

B.Sc. Semester - 3 (CBCS) Examination
July-2025 (OLD COURSE)
MICRO-BIOLOGY (CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que-1(A) Answer the following. (Any One) (07)
- 1) Discuss the different classification systems used in microbial taxonomy and their importance.
 - 2) Explain the concept of metagenomics and its role in exploring microbial diversity.
- Que-1(B) Answer the following. (Any One) (04)
- 1) Explain the significance of microbial evolution in understanding biodiversity.
 - 2) Describe the major characteristics used in the taxonomy of microorganisms.
- Que-1(C) Answer the following (Any Three) (03)
- 1) What is biodiversity?
 - 2) Define metagenomics.
 - 3) Name the primary domains of life based on microbial taxonomy.
 - 4) What is a phylogenetic tree?
 - 5) What does the term 'taxonomic rank' refer to?
- Que-2(A) Answer the following. (Any One) (07)
- 1) Write short note on Mycobacteria and Actinomycetes.
 - 2) Discuss the various types of extremophilic microorganisms.
- Que-2(B) Answer the following. (Any One) (04)
- 1) Describe the general features of Gram-negative aerobic/microaerophilic motile bacteria.
 - 2) Discuss the characteristics and significance of Mycobacteria.
- Que-2(C) Answer the following (Any Three) (03)
- 1) What is the key difference between Archaea and Eubacteria?
 - 2) Name one example of a Gram-negative phototrophic bacterium.
 - 3) Define endospores.
 - 4) What is the function of dissimilatory sulfate reducers?
 - 5) What type of environment do extremophilic microorganisms typically inhabit?
- Que-3(A) Answer the following. (Any One) (07)
- 1) Discuss the economic importance of fungi and algae.
 - 2) Explain: Classification of Fungi.
- Que-3(B) Answer the following. (Any One) (04)
- 1) Describe the general structure of fungi.
 - 2) Explain the economic importance of protozoa in human health and industry.

- Que-3(C) Answer the following (Any Three) (03)
- 1) What is the primary mode of reproduction in fungi?
 - 2) Name one major division of fungi and give an example.
 - 3) What type of cellular structure is characteristic of algae?
 - 4) Define protozoa and mention one of their key features.
 - 5) Give one example of the economic importance of algae in industrial level.
- Que-4(A) Answer the following. (Any One) (07)
- 1) Explain the lytic life cycle of the T4 bacteriophage.
 - 2) Discuss the cultivation and enumeration techniques for viruses
- Que-4(B) Answer the following. (Any One) (04)
- 1) Draw Lysogenic life cycle of virus.
 - 2) Describe the general structure of viruses
- Que-4(C) Answer the following (Any Three) (03)
- (1) define characteristic of a virus.
 - (2) Name one method used for the cultivation of viruses.
 - (3) Which bacteriophage is known for its lysogenic life cycle?
 - (4) What are prions?
 - (5) Mention one economic impact of plant viruses.
- Que-5(A) Answer the following. (Any One) (07)
- 1) Discuss the mechanisms of biodegradation and bioremediation.
 - 2) Explain the process of biomagnification of pesticides.
- Que-5(B) Answer the following. (Any One) (04)
- 1) Explain the process of biodeterioration in textiles.
 - 2) Describe the role of microorganisms in microbial enhanced oil recovery (MEOR).
- Que-5(C) Answer the following (Any Three) (03)
- 1) What is bioremediation?
 - 2) Define biomagnification in the context of pesticides.
 - 3) Name one microorganism involved in bioleaching of metals.
 - 4) What is the primary source of microbial air pollution?
 - 5) What is a bioplastic?
