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Reg. No.....

Name.....

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2024**

**Fourth Semester**

Core Course 14—BIOPHYSICS AND BIOINFORMATICS

(For B.Sc. Biotechnology)

[2013–2016 Admissions]

Time : Three Hours Maximum Marks : 80

**Part A (Short Answer Questions)**

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

1. Explain emission spectrum.
2. What is an isotope ?
3. Explain B DNA.
4. Explain adsorption.
5. Point our features of alpha particle.
6. Write about EBTL.
7. Define bioinformatics.
8. What is free energy ?
9. Point our characteristic features of semi permeable membrane.
10. What is half life period ?

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any* **eight** *questions.*
*Each question carries* 2 *marks.*

11. Write about BLAST.
12. Write about drug bank.
13. Differentiate enthalpy and entropy.
14. Explain DNA polymorphism.
15. What are the stabilizing forces in macromolecules ?

**Turn over**

16. Point out importance of water in biological system.
17. Write about homology modelling.
18. Explain a colloidal system.
19. Write about NCBI.
20. Explain surface tension.
21. Write about molecular chaperon.
22. What is the importance of folding of proteins ?

(8 × 2 = 16)

## Part C

*Answer any* **six** *questions.*
*Each question carries* 4 *marks.*

23. Describe principle functioning and applications of GM counter.
24. Explain two tools for sequence alignment.
25. Write about osmosis and diffusion. Point out the significance.
26. Write about PDB and swissport.
27. Explain conformation of DNA.
28. Write an account on thermodynamics and how it is connected to our day to day life.
29. Explain homology modelling.
30. Explain radioactivity and scintillation counter.
31. How can we predict structure of protein ?

(6 × 4 = 24)

## Part D

*Answer any* **two** *questions.*
*Each question carries* 15 *marks.*

32. Write an account on biological databases.
33. Describe principles, functioning and application of spectroscopy.
34. Write about importance and methods for phylogenetic analysis using bioinformatic tool.
35. Illustrate and explain structure of Protein.

(2 × 15 = 30)