

M.Sc. Semester-I (C.B.C.S. Scheme) Examination

BIOTECHNOLOGY : 1 BTB 3

(Microbes : Physiology and Genetics)

Paper—III

Time : Three Hours]

[Maximum Marks : 100

Note :—(1) All questions are compulsory and carry equal marks.

(2) Draw suitable diagram wherever necessary.

1. Attempt the following :

- | | |
|---|---|
| (a) Enlist any five examples of bacterial virus. | 5 |
| (b) Characteristics of Archaea as primitive life forms. | 5 |
| (c) Describe the morphology and characteristics of slime molds. | 5 |
| (d) Significance of purple and green bacteria in ecology. | 5 |

OR

- | | |
|--|---|
| (p) Significance of Lactic acid bacteria in industry. | 5 |
| (q) Ecological importance of Protozoa. | 5 |
| (r) Baltimore classification scheme for viral taxonomy. | 5 |
| (s) Application of animal viruses in life sciences and medicine. | 5 |

2. Attempt the following :

- | | |
|---|---|
| (a) Schematic bacterial identification flow charts of Bergey's manual. | 5 |
| (b) Microbial nutrient requirements and nutritional types of microorganism. | 5 |
| (c) Define sterilization. Classify various methods of sterilization with suitable examples. | 5 |
| (d) Characteristics of primary domain. | 5 |

OR

- (p) Microbial diversification in ecosystem. 5
- (q) Enrichment culture techniques for isolation of photosynthetic microorganism (any one). 5
- (r) Molecular genetic basis of Ribotyping. 5
- (s) Morphological features used in classification and identification in bacteria. 5
3. Attempt the following :
- (a) Explain methanogenesis with suitable examples. 5
- (b) Physical, chemical and biological function of chlorophylls. 5
- (c) Different stages of photosynthesis in microorganism. 5
- (d) General features of nitrate and sulfate oxidizing bacteria. 5
- OR**
- (p) Explain acetogenesis with suitable examples. 5
- (q) Describe the chemolithotrophy pathways. 5
- (r) Basic elements of microbial nutrition, ecology and growth. 5
- (s) Physical, chemical and biological functions of phycobilins. 5
4. What are Aspergillosis ? Explain symptoms, causes, diagnosis and treatment of Aspergillosis in human. 20
- OR**
- What is meant by opportunistic fungal infections in immunocompromised host with special reference to secondary infection in AIDS patients ? 20
5. Describe in detail genetics, molecular and cell biology of Yeast as model Eukaryote. 20
- OR**
- What are transposons ? How are they classified and explain in detail, replicative and non-replicative transposons ? 20