

B.Sc. Semester - 3 (NEP-2020) Examination**OCT/NOV-2024****MIC: Microorganisms: Classification and Significance (Major-5)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Que-1 Answer the following questions. (10)

- 1) Explain the role of microbial evolution in shaping biodiversity.
- 2) Define phylogeny and its significance in understanding microbial evolution.

OR

- 1) Explain how metagenomics helps in identifying microorganisms in complex environments.
- 2) What are prokaryotic phylogenetic groups, and why are they important in microbial classification?

Que-2 Answer the following questions. (10)

- 1) Describe the role of dissimilatory sulfate-reducing bacteria in anaerobic environments.
- 2) Discuss the metabolic characteristics of facultative anaerobes.

OR

- 1) What are phototrophic bacteria, and how do they contribute to the process of photosynthesis?
- 2) Describe the characteristics of non-motile, curved Gram-negative bacteria.

Que-3 Answer the following questions. (10)

- 1) Explain the economic importance of fungi, including their roles in medicine, food, and industry.
- 2) What are the general characteristics of algae, including their definition, occurrence, and structure?

OR

- 1) Describe the different types of reproduction in algae and how they vary among species.
- 2) Discuss the different types of reproduction in protozoa and their role in the life cycle of these organisms.

Que-4 Answer the following questions. (10)

- 1) Describe the lytic life cycle of the T4 phage.
- 2) How are viruses cultivated in the laboratory?

OR

- 1) Describe the lysogenic life cycle of the Lambda phage.
- 2) Explain the classification of viruses based on their structure and genetic material.

Que-5 Write the short note on: (10)

- 1) Write the main taxonomic ranks used in the classification of microorganisms.
- 2) What are the main differences between Archaea and Eubacteria?

OR

- 1) Provide an overview of the classification of fungi, including the major divisions.
- 2) Explain the structure of the Tobacco Mosaic Virus (TMV)
