

3007

K18U 1908



Reg. No. :

Name :

III Semester B.Sc. Degree (CBCSS – Reg./Sup./Imp.) Examination,
November 2018

(2014 Admn. Onwards)

GENERAL COURSE IN MICROBIOLOGY
3A12 MCB : Biophysics and Bioinformatics

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** the **four** questions :

1. In a spontaneous reaction, the free energy change is Negative
2. The alpha helical structure of protein was proposed by L. Pauling and Cory
3. Name any two genomic databases. Flybase, TAIR
4. Entrez and SRS, PIR, EMBL are important biological database search engines. (4×1=4)

SECTION – B

Answer **any seven** questions out of ten :

5. Define the second law of thermodynamics.
6. What are nucleosomes? irregular
7. What are omega loops? What is their biological importance?
8. What is Chargaff's rule?
9. What is the principle of dialysis?
10. What are primary databases? Give one example. Cren Back
11. What is FASTA? What is its application?

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12. Compare EMBL and TrEMBL.

13. Define genome mapping.

14. What is molecular docking ?

(7×2=14)

SECTION - C

Answer **any four** questions out of six :

15. What are the applications of multiple sequence alignment ?

16. Write a brief account on the databases for protein sequence patterns and motifs.

17. Explain the interaction of DNA with proteins.

18. Mention the names of acidic, basic and aromatic amino acids found in proteins.

19. What are the basic components of a nucleotide ? How many types of nucleotides are present in the cell ?

20. What are information retrieval systems ? Mention their applications. (4×3=12)

SECTION - D

Answer **any two** questions out of four :

21. Describe the tertiary structure of proteins with reference to myoglobin molecule.

22. Compare A, B and Z forms of DNA.

23. Explain the methodology in BLAST.

24. Write a detailed account on the applications of bioinformatics. (2×5=10)