

M.Sc. Examination, 2019
Semester-II
Biotechnology
Course : VI
(Microbiology)

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin.

Answer **any four** of the following

1. Describe the structure of Cell Wall and chemical compositions of Gram-Positive and Gram-negative bacteria. Point out the similarities and differences. 8+2=10
 2. What are the typical characteristics of Archaea? How do they differ from eubacteria? Give salient features of different groups of Archaea. 2+2+6=10
 3. a) Give an account of the structural changes and *nif* gene arrangements in the cells of cyanobacteria when a vegetative cell transforms to a heterocyst ensuring nitrogen fixation.
 - b) Describe the economic importance of Actinomycetes. 5+5=10
 4. Describe the method used for metagenomics study of microorganisms in environmental samples. How the molecular phylogeny of microorganisms can be determined through 16S rRNA sequencing? 5+5=10
 5. a) Give a brief account of nutrition of bacteria.
 - b) What are photosynthetic bacteria? Illustrate the photosynthetic ETS of any one group of photosynthetic bacteria. 5+5=10
 6. Short notes on **any four** of the following : 2.5×4=10
 - a) Different methods for determination of growth of microorganisms
 - b) Endo and Exo-toxins
 - c) Disease Reservoirs
 - d) Different antibiotics based on structure and mode of action
 - e) Antifungal drugs
 - f) Common microorganisms those colonize different parts of human body with examples.
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