

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT) (M.Sc. DFSM)**

Term-End Examination

June, 2022

MFN-003 : FOOD MICROBIOLOGY AND SAFETY

Time : $2\frac{1}{2}$ hours

Maximum Marks : 75

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- Note :** 1. Question no. 1 is **compulsory**.
2. Answer **five** questions in all.
3. All questions carry equal marks.
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1. (a) What are Genetically Modified (GM) foods ?
Define and give two examples of GM foods. $2\frac{1}{2}$
- (b) Give one example for each of the following : 2
- (i) Fermented baked preparation
 - (ii) Fermented vegetable foods
 - (iii) Fermented soyabean products
 - (iv) Fermented dairy products
- (c) Illustrate the structure of bacterial cell. $2\frac{1}{2}$

- (d) Illustrate the sources of contamination of food. $2\frac{1}{2}$
- (e) What do you understand by “Danger Zone” in the context of food safety ? Illustrate the temperature range of danger zone. $2\frac{1}{2}$
- (f) Name any one foodborne disease and the organism causing the disease in the context of the following : 3
- (i) Foodborne infection
- (ii) Mycotoxins
- (iii) Foodborne intoxications
- 2.** (a) What are the common hazards to food safety ? Elaborate giving examples. 10
- (b) Illustrate and enumerate the four phases of bacterial growth. 5
- 3.** (a) What are prions ? Present a review on the concerns of prions linked to food safety. 7
- (b) Briefly explain the role of acidity (pH), time and moisture as factors contributing to the growth of micro-organisms. 8

4. Name the organisms responsible for the spoilage of the following foods, highlighting their effects : 5+5+5
- (a) Fruits and Vegetables
 - (b) Milk and Milk products
 - (c) Meat
5. (a) What are foodborne toxic infections ? Briefly highlight the cause of any one toxic infection, explaining the major reasons behind its outbreak. 7
- (b) Present a brief review on environmental contaminants and their concerns related to food safety. Give examples in support of your answer. 8
6. (a) Explain the different uses of food additives in the food industry. 5
- (b) What food safety measures would you adopt with regards to “Premises” in a food service establishment. Explain briefly. 5
- (c) Briefly elaborate the functions/role of packaging in the context of food safety. 5

7. Write short notes on any **three** of the following : 5+5+5

- (a) Labelling Requirements Mandatory by Food Safety Standards Authority of India
 - (b) Role and Responsibility of Government and Industry for Risk Communication
 - (c) Principles of HACCP
 - (d) Voluntary based Product Certification
 - (e) Health Status of Food Handlers
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