

02 / 9-30
77

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

PhD-I & II Semester (BTBI)

COURSE CODE (CREDITS): 25P1WBT233 (3)

MAX. MARKS: 15

COURSE NAME: Advances in Bioinformatics

COURSE INSTRUCTORS: Dr. Raj Kumar

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

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

Q.No	Question	Marks
Q1	The 'Central Dogma' is the process by which the instructions in DNA are converted into a functional product. How does it serve as the major source of biomedical information?	2
Q2	Discuss the contribution of the Atlas of Protein Sequence and Structure to the study of protein structure and function?	2
Q3	Justify the role of the DrugBank database. What are the various categories of chemical compound information stored in the DrugBank database?	2
Q4	Describe the structure of a GenBank file for nucleotide sequences. Compare and contrast FASTA and GenBank formats.	2
Q5	Jennifer Doudna and Emmanuelle Charpentier are pioneering scientists working on CRISPR genome editing. How will you search for relevant literature which they have collectively published on CRISPR in past 10 years? Write down the literature search scheme in a step-wise manner.	3
Q6	<p>You are given three possible alignments for two DNA sequences. Evaluate the following alignments and determine which one is a correct alignment.</p> <div> <div>a)</div> <div> <div>ATGCTAGCTA</div> <div>ATG - TAGCTA</div> </div> </div> <div> <div>b)</div> <div> <div>ATGCTAGCTA</div> <div>ATGTAGC - TA</div> </div> </div> <div> <div>c)</div> <div> <div>ATGCTAGCTA</div> <div>ATGTAGCTA -</div> </div> </div>	4