DBL-003-1133003 Seat No. _____

M. Sc. (Biotechnology) (Sem. III) (W.E.F. 2016) Examination

June - 2022

BT-313 : Bioformatics

(New Course)

Faculty Code : 003

Subject Code : 1133003

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Attempt any five questions out of ten.
(2) The right-side figure indicates total marks of the question.

1 Answer the following : **14**
(1) Operating System
(2) Modem
(3) Gene, Genome, Genomics
(4) Functional Genomics
(5) NCBI
(6) PAM and BLOSUM matrix
(7) Problems for managing Biological Data.

2 Answer the following : **14**
(1) Identity, similarity and positives.
(2) Orthologous and Homologous
(3) Local and Global alignment
(4) Metabolite > Metabolome > Metabolomics
(5) Define Functional Genomics.
(6) Define Comparative Genomics.
(7) Applications of DNA microarrays.

3 Answer the following : **14**
(a) Internet and its application.
(b) Commercial use of Bioinformatics.

4 Answer the following : **14**
(a) Artificial intelligence and its application.
(b) Describe the various secondary databases used in Bioinformatics.

5 Answer the following : 14

(a) Give an overview of primary nucleotide sequence database.

(b) What do you mean by BLAST ? What are the types of BLAST available ? How you will perform it ? How you interpret BLAST results.

6 Answer the following : 14

(a) Multiple Sequence Alignments and its applications.

(b) Give few examples of tools used for primer design. Illustrate different kinds of primers used in PCR analysis.

7 Answer the following : 14

(a) Explain the methods available for gene predictions.

(b) Describe in detail the parameters which are considered in primer design.

8 Answer the following : 14

(a) Explain the various levels at which structures are classified in SCOP and CATH databases.

(b) How the biological knowledge can be extracted through data mining ?

9 Answer the following : 14

(a) How will you predict protein three-dimensional structure through homology modelling ?

(b) What is comparative genomic ? Explain the different aspects that are compared between the two genomes with a suitable example.

10 Answer the following : 14

(a) What is structure comparison and explain its goals ? Illustrate the procedure for comparing two protein structures. And what are the tools available to compare protein structure ?

(b) Explain the four levels of protein structure in detail.
