

**55009**

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

**M. Sc. (Part - I) Examination**

April / May – 2003

**Microbiology : Paper - I**

*(Microbial : Taxonomy & Diversity)*

Time : **3** Hours]

[Total Marks : **100**

**Instruction :** All questions carry **equal** marks.

**1** Write any **two** :

- (a) Describe primitive microorganisms and their metabolic strategies.
- (b) What are signature sequences and what phylogenetic value are they? How are signature sequences discerned?
- (c) Draw and explain Universal phylogenetic tree determined by rRNA sequencing.
- (d) Explain molecular methods of microbial classification.

**2** Describe various isolation strategies used to study diversity of micro organisms and give their importance.

**OR**

**2** What are extremophiles? Discuss variety and variability found among any one group.

**3** Describe any **two** :

- (a) Diversity and importance of nitrogen fixing bacteria.
- (b) The heterogeneity in defining genera of budding and appendaged bacteria, and point out critical differences from conventional bacteria.
- (c) The contrasts seen in Pseudomonads sub grouping
- (d) Diversity among Actinomycetes.

- 4** Write any **two** :
- (a) Describe nitrogenase structure and the technique of nitrogenase assay.
  - (b) Discuss biochemistry and energetic of sulfur metabolism by bacteria.
  - (c) Enlist and discuss various types of anaerobic respiration in microorganisms.
  - (d) Describe electron flow and ATP synthesis in oxygenic photosynthesis.
- 5** Discuss in brief any **two** :
- (a) Classification of Ascomycotina
  - (b) Economic importance of algae
  - (c) Life cycle of slime molds
  - (d) List of diseases caused by protozoa and life cycle of any one.
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