M.Sc. (DFSM)

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

1st Year Assignment

Assignment 5

July 2025 session

(This assignment relates to Course MFN-008 Principles of Food Science)

Indira Gandhi National Open University
SCHOOL OF CONTINUING EDUCATION
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Masters of Science Degree Programme in Dietetics and Food Service Management M.Sc. (DFSM)

ASSIGNMENT 5

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 5

TMA-5

Principles of Food Science

Course Code: MFN-008

Assignment Code: MFN-008/AST-5/TMA-5/25-26

Last Date of Submission: 28th February, 2026

Maximum Marks:100

This assignment is based on Units 1 -14 of the MFN-008 Course.

Section A –Descriptive Questions **(80 marks)**

There are eight questions in this part. Answer all the questions.

1. a) The study of food science and technology is vast and pervasive. Comment on this statement giving the various areas and components covered under the subject.. (4)
   b) Discuss the role of sugar in: (2+2+2)
   i) Baking of cakes
   ii) Fermentation of alcoholic beverage
   iii) Inhibition of microbial growth in jam and jellies
2. a) Discuss the food applications of the following: (2+2+2)
   i) Microbial polysaccharides
   ii) Exudate gums
   iii) Starches
   b)What is autoxidation of lipid? Briefly explain the three steps involved in it. (4)
3. a) Enumerate the 3 categories in which food protein sources are divided. (3)
   b) Briefly explain the functional properties of protein. (3)
   c) Mention the food applications of the followings: (2+2)
   i) protein isolates
   ii) protein concentrates
4. a) Discuss the commercial/pharmacological applications of the following in food industry: (1+1+1+1)
   i) Vitamin C
   ii) Vitamin D
   iii) Copper
   iv) Sulfur
   b) What are natural pigments? Enumerate some of the novel sources of natural colourants. (2)
   c) What is Rheology of foods? What are the different textural parameters observed in foods? (4)
5. a) Define the following terms based on their usefulness in the food processing: (2+2)
   i) Osmosis
   ii) Viscosity
   b) Define the following terms, giving suitable examples: (2+2+2)
   i) Gels
   ii) Food emulsifiers
   iii) Foams
6. a) What are the changes/alterations that occur as a result of heat in the following: (4)
   i) Milk

ii) Fruits and vegetables

b) Describe the mechanism of drying technique. Elaborate on the types of drying process used for dehydration of foods. (4)

c) Define shelf life. Briefly explain the methods of shelf life examination. (2)

7. a) Briefly explain the process and food application of the following thermal processing technique: (2+2)
i) Pasteurization
ii) Canning

b) Why freezing is easiest and quickest method of food preservation? Explain its different methods briefly. (4)

c) What are minimally processed foods? Enlist some of their advantages. (2)

8. a) What is sensory evaluation? Elaborate on the different stages in the product cycle, at which sensory evaluation is used. (2+2)

b) Enumerate the various factors influencing the heating under a microwave. Enlist any four industrial applications of microwaves. (4)

c) Briefly describe the steps involved in rice processing. (2)

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

1. Explain the following briefly in 2 –3 lines (5)

(i) Fermentation

(ii)Food irradiation

(iii) Sweeteners

(iv) Caramelization

(v)Whey protein concentrates

2. What are the changes that occur during (10)

i) Irradiation of meat

ii) Freezing of milk

iii) Freezing of egg

iv) Browning of canned fish

v) Storage of bread

3. Match the following: **(5)**

I	Zymase	A	Cobalt-60
II	Food Irradiation	B	Food preservative
III	Sulphur dioxide	C	Microbial protein
IV	Curdlan	D	Fermentation
V	SCP	E	Microbial polysaccharide