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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2022

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. What is entropy ?
2. Define absorption.
3. Name the information retrieval tool of NCBI gene bank.
4. What is mutarotation ?
5. What are hsp ?
6. Who created FASTA program ?
7. What is BLOSUM ?
8. Name the instrument and used for measuring surface tension of a liquid.
9. Name the anode in GM counter.
10. What is DBMS ?

(10 × 1 = 10)

Part B

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

11. Define diffusion what are the two type of diffusion.
12. Differentiate colloid from crystalloid.
13. State the importance of SWISSPROT.
14. Name two types of scintillation counting.

Turn over

15. What is half life of a radio active substance ?
16. Give the difference between Orthologous paralogous sequence.
17. What are the properties of β-particles ?
18. Name any *two* tools for multiple sequence alignment.
19. What is the use of molmol ?
20. What is Tyndall effect ?
21. State third law of thermodynamics.
22. Give an example of quarternary protein structure.

(8 × 2 = 16)

Part C

Answer any **six** *of the following.*
Each question carries 4 *marks.*

23. What are the features of radioactive decay ?
24. Compare and contrast between GM counter and suntillation counter.
25. What are the factors influencing surface tension.
26. What is PDB ? Discuss its uses and applications.
27. List the differences between osmosis and diffusion.
28. List the types and uses of BLAST.
29. How would you find the number of sequence repeats in an input ?
30. Write notes on UV-Vis spectroscopy.
31. What are the tools of bioinformatics used for structure prediction ?

(6 × 4 = 24)

Part D

Answer any **two** *of the following.*
Each question carries 15 *marks.*

32. What are Biological databases, how are they classified ? Explain with examples.
33. Write an essay on classification, properties and applications of colloids.
34. What are the levels of protein conformation ? Explain with diagrammatic representations.
35. What are the methods used for homology modeling in Bio-informatics ?

(2 × 15 = 30)