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B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2018

Fourth Semester

Core Course-14—BIOPHYSICS AND BIOINFORMATICS

(For B.Sc. Biotechnology)

[2013 Admission onwards]

Time : Three Hours

Maximum Marks : 80

Part A (Short Answer Questions)

Answer all questions.

Each question carries 1 mark.

1. What is a scoring matrix ?
2. What is an alignment ?
3. What is a colloid ?
4. What is half-life ?
5. What are the forces which stabilize secondary structure ?
6. What is radioactivity ?
7. What is PDB ?
8. What is a Drugbank ?
9. What is diffusion ? How it differ from osmosis ?
10. What is bioinformatics ?

(10 × 1 = 10)

Part B (Brief Answer Questions)

Answer any eight of the following.

Each question carries 2 marks.

11. Write notes on protein data bases. Explain.
12. Describe peptide bond.
13. Describe gene prediction tools.
14. What is IR ? What are its applications ?
15. Write notes on Phylogeny.

Turn over

16. Describe the second Law of thermodynamics.
17. What is the role of ATP in the cell ?
18. Write notes on Gene bank.
19. What are the applications of Absorption spectroscopy ?
20. Write notes on PAM and Blossum.
21. What are ionizing radiations ?
22. List the step for the use of BLAST programme.

(8 × 2 = 16)

Part C (Short Essay Questions)

Answer any **six** of the following.

Each question carries 4 marks.

23. What is homology modelling ? How it is done ?
24. Write notes on tertiary structure of proteins.
25. Explain the various data formats used in Bioinformatics.
26. How chaperons aid in folding of proteins ?
27. Write notes on scintillation counter.
28. Differentiate local and global alignment.
29. What is surface tension ? Explain.
30. Describe the tools used for the study of Phylogenetics.
31. What is free energy ? Explain.

(6 × 4 = 24)

Part D (Essay Questions)

Answer any **two** of the following.

Each question carries 15 marks.

32. Write an essay on sequence alignment.
33. Describe protein confirmation with an example.
34. Write an essay on the history of Bioinformatics.
35. Describe the principle and working of UV-VS spectrophotometer.

(2 × 15 = 30)