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1ST YEAR REVISION & TEST SESSION

NAME:				ROLL NO:		TIME:	50: MIN
SUB:	Biology	Date:				CLASS:	1st Year
SYLLABUS	Chp. 7 (Structural and Computational Biology)			T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x6=6)

1. **Why is identifying host-pathogen interactions important in drug development?**
   (A) It allow production of stronger antibiotics
   (B) It identifies how host cells can be protected or pathogens blocked
   (C) It removes all pathogens instantly
   (D) It's unrelated to drug development
2. **What is the first essential of x-ray crystallography?**
   (A) Building a density map (B) Crystallizing the protein
   (C) Firing X-rays into a solution (D) Analyzing DNA sequences
3. **How does computational biology contribute to during discovery?**
   (A) It help in vaccine transportation
   (B) It predicts molecular interactions to identify drug targets
   (C) It manufactures drugs directly
   (D) It identifies allergies in patients
4. **Which of the following best describes the role of computational biology in evolutionary studies:**
   (A) Ending of ancient DNA
   (B) Comparison of gene sequences to establish phylogenetic relationship
   (C) Field collection of fossils
   (D) Scanning of tissue samples
5. **The protein domains are:**
   (A) Functional and structural units within protein
   (B) Secondary structural elements
   (C) Linear sequence of amino acid
   (D) Specific regions for-translational modification
6. **What is primary role of computational biology?**
   (A) Using computer algorithms to analyze data (B) Identifying genetic mutations
   (C) Studying protein function (D) Analyzing the expression pattern

PART-I

Q. 2 Write Short Answers of the Following Questions (2x8=16)

i. What is the principle behind X-ray crystallography, and how is it used to determine bio-molecular structure?
ii. What are some online databases that provide access to bio-molecular structure, and how are they used in research?
iii. How does sequence homology analysis provide insights into bio-molecular structure and function, and what are its limitations?
iv. How does computational biology contribute to our understanding of biological system and processes, and what are its applications?
v. Define genomics.
vi. What is GenBank? Describe it briefly?
vii. How does genomics contribute to personalized medicine?
viii. What is the role of the Ensemble database in genomics research?

PART-II

Write Answers of the Following Questions in Detail.

Q. 3 (a) Describe the application of structural biology 4
(b) Briefly describe key databases of computational biology. 4

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Answer Key							
1	B	**2**	B	**3**	B	**4**	B
5	A	**6**	A				