

M.Sc. (DFSM)

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

Ist Year Assignment Booklet

Assignments 1-6

July 2022 session

**(These assignments relate to Courses MFN-001, MFN-002, MFN-003, MFN-006,
MFN-008 and MFN-010)**



**SCHOOL OF CONTINUING EDUCATION
Academic Block-G , Zakir Hussain Bhawan,
Indira Gandhi National Open University
Maidan Garhi, New Delhi -110068**

**Masters in Science Degree Programme in Dietetics and Food Service
Management M.Sc. (DFSM)
ASSIGNMENTS 1-6**

Dear Students,

You will have to do ten assignments in all to qualify for a M.Sc.(DFSM) degree. For each course, you will have to do one assignment. All the assignments are tutor marked and each Tutor Marked Assignment carries 100 marks. In this assignment booklet there are six assignments and 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 1-14)
- Assignment 6 (TMA-6): based on MFN-010 (Units 1-14)

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 responsesheet.
- 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 theassignment.

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

EnrolmentNo.....

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 itspresentation.

- 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.
- 5) Use only foolscap size paper for your response and tie all the pages carefully. Avoid using very thick 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.
- 6) ***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.
- 7) Do not copy from the response sheets of other students. If copying is noticed, the assignments of such students will be rejected.
- 8) Write each assignment separately. All the assignment should not be written in continuity.
- 9) Write the question number with each answer.
- 10) 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.
- 11) After submitting the assignment at the Study centre get the acknowledgement from the Coordinator on the prescribed assignment remittance-cum-acknowledgement card.
- 12) 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.
- 13) 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 roll 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 (80marks)

In this section, you have to answer eight to ten questions in all.

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

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 these 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-1
TMA-1
Applied Physiology

Course Code:MFN-001
Assignment Code:MFN-001/AST-1/TMA-1/22-23
Last Date of Submission: 15th November, 2022

Maximum Marks:100

This assignment is based on Units 1 -12 of the MFN-001 Course.

Section A -Descriptive Questions

(80marks)

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

1. a) What is a cell? Briefly explain the eukaryotic cell and its organization. (6)
b) Define Ageing. Elaborate different theories of ageing. (1+3)
2. a) What are salivary glands? Briefly explain composition and functions of saliva. (5)
b) What are neural mechanisms which control respiration? Elaborate them briefly. (5)
3. a) Briefly explain phases of cardiac cycle with diagram. (6)
b) What do you understand by WBCs? Write about their different types in brief. (4)
4. a) Explain how external defence mechanism protects our body from different types of infections. (5)
b) Write about composition and functions of Gastric Juice and intestinal juice. (5)
5. a) Give the functions of following hormones: (6)
(i)Gastrin
(ii)ADH
(iii) Insulin
(iv) Parathormone
b) Explain types and functions of cranial nerves. (4)
6. a) Briefly explain three sections of the human ear. (5)
b) Briefly explain physiology of lactation. (5)
7. a) Explain female reproductive system in detail. (6)
b) Describe the following: (2+2)
(i) Hemodialysis
(ii) Structure of liver
8. a) Explain the interchange of gases within the lungs. (5)
b) Explain the role of heart as a pump by describing circulation of blood in our body. (5)

Section B – OTQ (Objective Type Questions)

(20 marks)

1. Define the following:

(5)

- i) Plasma
- ii) Antigen
- iii) Placenta
- iv) Amniocentesis
- v) Dialysis

2. Give the functions/role of the following structure/organs in our body:

(10)

- i) Pancreas
- ii) WBC
- iii) Aorta
- iv) Trachea
- v) Nephrons
- vi) Synapse
- vii) Retina
- viii) Stapedius
- ix) Papillae
- x) Thyroid gland

3. Match the following:

(5)

- | | |
|---------------------|-----------------------|
| I Prolactin | A Nephron |
| II Bowman's capsule | B Milk production |
| III Saliva | C Sodium taurocholate |
| IV Bile | D Monocytes |
| V Leukocytes | E Ptyalin |

ASSIGNMENT 2
Nutritional Biochemistry (TMA-2)

Course Code:MFN-002

Assignment Code:MFN-002/AST-1/TMA-1/22-23

Last Date of Submission: 30th November,2022

Maximum Marks:100

This assignment is based on Units 1 - 12 of the MFN-002 Course.

Section A –Descriptive Questions

(80marks)

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

1. a) Define isomers. Explain stereo isomerism and optical isomerism of monosaccharides in detail. (2+4)
b) List any two chemical properties of the following: (2+2)
 - i) Fatty acids
 - ii) Proteins

2. a) Define protein and its monomeric unit. Give classification of amino acid with the structural formula. (2+4)
b) Briefly describe physio chemical properties of fat-soluble vitamin. (4)

3. a) Define enzyme and coenzyme. Explain models for mechanism of enzyme action in detail with diagram. (2+4)
b) What are essential fatty acids? Name any two essential fatty acids and their food sources. (4)

4. a) Explain urea cycle. (5)
b) Explain β -oxidation of fatty acid with diagram. (5)

5. a) What is the role of pancreas in digestion of food? Explain. (5)
b) How does the HMP pathway differ from glycolysis? Discuss the metabolic significance of HMP pathway in detail. (5)

6. a) Work out the energy (ATP) production when glucose is oxidized in the Glycolysis and citric acid cycle pathways. (Illustrate the cycle and work out the ATP production) (4+4)
b) What are free radicals and antioxidants? Give examples of each. (2)

7. a) Explain the following: (5)
 - (i) Role of Vitamin A in the visual cycle.
 - (ii) Role of Vitamin D in the intestinal absorption of calcium in our body.b) What is inborn error of metabolism? Enlist the disease related to carbohydrate metabolism and explain any one. (5)

8. a) Describe the biochemical role of the hormones produced by the following glands in our body: (5)
 - (i) Adrenal Medulla
 - (ii) Anterior Pituitaryb) Differentiate between the following disease conditions: (5)
 - i) Maple Syrup Urine Disease and Alcaptonuria
 - ii) Thalassemia and Sickle cell anaemia

Section B - OTQ (Objective Type Questions)

(20 Marks)

1. Explain the following in 2-3 sentences. Also give the structure wherever possible. (10)

- a. Amylopectin
- b. Galactosemia
- c. Dehydrogenation
- d. Porphyrins
- e. Apolipoproteins
- f. Thromboxanes
- g. Anaplerotic reaction
- h. Isozymes
- i. Mutarotation
- j. Zwitterion

2. Name the defective enzyme in the following diseases: (5)

- a) Phenylketonuria
- b) Tyrosinemia Type I
- c) Niemann-Pick disease
- d) Hereditary Lactose intolerance
- e) Pentosuria

3. Match the following: (5)

- | | | | |
|-----|---------------|---|------------------------|
| I | Porphyrin | A | 3-hydroxybutyrate |
| II | Ketone bodies | B | Heme |
| III | Lipoprotein | C | Glutathione peroxidase |
| IV | Lactate | D | HDL |
| V | Selenium | E | Cori Cycle |

ASSIGNMENT 3
TMA-3
Food Microbiology and Safety

Course Code:MFN-003

Assignment Code:MFN-003/AST-3/TMA-3/22-23

Last Date of Submission: 31st December, 2022

Maximum Marks:100

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

Section A -DescriptiveQuestions

(80marks)

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

1. a) Describe the role of microorganisms in fermented foods. (5)
b)What are the hazards associated with food safety. Explain by giving suitable example. (5)
2. a) Briefly discuss the characteristic features and reproductive process of different forms of fungi. (5)
b) Describe the control and destruction of microorganisms using high temperature processing. (5)
3. a) Briefly discuss the spoilage of the following: (5)
 (i) Fruits and vegetables
 (ii) Milk and milk products
b)“Spoilage causes chemical changes in food” Justify the statement. (3)
c) List some common food borne intoxications in human. (2)
4. a) Give the symptoms, food involved and preventive measures of the following diseases: (4)
 i) Aflatoxicosis
 ii) Botulism
b) Explain briefly the naturally occurring toxicants in plants foods. (4)
c) Define food additives and food adulterant. (2)
5. a) Differentiate between cleaning agents and disinfectants / sanitizers used to maintain hygiene in a food service establishment. Give appropriate examples. (5)
b) Define the term packaging. Briefly discuss its importance in context to food quality. (5)
6. a) Why is risk assessment important? Enumerate the four steps involved in risk assessment. (4)
b) List and discuss some common adulterants found in food items. (4)
c) Give functions and examples of emulsifying and anti-caking agents as food additive. (2)
7. a) Explain briefly use of plastic and flexible films made from non-fibrous plastic polymers in food packaging. (5)
b) What is food labeling? Write its requirements and bar coding in detail. (5)
8. a) What do you understand by the term HACCP? Discuss its significance. (4)
b) Briefly discuss the role of the following in the area of food safety. (6)
 i) World Trade Organization
 ii) ISO
 iii) FAO/WHO

Section B - OTQ (Objective Type Questions)

(20marks)

1. Explain the following briefly in 2-3 sentences each: (10)

- i) Genetically modified foods
- ii) Water Activity
- iii) Bacteria
- iv) Temperature danger zone
- v) Modified Atmospheric Packaging
- vi) Chemical changes in fish
- vii) Shigellosis
- viii) Lathyrism
- ix) Coextruded films
- x) Personal hygiene

2. Describe the relationship between the following sets of terms (5)

- i) Lathyrism and Food adulteration
- ii) Nitrogen and Gas packaging
- iii) Moisture and Food spoilage
- iv) Heavy metals and food contamination
- v) Infective hepatitis and Oral Faecal Route

3. Match the following: (5)

- | | | | |
|-----|----------------------|---|-------------------------------------|
| I | Coffee | A | Sudan III |
| II | Non-permitted colour | B | Glassine |
| III | Blast freezing | C | Liquid nitrogen (-196°C) |
| IV | Paper packaging | D | Stream of cold air (-40°C or lower) |
| V | Cryogenic freezing | E | Chicory |

ASSIGNMENT 4
TMA-4
Public Nutrition

Course Code: MFN-006

Assignment Code: MFN-006/AST-4/TMA-4/22-23

Last Date of Submission: 31st January, 2023

Maximum Marks: 100

This assignment is based on Units 1 - 18 of the MFN-006 Course.

Section A -DescriptiveQuestions

(80 marks)

There are eight questions in this part. Each question carries equal marks. Answer all the questions.

1. a) Discuss the concept and levels of health care. (3)
b) Briefly describe the health system of India at block level and village level. (5)
c) What are the determinants of food security? (2)
2. a) Elaborate the factors which influence individual food behavior. (5)
b) Briefly describe signs and symptoms of different forms of PEM. (5)
3. a) Discuss methods to prevent iron deficiency anaemia in the community. (5)
b) Discuss the economic consequences of malnutrition. (5)
4. a) What do you understand by demographic transition? Briefly explain the stages of demographic transition. (4)
b) Briefly explain indirect assessment of nutritional status in community. (4)
b) Define the following:
(i) Birth and death rates (1+1)
(ii) Infant mortality rate
5. a) Explain the following methods for nutritional assessment: (8)
i) Biochemical assessment
ii) MUAC
iii) Anthropometry
iv) Weighment method
b) Write the unique features of NNMB. (2)
6. a) Explain the following: (6)
i) Components of ICDS programme
ii) Programme strategy of NIPI
iii) Ariboflavinosis
b) Write about consequences and prevention of IDD. (4)
7. a) What is food fortification? Explain fortification of atta, maida and rice to combat micronutrient deficiencies. (6)
b) What is the importance of immunization? Briefly describe the common vaccine preventable diseases in human. (4)
8. a) Describe the phases in planning Nutrition Education Programme. (6)
b) What are the components of communication process? Explain. (4)

Section B - OTQ (Objective Type Questions)

(20marks)

1. Explain the following in 2-3 sentences each: (10)
 - i) Consequences of PEM
 - ii) Public Nutrition
 - iii) Targeted Public Distribution System
 - iv) Aim of National Nutrition Policy
 - v) Scurvy

2. Explain the following terms: (5)
 - i) SAM
 - ii) Sex ratio
 - iii) Low weight-for-age
 - iv) 24-hour recall method
 - v) Community participation

3. Match the following: (5)

I Oedema	A 3Ds
II Pellagra	B Kwashiorkor
III Weight-for-height	C ASHAs
IV Height-for-age	D Wasting
V NHM	E Stunting

ASSIGNMENT 5
TMA-5
Principles of Food Science

Course Code: MFN-008

Assignment Code: MFN-008/AST-5/TMA-5/22-23

Last Date of Submission: 28th February, 2023

Maximum Marks:100

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

Section A -DescriptiveQuestions

(80 marks)

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

1. a) What is amylose and amylopectin? Enlist different properties of starch and its application in food industry. (4)
b) Discuss the role of modified starches in food and confectionery industries. (4)
c) What is agar? Write about its application in food industry. (2)
2. a) What are the different deteriorative changes that occur in fats and oils? Describe briefly. (4)
b) Describe the different biological functions of protein in our body. (4)
c) What is tyndall effect? (2)
3. a) What is invert sugar ? Give an example. Explain its uses in food industry. (4)
b) What is Rheology of foods? What are the different textural parameters observed in foods? (4)
c) Write about the different methods of pasteurization. (2)
4. a) Briefly describe the role of irradiation and fermentation in food industry. (4)
b) Describe the alterations that occur in egg during processing and storage. (4)
c) What are the factors that affect the quality of taste in food? (2)
5. a)What is atmospheric dehydration ? Enlist the different dryers used in the food industry. (4)
b)Briefly discuss the primary processing of the following: (3+3)
 - i. Cereals
 - ii. Pulses
6. a) Briefly discuss different phases of developing a new product. (6)
b) Discuss the functional role of sugars in foods. (4)
7. a) What are biocatalysts? Explain their role in food industry. (4)
b) Write in brief about foams and emulsions. (3)
c) Explain different properties of solution which are important in food preparation. (3)
8. a) Explain different freezing systems used in food industry. (4)
b) Discuss the role of sensory evaluation in food product development. (4)
c) What is functional food? Explain by giving examples. (2)

Section B - OTQ (ObjectiveTypeQuestions)

(20marks)

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

- I. Monomeric enzymes
- II. Whey Protein Concentrate
- III. Antioxidants
- IV. Class I and class II preservatives
- V. Minimally processed foods

2. Differentiate between the following: (10)

- i) Caramelization and Maillard Reactions
- ii) Protein Concentrate and Protein Isolate
- iii) Cellulose and Hemicellulose
- iv) Solar drying and Mechanical dehydrator
- v) Pasteurization and canning

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 |

ASSIGNMENT 6

TMA-6

Understanding Computer Applications

Course Code: MFN-010

Assignment Code: MFN-010/AST-6/TMA/22-23

Last Date of Submission: 15th March 2023

Maximum Marks: 100

This assignment is based on Units 1 -14 of the MFN-010 Course.

There are five questions. Answer all questions.

1. Create a MS Power point presentation on “Environmental Pollution”, consisting of about 10-12 slides. Take a printout of these slides and submit along with the assignment. Write the steps involved to create the above power point. It should involve the following activities: (20)
 - i) It should have a master slide with a title
 - ii) Insert header and footer in all slides except master
 - iii) Show some data using a chart or graph
 - iv) Include smart art in one of the slides
 - v) Insert picture in one of the slides
2. Create a worksheet using excel having different columns depicting the Serial Number, Name of the Student, Height, Weight and Age of the 40 students in class 1. Put in the required data for the respective columns in 40 rows. Also, write step-by-step procedure to perform the following activities in your answer sheet and take a printout of excel worksheet and attach with the assignment. Your worksheet should contain the following: (20)
 - i) Coding of male (M) and female (F) and calculate the number of males and number of females by giving formula in the cell.
 - ii) Calculate BMI of each student by putting formula for BMI.
 - iii) Create three categories of students falling in underweight, normal and overweight according to WHO, 2004.
 - iv) Find out sum of the number of students falling in each category of BMI and
 - v) Average BMI of whole class.
3. a) Illustrate the main parts and functions of a computer. (10)
b) Briefly describe the internet tools and discuss how to use the internet. (10)
4. Explain the following term with the help of an example/diagram, if needed: (2x15)
 - a. Disk defragmenter
 - b. Hard disk
 - c. Title bar
 - d. Ergonomics
 - e. Data Processing Cycle
 - f. Device driver
 - g. Thesaurus
 - h. Ribbon
 - i. Carpal tunnel syndrome
 - j. Macro

- k. Mail Merge
- l. Scan Disk
- m. Character map
- n. Database
- o. Email Etiquette

5. Differentiate between the following terms: (10)

- i) Hardware and Software
- ii) Folder and File
- iii) LAN and WAN
- iv) AutoText and AutoCorrect
- v) Formula and Function