

Bachelor of Science (B.Sc.) (CBCS Pattern) Third Semester  
**USMBT06 - Microbiology Paper-II**  
**Food, Soil Microbiology and Microbial Ecology**

P. Pages : 2

Time : Three Hours



**GUG/W/18/11615**

Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.

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|----|---|---|
| 1. | a) Describe Botulism as food poisoning. | 5 |
|    | b) Describe the concept of HACCP.       | 5 |

**OR**

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|----|---|----|
| a) | Discuss about significance of microorganisms in food. | 2½ |
| b) | Describe food spoilage with suitable example.         | 2½ |
| c) | Describe canning as a method of food preservation.    | 2½ |
| d) | Discuss different types of foods.                     | 2½ |
| 2. | Explain aerobic and anaerobic methods of composting.  | 10 |

**OR**

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|----|---|----|
| a) | Describe the characteristics of humus.                              | 2½ |
| b) | Describe phosphorus cycle in brief.                                 | 2½ |
| c) | Describe carbon cycle with the help of diagrammatic representation. | 2½ |
| d) | Describe composition of soil.                                       | 2½ |
| 3. | Describe various positive microbial associations with examples.     | 10 |

**OR**

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|----|--|----|
| a) | Describe competition with example.                           | 2½ |
| b) | Describe the process of nodulation in legume.                | 2½ |
| c) | Explain in brief rDNA technology in N <sub>2</sub> fixation. | 2½ |
| d) | Add a note on nif gene.                                      | 2½ |
| 4. | Describe in detail biodegradation of cellulose.              | 10 |

**OR**

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|----|---|----|
| a) | Explain the mechanism of desulfurization of coal. | 2½ |
| b) | Describe bioleaching of copper.                   | 2½ |
| c) | Explain microbial leaching of uranium.            | 2½ |
| d) | Describe working mechanism of biogas plant.       | 2½ |

**5. Attempt any ten.**

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|----|---|---|
| a) | Enlist two bacteria causing food poisoning.                 | 1 |
| b) | Write two sources of microorganism in food.                 | 1 |
| c) | Write the method for the microbial examination of food.     | 1 |
| d) | Write the types of soil.                                    | 1 |
| e) | What is Assimilatory sulfate reduction?                     | 1 |
| f) | Write applications of compost.                              | 1 |
| g) | Define Biofertilizer with suitable example.                 | 1 |
| h) | Which gas is known as biogas?                               | 1 |
| i) | Give the name of bacteria used in biopesticide preparation. | 1 |
| j) | What is MEOR?   | 1 |
| k) | What is acid mine drainage?                                 | 1 |
| l) | Define microbial leaching.                                  | 1 |

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