

**Master of Science in Dietetics and Food Service
Management M.Sc. (DFSM)**

1st Year Assignment

Assignment 3

July 2026 session

(This assignment relates to Course MFN-003 Food Microbiology and Safety)



**Indira Gandhi National Open University
SCHOOL OF CONTINUING EDUCATION
Maidan Garhi, New Delhi -110 068**

Masters of Science Degree Programme in Dietetics and Food Service Management M.Sc. (DFSM)

ASSIGNMENT 3

Dear Students,

You will have to do sixteen assignments in all to qualify for a M.Sc. (DFSM) degree. For a 2-credit theory course, you will have to do one assignment and for a 4-6 credit theory course, two assignments. All the assignments are tutor marked and each Tutor Marked Assignment carries 100 marks. The course-wise distribution of assignments is as follows:

Assignment 1 (TMA-1): based on MFN-001 (Units 1-12)

Assignment 2 (TMA-2): based on MFN-002 (Units 1-12)

Assignment 3 (TMA-3): based on MFN-003 (Units 1-14)

Assignment 4 (TMA-4): based on MFN-006 (Units 1-18)

Assignment 5 (TMA-5): based on MFN-008 (Units 1-12)

Assignment 6 (TMA-6): based on MFN-010 (Units 1-12)

INSTRUCTIONS

Before attempting the assignments, please read the following instructions carefully.

- 1) Write your Enrolment Number, Name, Full Address, Signature and Date on the top right-hand corner of the first page of your response sheet.
- 2) Write the Programme Title, Course Code, Title Assignment Code and Name of our Study Centre on the left-hand corner of the first page of your response sheet. Course Code and Assignment Code may be reproduced from the assignment.

The top of the first page of your response sheet should look like this:

	Enrolment No.
	Name.....
	Address
Course Title	
Assignment No	
Date	
Programme Study Centre	

All Tutor Marked Assignments are to be submitted at the study centre assigned to you.

- 3) Read the assignments carefully and follow the specific instructions, if any, given on the assignment itself about the subject matter or its presentation.

- 4) Go through the Units on which assignments are based. Make some points regarding the question and then rearrange those points in a logical order and draw up a rough outline of your answer. Make sure that the answer is logical and coherent and has clear connections between sentences and paragraphs. The answer should be relevant to the question given in the assignment. Make sure that you have attempted all the main points of the question. Once you are satisfied with your answer, write down the final version neatly and underline the points you wish to emphasize. While solving numerical, use proper format and give working notes wherever necessary.
- 1) Use only full-scale size paper for your response and tie all the pages carefully. Avoid using very thin paper. Allow a 4 cm margin on the left and at least 4 lines in between each answer. This may facilitate the evaluator to write useful comments in the margin at appropriate places.
 - 2) *Write the responses in your own hand.* Do not print or type the answers. Do not copy your answers from the Units/Blocks sent to you by the University. If you copy, you will get zero marks for the respective question.
 - 3) Do not copy from the response sheets of other students. If copying is noticed, the assignments of such students will be rejected.
 - 4) Write each assignment separately. All the assignments should not be written in continuity.
 - 5) Write the question number with each answer.
 - 6) The completed assignment should be sent to the Coordinator of the Study Centre allotted to you. Under any circumstances, do not send the tutor marked response sheets to the Student Registration and Evaluation Division at Head Quarters for evaluation.
 - 7) After submitting the assignment at the Study centre get the acknowledgement from the coordinator on the prescribed assignment remittance-cum-acknowledgement card.
 - 8) In case you have requested for a change of Study Centre, you should submit your Tutor marked Assignments only to the original Study Centre until the change of Study Centre is notified by the University.
 - 9) If you find that there is any factual error in evaluation of your assignments e.g. any portion of assignment response has not been evaluated or total of score recorded on assignment response is incorrect, you should approach the coordinator of your study centre for correction and transmission of correct score to headquarters.

A Note of Caution

It has been noticed that some students are sending answers to Check Your Progress Exercises to the University for Evaluation. Please do not send them to us. These exercises are given to help in judging your own progress. For this purpose, we have provided the answers to these exercises at the end of each Unit. We have already mentioned this in the Programme Guide. Before dispatching your answer script, please make sure you have taken care of the following points:

- Your enrollment number, name and address have been written correctly.
- The title of the course and assignment number has been written clearly.
- Each assignment on each course has been written on separate sheets and pinned properly.
- All the questions in the assignments have been answered.

Now read the guidelines before answering questions.

GUIDELINES FOR TMA

The Tutor Marked Assignments have two parts.

Section A: Descriptive Questions (80 marks)

In this section, you have to answer eight questions (of 10 marks each). Answer each question in about 250- 300 words.

Section B: Objective Type Questions (OTQ) (20 marks)

This section contains various types of objective questions.

POINTS TO KEEP IN MIND

You will find it useful to keep the following points in mind:

- 1) **Planning:** Read the assignments carefully. Go through the units on which they are based. Make some points regarding each question and then rearrange the same in a logical order.
- 2) **Organization:** Be a little more selective and analytical. Give attention to your introduction and conclusion. The introduction must offer your brief interpretation of the question and how you propose to develop it. The conclusion must summarize your response to the question.

Make sure that your answer:

- a) is logical and coherent
 - b) has clear connections between sentences and paragraphs
 - c) is written correctly giving adequate consideration to your expression, style and presentation
 - d) does not exceed the number of words indicated in the question.
- 3) **Presentation:** Once you are satisfied with your answers, you can write down the final version for submission, writing each answer neatly and underline the points you wish to emphasize.

ASSIGNMENT 3
TMA-3
Food Microbiology and Safety

Course Code: MFN-003

Assignment Code: MFN-003/AST-3/TMA-3 /26-27

Last Date of Submission: 31st December, 2026

Maximum Marks: 100

This assignment is based on Units 1 -14 of the MFN-003 Course.

Section A - Descriptive Questions

(80 marks)

There are ten questions in this part. Answer all questions.

1. a) What is food microbiology? What aspect does it cover? (4)
b) Define food hazard and enlist the four types of food hazards giving suitable examples. (4)
2. a) Describe the stages of bacterial growth. (4)
b) What are the factors affecting the growth of microorganism? (4)
3. a) Enumerate the factors that make a food unacceptable in the context of food safety. (4)
b) List four important factors that are involved in meat spoilage. (2)
c) How do biological contaminants lead to food borne illness? (2)
4. a) Give the symptoms, food involved and preventive measures of the following diseases: (5)
 i) Salmonellosis
 ii) Botulism
b) Enumerate the anti-nutritional compounds present in the food. (3)
5. a) What are food additives? Enlist their different classes and explain their role in foods? (4)
b) Define the term food adulteration. Give the physical detection methods for the following adulterants: (4)
 i. Sugar solution in honey
 ii. Mineral oil in oils and fats
 iii. Chicory in coffee
6. a) What is HACCP? Briefly discuss the principles of HACCP. (4)
b) Define the term packaging. Briefly discuss its importance in context to food quality. (4)
7. a) Explain briefly the natural occurring toxicants in plant foods. (4)
b) Enumerate the various types of environmental food contaminants. (4)
8. a) List few ways by which food handlers may act as an important source of transmitting food borne illnesses. (4)
b) How can hazards associated with the staff be minimized? (4)
9. a) Discuss the spoilage of following foods: (2+2)
 i. Poultry and Poultry Products
 ii. Cereal and Cereal Products
b) What are “Prions”? Discuss any two diseases caused by prions? (4)
10. a) Briefly elaborate on the following food regulations/agreements in the area of food standardization and quality control. (4+4)
 i. Food Safety and Standard Regulation, 2011
 ii. Voluntary Based Product Certification

Section B - OTQ (Objective Type Questions)

(20 marks)

1. Explain the following giving appropriate examples: (5)
 - i) Listeriosis
 - ii) Water Activity
 - iii) Ergotism
 - iv) Food contaminants
 - v) Artificial sweeteners

2. Describe the relationship between the following sets of terms (2x5=10)
 - i) Nutrition Labeling and Nutrition Claims
 - ii) Canning and Sterilization
 - iii) Food Packaging and Food Toxicity
 - iv) O-R potential and Spoilage of Meat
 - v) Food Borne Intoxication and Food Borne Infection

3. Fill in the blanks: (5)
 - i) A few fermented dairy products areand
 - ii) Bacteria breakdown complex carbohydrates intowhich results in.....of foods
 - iii) Moulds produce toxins called.....
 - iv) Enterotoxigenic *E. coli* causes.....
 - v) Reproductive process of yeast is known as