?	8	CO1	K2
d.	Write the importance and application of Ramachandran map with diagram?	7	CO1	K1
3.a.	Give the role of thermodynamics principle to stabilize the Protein?	8	CO2	K2
b.	Explain the process of Protein folding with suitable diagram?	7	CO2	K2
	(OR)			
c.	Illustrate the techniques of Chemical modification of Protein?	8	CO2	K1
d.	How protein can be denatured? Discuss the process with suitable examples?	7	CO2	K2
4.a.	Explain the experimental methods used in protein engineering?	8	CO3	K2
b.	Give the notes on Module shuffling with diagram?	7	CO3	K1
	(OR)			
c.	Explain the mechanism of stabilization of proteins from psychrophiles sand thermophiles?	8	CO3	K2
d.	Mention the case study for stabilization of engineered protease?	7	CO3	K1
5.a.	List and discuss briefly about the various techniques used to characterize the protein?	8	CO4	K3
b.	Explain the principle and instrumentation of UV-Vis Spectroscopy for the analysis of protein?	7	CO4	K2
	(OR)			
c.	Mention the principle of NMR spectroscopy and its application in protein engineering?	8	CO4	K1
d.	Give the principle and applications of SDS-PAGE?	7	CO4	K2

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