



**DM-003-1194001**

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

**M.Sc. (Sem. IV) (CBCS) (W.E.F. 2016) Examination**

**March - 2022**

**Microbiology (Core)**

**Micro-419 : (Molecular Phylogeny and Diversity)**

**Faculty Code : 003**

**Subject Code : 1194001**

Time : **2.30** Hours]

[Total Marks : **70**

- 1** Answer any seven of the following (2 marks each) **14**
- (a) What are general characteristics of Mycoplasma ?
  - (b) Write about distinctive method of cell division in Arthorobacter.
  - (c) State the significance of Propionibacterium.
  - (d) Give full form of DGGE and T-RFLP.
  - (e) Why are some bacteria unculturable ?
  - (f) What is sulfate respiration ?
  - (g) what is the biotechnological importance of Cyanobacteria ?
  - (h) State the importance of SIP.
  - (i) what does molecular chronometer means ?
  - (j) Enlist methods of unclaic acid isolation used for microbial diversity analysis.
- 2** Answer any two of the following questions. (7 Marks each) **14**
- (a) Explain in detail molecular basis of microbial classification.
  - (b) Discuss paradox in establishing evolutionary distances & methods of 16S rRNA analysis.
  - (c) Give a detailed account on concepts of microbial evolution and phylogeny.

**3** Answer the following questions. (7 marks each) **14**

- (a) Discuss structure and function based approaches to study non-cultivable bacteria.
- (b) Give a comparative account RFLP, T-RFLP and ARDRA as molecular methods to study non-cultivable microbes.

**OR**

**3** Answer the following questions. (7 marks each) **14**

- (a) Describe biotechnology significance of non-cultivable microbes.
- (b) Discuss metabolic potential of non-cultivable bacterial communities present in diverse soil.

**4** Answer the following questions. (7 marks each) **14**

- (a) Give an account of different cell types produced by *Bdellovibrio* during its life cycle.
- (b) Discuss nonproteobacterial phyla.

**5** Answer any two of the following questions. (7 marks each) **14**

- (1) Discuss genera *streptomyces* and *frankia* in detail.
- (2) Explain class *Bacilli*.
- (3) Write a note on *clostridia*.
- (4) Discuss ecological and industrial significance of various genera belonging to phylum Actinobacteria.

---