



**MBS-003-1194001**

Seat No. \_\_\_\_\_

**M. Sc. (Microbiology) (Sem. IV) (CBCS) Examination**

**April / May - 2018**

**MICRO - 419 : Molecular Phylogeny & Diversity**

**(Core)**

**Faculty Code : 003**

**Subject Code : 1194001**

Time : Hours]

[Total Marks : 70

- 1 Answer any **seven** of the following : (2 Marks each)
- (a) What is metagenomics ?
  - (b) What is horizontal gene transfer ?
  - (c) What is molecular chronometers ?
  - (d) Define the term Genetic heterogeneity.
  - (e) What is bdelloplast ?
  - (f) What are heterocysts ?
  - (g) Highlight general characteristics of *Mycoplasma*.
  - (h) Define Conidiospore and Sporangiospore.
  - (i) Highlight distinctive characteristics of *Bifidobacterium*.
  - (j) What is homolactic fermentation ?
- 2 Answer any **two** of the following : (7 Marks each)
- (a) Discuss concepts of microbial phylogeny and evolution.
  - (b) Discuss in detail about polyphasic approach of bacterial classification. Give overview of recent advances.
  - (c) Molecular phylogenetics based on rRNAs has laid the foundation for a modern classification system - Explain in detail.
- 3 Answer the following : (7 Marks each)
- (a) Discuss various approaches for diversity analysis of cultivable and non-cultivable bacteria.
  - (b) Give insights into imputed metabolic potential of non-cultivable bacterial communities present in diverse soil.

**OR**

- 3 (a) Describe biotechnological significance of non-cultivable microbes.
- (b) Discuss methods for analyzing diversity of microbial communities in natural environments.
- 4 Answer the following : (7 Marks each)
- (a) Give an account of taxonomy of purple sulfur bacteria and purple non-sulfur bacteria.
- (b) Describe general characteristics, significance, cell wall types and sugar pattern present in actinomycetes.
- 5 Write a note on any **two** of the following : (7 Marks each)
- (a) Clostridia and their relatives.
- (b) Genus *Micrococcus* and *Arthrobacter*.
- (c) Myxobacteria.
- (d) Phylogeny and characteristic features of *Helicobacter*.
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