| Reg. No | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

AY 25

# Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
# (GIET UNIVERSITY)

M.Sc. (First Semester - Regular) Examinations, January – 2026

## 24MBIPC11004- Microbiology

(Biotechnology)

Time: 3 hrs | Maximum: 60 Marks

**Answer ALL questions**

**(The figures in the right hand margin indicate marks)**

**PART – A** **(2 x 5 = 10 Marks)**

| Q.1. Answer ***ALL*** questions | CO # | Blooms Level |
|---|---|---|
| a. What are plasmids? | CO1 | K1 |
| b. Mention any two general properties of viruses. | CO1 | K1 |
| c. What are viroids? | CO2 | K1 |
| d. What is quorum sensing? | CO2 | K1 |
| e. What are prebiotics? | CO2 | K1 |

**PART – B** **(10 x 5 = 50 Marks)**

| Answer ***ALL*** the questions | | Marks | CO # | Blooms Level |
|---|---|---|---|---|
| 2. a. | Describe the history and scope of microbiology. | 5 | CO1 | K1 |
| b. | Explain the bacterial growth curve with a neat diagram. | 5 | CO1 | K1 |
| | (OR) | | | |
| c. | Explain the process of transformation in bacteria. | 5 | CO1 | K1 |
| d. | Describe the streak plate method for bacterial isolation. | 5 | CO2 | K1 |
| 3.a. | Explain the general characteristics and classification of Cyanobacteria. | 5 | CO1 | K1 |
| b. | Explain lactic acid bacteria with examples and applications. | 5 | CO1 | K1 |
| | (OR) | | | |
| c. | Describe the physical methods of sterilization with suitable examples. | 5 | CO2 | K1 |
| d. | Explain the structure of Bacteria with Diagram. | 5 | CO3 | K1 |
| 4.a. | Explain ruminant–microbe symbiosis. How do microorganisms help in digestion in ruminant animals? | 5 | CO1 | K1 |
| b. | Explain nitrogen cycle with Diagram. | 5 | CO4 | K1 |
| | (OR) | | | |
| c. | What are antibiotics? Classify antibiotics based on their mode of action and explain their role in controlling bacterial diseases. | 5 | CO1 | K2 |
| d. | Describe the methods used to control microorganisms in hospitals, emphasizing sterilization, disinfection, and antimicrobial agents. | 5 | CO1 | K2 |
| 5.a. | Explain the lytic and lysogenic cycles of bacteriophages with diagrams. | 5 | CO2 | K2 |
| b. | Explain the structure and function of bacteriophage with diagram. | 5 | CO1 | K2 |
| | (OR) | | | |
| c. | Explain the classification and general characteristics of microorganisms. | 5 | CO1 | K2 |
| d. | Explain the pure culture techniques used in microbiology laboratories. | 5 | CO2 | K2 |

| | | | | |
|---|---|---|---|---|
| 6.a. | Write a note on the classification of bacteria based on oxygen requirement and nutrition. | 5 | CO1 | K3 |
| b. | Explain antifungal drugs with suitable examples. | 5 | CO2 | K1 |
| | (OR) | | | |
| c. | Write an account of Pseudomonas – general characteristics and significance. | 5 | CO1 | K2 |
| d. | Discuss the nutritional types of bacteria. | 5 | CO2 | K2 |

--- End of Paper ---