



K21U 7229

Reg. No. :

Name :

**II Semester B.Sc. Degree (CBCSS – O.B.E. – Regular) Examination, April 2021
(2020 Admission)**

**CORE COURSE IN LIFE SCIENCES (ZOOLOGY) AND COMPUTATIONAL BIOLOGY
2B02 ZCB : Fundamentals of Computational Biology and Bioinformatics**

Time : 3 Hours

Max. Marks : 40

PART – A

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

1. Name scientist who is regarded as the pioneer of Bioinformatics.
2. The molecular sequences that produce due to the speciation event during evolution is known as _____
3. The dynamic programming algorithm used to find pairwise local alignment is _____
4. The small stretches of amino acid that are highly conserved and possess a particular structure and function is known as _____
5. The fundamental unit of the phylogram is _____
6. Expand KEGG. **(6×1=6)**

PART – B

Answer **any 6** questions. **Each** question carries **2** marks.

7. Secondary databases
8. BLOSUM
9. Progressive alignment
10. UPGMA
11. PSI-BLAST
12. Homologous sequences
13. Proteome mining
14. Structure of human genome. **(6×2=12)**

P.T.O.

K21U 7229



PART – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. Discuss the major similarity searching tools used in computational biology.
16. What do you mean by dynamic programming algorithms ? Discuss.
17. Discuss the file format of GenBank.
18. Outline the structural compartment of a phylogenetic tree.
19. What do you mean by multiple sequence alignment ? Discuss.
20. Summarise the scope and applications of Genomics and Proteomics.

(4×3=12)

PART – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. Outline various methods used to study pairwise alignment.
22. Define phylogram. What are the steps required for the analysis of phylogenetic data ?
23. What is DNA computing ? Discuss the scope and applications of computing with DNA with relevant examples.
24. Investigate the need, scope, goals, uses and applications of the Human Genome Project.

(2×5=10)