



DGG-003-019401 Seat No. \_\_\_\_\_

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

**May / June - 2015**

**Micro. - 419 : Molecular Phylogeny & Diversity**

**Faculty Code : 003**

**Subject Code : 019401**

Time : 3 Hours]

[Total Marks : 70

- Q1. Answer any 7 (2 marks each) 14**
- i) Enlist metabolic strategies used by various  $\alpha$ -proteobacteria.
  - ii) How many genera does the family Vibrionaceae currently comprise of?
  - iii) What is metagenomics?
  - iv) What is horizontal gene transfer?
  - v) What is polyphasic taxonomy?
  - vi) What is a phylogenetic tree?
  - vii) Name five genera belonging to family *Enterobacteriaceae*.
  - viii) Enlist the principal genetic events that determine genome shape and structure.
  - ix) What are symbiotics?
  - x) What are stromatolites?
  - xi) Define the term Phylogeny.
- Q2. Answer any 2 of the following (7 marks each) 14**
- i) Describe the methods used for phenetic classification of bacteria.
  - ii) Give an account of numerical taxonomy.
  - iii) Give an account of 16S rRNA as molecular chronometer.
- Q3. Answer the following (7 marks each) 14**
- i) Give an account of genetic heterogeneity among non-cultivable microbes.
  - ii) Comment on the applied importance of non-cultivable microbes.
- OR**
- Q3. Answer the following (7 marks each) 14**
- i) Discuss in details metabolic potential of non-cultivable microbes.
  - ii) Discuss methods to study non-cultivable microbes.
- Q4. Answer any 2 of the following (7 marks each) 14**
- i) Give an account of Rickettsias.
  - ii) Describe important features of Beta Proteobacteria.
  - iii) Discuss the characteristics of prosthecate bacteria.
- Q5. Write a short note on any 2 of the following (7 marks each) 14**
- i) *Streptomyces coelicolor* genome
  - ii) Probiotic lactic acid bacteria
  - iii) Actinobacteria
  - iv) Firmicutes