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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Accelerated Semester

MID TERM EXAMINATION- 2026

B. Tech-VIII Semester [All except Bio]

COURSE CODE (CREDITS): 21B1WBT833 (3)

MAX. MARKS: 50

COURSE NAME: Computational Biology for Engineers

COURSE INSTRUCTOR: Dr. Raj Kumar

MAX. TIME: 2 Hour

Note:(a)All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Calculator is allowed/not allowed

Q.No	Question	CO	Marks
Q1	Justify the statement that Computational Biology is an interdisciplinary science by citing examples of contributions from different fields.	1	5
Q2	Explain the significance of the Central Dogma of Molecular Biology and describe how genetic information flows within biological systems.	1	5
Q3	A DNA sample contains 22% guanine (G). Determine the percentages of: a) Cytosine (C) b) Adenine (A) c) Thymine (T)	2	5
Q4	Which database provides structural data for proteins and other biomolecules? Describe the structure and key fields of the PDB file format.	3	5
Q5	Literature databases are curated, searchable repositories of academic articles, books, studies, and primary sources essential for research in various fields. How will you optimise a search strategy to identify peer-reviewed articles on a particular research topic?	2	10
Q6	Describe the major nucleotide sequence databases available for DNA and RNA sequences. How do these resources collaborate to maintain and share biological sequence data?	2	10

Q7	Write short notes on: a) FASTA file format b) Primary vs. secondary databases c) Atlas of Protein Sequence and Structure d) Uniprot e) Entrez	1	2×5 $= 10$
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JUIT TEST-2 EXAMINATION- OCT-2024