

JAMIA HAMDARD
Department of Medical Elementology & Toxicology
School of Chemical and Life Sciences

Course Name: BSc (Hons.) Toxicology, Semester-IV End term Examination (2023-24)

Paper Name: Protein-Toxicant interaction

Paper Code: BTX-DSC402

Time: 2.5 h

Maximum Marks: 60

Note: This paper has 3 section A, B and C, Attempt all the three sections. Section A: Answer all the questions; Section B: Answer any 4 and Section C attempt any two questions

Abbreviations Used

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

Very Short Type Questions (1 X20)

[20]

Q. No.	Question	BTL
1.	An amino acid in a protein is called a.....	2
2.	1 ⁰ structure of a protein start fromend and ends atend	5
3.	In a polypeptide chain rotation take place only aroundandbonds	3
4.	What is the full form of PDB?	3
5.	Name two amino acids which can form ionic interaction at 3 ⁰ structure level.	2
6.	Define protein domain.	2
7.	Write name of two aromatic amino acids.	1
8.	Biologically active state of protein is called	
9.	Draw structure of Greek Key motif.	1
10.	PyMOL is a source-available molecular visualization system created by Warren Lyford DeLano. (True/False)	3
11.	Docking is a molecular modeling technique that is used to predict how a protein interacts with small molecules (True/False)	3
12.	Disulfide bonds are covalent interactions formed between the sulfur atoms of two residues.	1
13.	What is a difference spectrum?	2
15.	Name one database from where you can obtain structure of small molecules.	1
16.	Name one method used to determine protein concentration.	1
17.	Protein's absorbance is mainly due to aromatic amino acids (True/False)	3
18.	$A = \epsilon \cdot C \cdot l$, what is ϵ in this equation?	4
19.	What is beta-strand?	2
20.	What do you understand by association constant?	1

SECTION B

Short-type Questions. (Attempt any 4 questions) (4X5)

[20]

Q. No.	Question
1.	What do you understand by primary structure of protein? What is the importance of primary structure?
2.	Write a short note on Ramachandran Plot.
3.	Discuss the principle and application of UV/Visible spectroscopy
4.	What is 3 ⁰ structures of protein? What are various interactions stabilizing the 3 ⁰ structures
5	What is Molecular Docking? What are various steps of to perform MD.

SECTION C

Long-type Questions. (Attempt any two questions) (2X10)

[20]

Q. No.	Question
1.	What are different secondary structures of protein? Discuss any two regular secondary structure in details.
2	Define protein-ligand binding and discuss its importance. Write name of two plots which are used to determine the binding parameter.
3.	Write short note on (i) PyMol (ii) PubChem and (iii) drugBank (iv) Scatchard plot
4.	Write principle and application of fluorescence spectroscopy.

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