2025/12

SET A

M.Sc. MICROBIOLOGY
FIRST SEMESTER (REPEAT)
BIOINFORMATICS
MMB-104

[USE OMR FOR OBJECTIVE PART]

Duration: 1.30 hrs. **Full Marks: 35**

Objective

Time: 15 min. **Marks: 10**

Choose the correct answer from the following: *1X10=10*

1. Example of a human genome database is
   a. mouse (MGB)
   b. NCBI Genome
   c. assembler
   d. Embl

2. The size of human genome is
   a. 3,500 Mb
   b. 2,500 Mb
   c. 3,300 Mb
   d. 5,300 Mb

3. Full form of NCBI is
   a. National Center for Bioinformatics Information
   b. National Center for Biological Information
   c. National Center for Biotechnology Information
   d. None of the above

4. The lack of correlation between genome size and genetic complexity is referred to
   a. genetic desert
   b. C-value paradox
   c. C-value
   d. None of the above

5. Chemical Sequencing is also a name of
   a. Sanger's sequencing
   b. Automated sequencing
   c. Pyrosequencing
   d. Maxam-Gilbert Sequencing

6. Following is a protein functional motif annotation
   a. ORF finder
   b. Pfam
   c. Swiss-Prot
   d. None of the above

7. The files from PDB can be downloaded using following file formats
   a. PDB format
   b. PDBML (XML) format
   c. mmCIF format
   d. All of the above

8. Databases that use protein structures deposited in PDB are
   a. SCOP
   b. CATH
   c. PDBsum
   d. All of the above

9. _____ is a SWISS-PROT computer annotated supplement that comprises all translations of EMBL nucleotide sequence entries.
   a. TrEMBL
   b. Entrez
   c. GeneBank
   d. NCBI

10. Expressed sequenced tags are short DNA sequences of
   a. < 10,000 bps
   b. < 500 bps
   c. < 1000 bps
   d. < 200 bps

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(Descriptive)

Time : 1 hrs. 15 min. **Marks : 25**

[Answer question no.1 & any two (2) from the rest]

1. What is Sanger's method of DNA sequencing? Explain with diagram. 5

2. What is BLAST and what are the different types of BLAST. Elaborate the steps involved in BLAST analysis. 10

3. Explain different types of protein motifs and conserved domains available. 10

4. What is phylogenetic analysis? Elaborate the tree terminologies and explain the different types of trees with diagram. 10

5. Write a note on secondary structures of proteins. 10

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