M.Sc.(Microbiology) (CBCS Pattern) Semester - I

PSMBT-101 - Paper-I : Microbial Diversity & Evolution

P. Pages : 1 **GUG/S/23/11171**

Time : Three Hours * 1 3 4 9 * Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.

1. Explain classical taxonomy and chemotaxonomy for derivation of microbial phylogeny. **16**

OR

Write notes on

a) Use of phylogenetic probes for determination of evolutionary relationships. **8**

b) Ribosomal RNA sequencing. **8**

2. Describe in detail general metabolism and autotrophy in archea? **16**

OR

a) Describe energy metabolism in sulfolobales and desulfolobales. **8**

b) Add a note on evolutionary significance of hyperthermophiles. **8**

3. Describe in detail the characteristics of free living nitrogen fixing bacteria and mechanism of nitrogen fixation. **16**

OR

Write notes on:

a) Sulphate and Sulphur reducing bacteria. **8**

b) Purple photosynthetic bacteria. **8**

4. Explain phylogeny and taxonomy of phylum Deinococcus. **16**

OR

Write notes on:

a) Describe the characteristics of Branching hyperthermophiles. **8**

b) Explain genomic composition of Thermotoga. **8**

5. Write short notes on:

a) Microbial community analysis. **4**

b) characteristics of nanoarchaeum. **4**

c) Photosynthetic pathway in cyanobacteria. **4**

d) Nitrospira. **4**

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