



RAN-2103080602020002

M. Sc. (Sem. - II) Examination September - 2025

Microbiology (Paper - MB-2002) Bioinformatics and Bio-Nanotechnology

Time: 3 Hours]

[Total Marks: 70

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Figures to the right indicate full marks of the question.
- (3) Draw neat and labeled diagrams whenever necessary.

Seat No.:

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Student's Signature

Q. 1. Attend any two of the following:

(18)

1. Discuss in detail the study of proteomics in terms of expression and functional.
2. Enlist the different molecular markers and their roles in genome mapping. Write a detailed note on RFLPs.
3. Write a note on DNA Micro array Technology.

Q. 2. Attend any two of the following:

(18)

1. Explain how prokaryotes are classified on the basis of 16 sRNA gene sequence comparison.
2. Elaborate the sequencing strategies with reference to the full DNA shotgun sequence data.
3. What are OTUs? Discuss the generation of data in terms of diversity within group and between groups

Q. 3. Attend any two of the following:

(18)

1. Describe how Exhaustive Algorithms approach is used in Multiple Sequence Alignment.
2. Explain progressive alignment method in detail.
3. Describe how Maximum likelihood method is used to study phylogeny.

Q. 4. Attend any two of the following:

(16)

1. Elaborate on nanomaterials.
2. Describe chemical methods for the synthesis of nanoparticles.
3. Discuss in detail the applications of carbon nanotubes in biological systems.