BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MSc   SEMESTER : I
BRANCH: Bioengineering & Biotechnology   SESSION : MO/2023

SUBJECT: BI102 BIOLOGICAL DATABASES AND MYSQL

TIME: 3 Hours   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Discuss different Biological Data Types which are being used frequently in Bioinformatics.	[5]	1	1
Q.1(b)	What do you mean by Primary databases? Differentiate between Primary and Secondary databases. Discuss briefly Primary nucleotide sequence databases.	[5]	1	1
Q.2(a)	Explain the concept of Homology. Differentiate between Orthologs, Paralogs and Xenologs. Discuss how homology is useful in searching the databases.	[5]	2	2
Q.2(b)	What is the BLAST program? Discuss its algorithm and various flavors used for searching the databases.	[5]	2	3
Q.3(a)	What are Database systems? Differentiate between Flat file and relational Databases.	[5]	2	2
Q.3(b)	What is an ER diagram? Explain briefly the concept of Schema and Instances.	[5]	2	2
Q.4(a)	Explain with example the MySQL database system. Explain the Concept of Primary and Foreign Keys.	[5]	2	1
Q.4(b)	Create a small database of students having data in two tables. Write the commands to select, sort, update and alter the table.	[5]	2	1
Q.5(a)	Explain various chemical structure databases that are being extensively used in CADD.	[5]	2	2
Q.5(b)	Describe different Protein-Interaction databases that are used in Systems Biology.	[5]	2	2

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