

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2019**Fourth Semester****Core Course 14 – BIOPHYSICS AND BIOINFORMATICS**

(For B.Sc. Biotechnology)

[2013–2016 Admissions]

Time : Three Hours

Maximum Marks : 80

Part A*Answer all questions.**Each question carries 1 mark.*

1. Why is water special for life?
2. Write the principle of Spectroscopy.
3. Explain BLAST.
4. What is the function of Chaperons?
5. What are the characters of β rays?
6. What is Heuristic algorithm?
7. What is dosimetry?
8. What are the applications of GM Counter?
9. Describe the advantage of FASTA over BLAST.
10. What are the different methods adopted in Modelling?

(10 × 1 = 10)

Part B*Answer any eight of the following.**Each question carries 2 marks.*

11. Describe peptide bond.
12. Explain Diffusion.
13. What is DNA hyperchromicity?
14. Write notes on Genbank.
15. What are the applications of UV-visible spectrophotometer?
16. Differentiate between Primary and Secondary databases.
17. What are protein databases? Explain.

Turn over

18. Name the different structure prediction tools.
19. Write notes on scintillation counter.
20. What are the different DNA conformations?
21. What are ionizing radiations?
22. Explain the terms enthalpy, entropy and free energy.

(8 × 2 = 16)

Part C

Answer any six of the following.

Each question carries 4 marks.

23. Write notes on non-interactions in DNA.
24. What is sequence alignment? Explain.
25. What are the applications of UV-visible spectroscopy?
26. What is the unit of Radio activity? Write notes on properties of radiations.
27. Write notes on molecular chaperons.
28. Discuss the various tools used for phylogenetic analysis specify the advantage and disadvantages.
29. Describe the principle of GM Counter.
30. Explain Ramachandran's plot.
31. Differentiate BLAST and Clustal W.

(6 × 4 = 24)

Part D

Answer any two of the following.

Each question carries 15 marks.

32. Write an essay on protein structure.
33. Write an essay on biological databases. What are the significance of databases?
34. Write an essay on Laws of Thermodynamics.
35. Role of water in living organism. Discuss.

(2 × 15 = 30)