GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Biological and Life sciences

Bachelor of Science Honours in Microbiology
Semester End Examination - Nov 2023

Duration : 180 Minutes
Max Marks : 100

Sem V - C2UC502T - Structural Biology and Vaccine Development

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	What is the primary structure of protein?	K1	(2)
2)	What is adjuavnt?	K2	(4)
3)	Why protein folding is important? Explain the mechnism of Assisted Protein Folding.	K2	(6)
4)	Define vaccine hesitancy and list some common reasons why people may be hesitant to get vaccinated.	K3	(9)
5)	Explain how Tetanus toxin affects the nervous system and leads to muscle spasms?	K3	(9)
6)	Identify and discuss the future challenges and opportunities for vaccination?	K5	(10)
7)	Compare and contrast covalent, ionic, and van der Waals interactions in terms of strength, specificity, and reversibility. How do these interactions collectively contribute to protein structural stability?	K4	(12)
8)	How does the Ramachandran plot help in identifying allowed and forbidden dihedral angle combinations for the phi and psi angles? Provide examples of dihedral angles corresponding to alpha-helices and beta-sheets.	K5	(15)
9)	What do you understand by cryo-electron microscopy? write the working principle and its intrumentation.	K5	(15)
10)	How has the COVID-19 pandemic impacted vaccination rates and the resurgence of vaccine-preventable diseases like Pertussis?	K6	(18)