

B.Sc. Semester - 1 (NEP-2020) Examination**OCT/NOV-2024****MIC: Basics of Microbiology (Minor)****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**
- 1) Discuss the contributions of Louis Pasteur to microbiology and his role in developing the principles of vaccination. (05)
 - 2) Define microbiology and explain its significance as a field of biology. (05)
- OR
- 1) What are Robert Koch's postulates, and how did they advance our understanding of infectious diseases? (05)
 - 2) Discuss the distribution of microorganisms in nature, highlighting their presence in extreme environments. (05)
- Que-2**
- 1) Explain the Baltimore classification system for viruses and its significance in virology. (05)
 - 2) Outline Whittaker's five-kingdom classification system and its importance in understanding biodiversity. (05)
- OR
- 1) What is binomial nomenclature, and why is it essential in the classification of organisms? (05)
 - 2) Describe Carl Woese's three-domain classification system and how it differs from traditional kingdom classification. (05)
- Que-3**
- 1) What are phytoplankton, and why are they considered essential for aquatic ecosystems? (05)
 - 2) Describe the structure of actinomycetes and explain how it distinguishes them from other bacteria. (05)
- OR
- 1) Define zooplankton and describe their role in the food web of aquatic environments. (05)
 - 2) What are the general characteristics of protozoa, and how do they differ from other microorganisms? (05)
- Que-4**
- 1) What are the main nutritional requirements of bacteria for growth and reproduction? (05)
 - 2) What is bacteriological media, and why is it essential for the cultivation of bacteria? (05)
- OR
- 1) What physical conditions are necessary for bacterial growth, and how do they affect microbial activity? (05)
 - 2) Explain the gaseous requirements of bacteria and the impact of oxygen on bacterial growth. (05)
- Que-5 Write the short note on:** (10)
- 1) Identify and explain three applied areas of microbiology and their relevance to society.
 - 2) List two general characteristics of cellular microorganisms and discuss their relevance in microbiology.
- OR
- 1) Outline two industrial applications of actinomycetes and their contributions to biotechnology.
 - 2) Describe selective methods for isolating specific bacterial species from mixed culture.
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