

Roll No: _____

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M.Sc. Biochemistry, Semester II Examination, 2023

Paper Title: Protein and Proteomics

Paper Code: MBC 202

Time: 2.5 h

Max Marks: 60

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; Section C: Answer all the questions, each question in this section has an internal choice

Abbreviations Used: CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

SECTION A

[1x10=10 Marks]

Q. No. 1	Fill in the blanks/ define (<u>Attempt all questions</u>)	BTL	CLO	PLO
a	----- amino acid is abundantly found in collagen.	1	2	3
b	Biuret reaction is specific for -----	3	1	3
c	pI (isoelectric point) of histidine is -----	2	1	2
d	The enzyme which breaks up starch into sugar is called -----	1	3	3
e	Each haemoglobin carries ----- number of O ₂ molecules.	4	3	2
f	Function of dithiothreitol.	3	4	3
g	Define Chaotropic agents.	1	2	3
h	Define a protein domain.	2	1	3
i	Define dihedral angles.	3	2	3
j	What are hydrophobic interactions?	1	5	3

SECTION B

[2x12.5=25 Marks]

Q. No. 2	<u>Long type Questions (Attempt any two out of four)</u>	BTL	CLO	PLO
(a)	What is end terminal analysis. Explain methods for C-terminal analysis.	1	4	3
(b)	Discuss Anfinsen experiment on Ribonuclease. Also discuss the important conclusions of his experiment.	2	1	2
(c)	Explain the role of covalent and non-covalent bonds in protein structure.	3	2	3
(d)	Explain the principle and applications of Mass spectrometry.	4	5	2

SECTION C**[5x5=25 Marks]**

Q. No. 3	Short-type Questions (Attempt all questions, each question has an internal choice)	BTL	CLO	PLO
3	Discuss about the effect of temperature and detergents on the structure of proteins. OR Write a short note on the isoelectric pH of protein and its importance.	1	2	3
4	Write the role of chaperones in protein folding. OR Define quaternary structure of proteins with suitable examples.	2	3	3
5	Describe various methods to quantify the cysteine residues in an unknown protein. OR Discuss the salient features of Ramachandran Plot.	3	1	2
6	Elucidate the proteomic tools in protein structure prediction and analysis. OR Discuss Two-dimensional polyacrylamide gel electrophoresis.	1	5	3
7	Differentiate between the alpha helix and beta structure found in proteins. OR Discuss the forces stabilizing the tertiary protein structures.	4	2	3

END OF THE QUESTION PAPER