

B.Sc. Semester - 3 (CBCS) Examination
Oct/Nov - 2024 [As Per Syllabus Year June-2019]
Microbiology-M301(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) Objective type questions. (04)
1. What is microbial evolution?
 2. Which taxonomic rank is higher: genus or species?
 3. What is the purpose of classification systems in microbiology?
 4. What does metagenomics analyze in microbial communities?
- Que.1(B) Answer in brief (Any 1 out of 2) (03)
1. Explain the significance of prokaryotic phylogeny in understanding microbial evolution.
 2. Briefly describe the role of phylogenetic groups in the classification of eukaryotes.
- Que.1(C) Write a note on (Any 1 out of 2) (07)
1. Discuss the major characteristics used in microbial taxonomy.
 2. Explain how metagenomics has revolutionized our understanding of microbial diversity.
- Que.2(A) Objective type questions. (04)
1. What is the primary difference between Archaea and Eubacteria?
 2. Name one general feature of Gram-negative bacteria.
 3. Which group of bacteria is known for forming endospores?
 4. What is an extremophilic microorganism?
- Que.2(B) Answer in brief (Any 1 out of 2) (03)
1. Explain the role of dissimilatory sulfate reducers in the environment.
 2. Briefly describe the characteristics of aerobic/microaerophilic motile bacteria.
- Que.2(C) Write a note on (Any 1 out of 2) (07)
1. Discuss the general features of Gram-positive bacteria, focusing on endospore-forming rods and Mycobacteria.
 2. Provide an overview of extremophilic microorganisms.
- Que.3(A) Objective type questions. (04)
1. What is the primary mode of reproduction in fungi?
 2. Name one major division of fungi.
 3. Which structure in algae is responsible for photosynthesis?
 4. What type of locomotion is common in protozoa?
- Que.3(B) Answer in brief (Any 1 out of 2) (03)
1. Briefly describe the economic importance of fungi in industry or medicine.
 2. Explain the significance of algae in aquatic ecosystems.

- Que.3(C) Write a note on (Any 1 out of 2) (07)
1. Asexual Reproduction in *Chlamydomonas* algae.
 2. Discuss the general characteristics of protozoa.
- Que.4(A) Objective type questions. (04)
1. What is the basic structural component that all viruses possess?
 2. Name the type of phage that follows a lytic life cycle.
 3. What is a prion?
 4. Which virus is commonly associated with plant infections and is known for its helical structure?
- Que.4(B) Answer in brief (Any 1 out of 2) (03)
1. Briefly describe the process of virus cultivation in a laboratory setting.
 2. Explain the economic importance of plant viruses.
- Que.4(C) Write a note on (Any 1 out of 2) (07)
1. Compare the lytic and lysogenic life cycles of bacterial viruses.
 2. Discuss the classification and replication process of animal viruses.
- Que.5(A) Objective type questions. (04)
1. Define biomagnification.
 2. What is bioremediation?
 3. Name any two microbes involved in biodeterioration of paper.
 4. What is the primary source of microbial air pollution in urban areas?
- Que.5(B) Answer in brief (Any 1 out of 2) (03)
1. Explain how microbial enhanced oil recovery (MEOR) works.
 2. Describe two control methods used to prevent the biodeterioration of textiles.
- Que.5(C) Write a note on (Any 1 out of 2) (07)
1. Discuss the process of bioleaching of metals and its environmental significance.
 2. Compare biofuels and bioplastics in terms of their production process and environmental impact.
