

**MASTER OF SCIENCE (DIETETICS
AND FOOD SERVICE MANAGEMENT)
[M. SC. (DFSM)]**

Term-End Examination

December, 2024

MEN-003 : FOOD MICROBIOLOGY AND SAFETY

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

Maximum Marks : 75

Note : Attempt *five* questions in all. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) Differentiate between the following sets of terms, giving examples : 2×5=10
 - (i) Microorganism and Probiotics
 - (ii) HACCP and Risk analysis
 - (iii) Prions and Dioxin
 - (iv) Aflatoxicosis and Ergotism
- (b) What do you understand by the term 'Danger Zone' in the context of food safety ? Illustrate the temperature danger zone.

2+3

2. (a) Briefly discuss the uses of microbes in the food industry. Justify your answer giving suitable examples. 8
- (b) Give *two* examples of each of the following. State how they enter the food : 7
- (i) Physical hazard
 - (ii) Biological hazard
 - (iii) Allergen
 - (iv) Chemical hazard
3. Justify the following statements giving suitable examples : 5+5+5
- (a) Issues of environment, food safety and ethical angle raised with regards to Genetically Modified (GM) foods.
 - (b) Water activity is an important factor in the control of growth of microorganisms.
 - (c) Physical methods to control growth of microorganisms.
4. (a) What technique would you use to identify a rotten egg ? Enumerate the technique and list the rots frequently encountered in egg spoilage. 3+3

- (b) Give *one* example of each of the following food-borne diseases, highlighting the causative agent and measures which could decrease the risk of disease : 3+3+3
- (i) Food intoxication
 - (ii) Food infection
 - (iii) Food-borne toxic infection
5. (a) What is food spoilage ? List the factors that cause food spoilage. Categorize the food according to the ease of spoilage. 5
- (b) Classify the food contaminants of natural origin giving suitable examples. 5
- (c) Discuss some harmful effects of food adulteration. 5
6. (a) What are food additives ? Summarize the uses of food additives. 5
- (b) "Food handlers are an important source of transmitting food-borne diseases." Justify the statement giving suitable examples. 5
- (c) "Layout of an establishment is very important for maintaining hygienic conditions in the premises." Critically analyse the statement, highlighting the measures you would adopt to ensure hygienic conditions. 5

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

5+5+5

- (a) Disinfectants and sanitizers used in food industry
- (b) Classification of packaging material
- (c) Nutrition labelling and claims
- (d) Licensing and registration of food business

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