

M.Sc. (Part-II) (Microbiology) (CBCS Pattern) Semester-III  
**PSMBT-12 - Paper-IV : Food Microbiology and Food Safety**

Time : Three Hours



Max. Marks : 80

Notes : 1. All questions are compulsory and carry marks as indicated.  
2. Draw diagram wherever necessary.

1. Discuss the concept of food spoilage, providing the general factors that contribute to food spoilage, and how do they affect different types of food products? **16**

**OR**

- a) Explain the specific factors influencing the spoilage of vegetables and fruits and describe the physical and chemical changes that occur during spoilage. **8**
- b) Discuss the spoilage of poultry products. **8**

2. Examine the various foodborne illnesses caused by food infections and intoxications, focusing specifically on the pathogens *Bacillus cereus*. 16

**OR**

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|----|---|----------|
| a) | Explain how microbiological quality and standards ensure food safety and provide examples of the criteria used to assess the microbiological safety of food products. | <b>8</b> |
| b) | Evaluate the food standards and regulations in India and abroad.  | <b>8</b> |

- 3.** Discuss the role of thermal processing in food preservation by explaining the processes of-
- i) Cooking    ii) Blanching and
- iii) Commercial sterilization

**OR**

- |    |   |          |
|----|---|----------|
| a) | What are some common antimicrobials used, and how do they function to extend shelf life and ensure food safety? | <b>8</b> |
| b) | Discuss the Biosensors in food industry.  | <b>8</b> |

- 4.** What are GM foods, and how do they differ from traditionally bred foods? Analyse their benefits and risks, as well as the ethical and safety considerations associated with their consumption. **16**

**OR**

- Discuss the fermented vegetables – Saurkraut and Pickles in detail. **8**
- What are probiotics, and how do they benefit human health? Discuss the potential applications of probiotic foods as nutraceuticals. **8**

5. Write a short note on :
- |  |   |
|--|---|
| a) Common signs and health risk associated with spoilage in canned food. | 4 |
| b) HACCP   | 4 |
| c) Theory and principles of drying.                                      | 4 |
| d) Fermented fish.   | 4 |

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