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 - C2UC503B - Fundamentals of Bioinformatics

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)	Explain how encrypted data transfer enhances data confidentiality. Provide a brief example scenario to illustrate its significance.	K1 (2)
2)	Discuss the key characteristics of a relational database.	K2 (4)
3)	Illustrate how researchers can integrate data from multiple databases to answer complex biological questions.	K2 (6)
4)	Predict the usage of the technique, 2-D gel electrophoresis. Discuss its principle and procedure.	K3 (9)
5)	Illustrate the technique of 2-D gel electrophoresis.	K3 (9)
6)	Predict the protein structure in presence and absence of structure template.	K5 (10)
7)	Compare the genomes of Arabidopsis and Human.	K4 (12)
8)	Describe the importance of full-text linking and Open Access in the context of the NCBI PubMed database. Explain how researchers benefit from accessing full-text articles and how Open Access publications contribute to knowledge dissemination	K5 (15)
9)	Describe the process of submitting a research article to the NCBI PubMed database. Explain the steps a researcher needs to follow, from manuscript preparation to article indexing.	K5 (15)
10)	Explain the concept of a "Citation Network" in the context of the NCBI PubMed database. How can researchers use citation networks to identify related articles and expand their literature review?	K6 (18)