

M.Sc. (DFSM)

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

Ist Year Assignment Booklet

Assignments 1-6

July 2023 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 of 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-1/23-24

Last Date of Submission: 15th November, 2023

Maximum Marks:100

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

Section A -Descriptive Questions

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

(80marks)

1. a) List the major categories of cells on the basis of the level of differentiation. (3)
b) Draw and label the structure of Eukaryotic cell. (2)
c) What is the composition of blood? (3)
2. a) What do you understand by “MHC”. What are its types? (3)
b) What is Antibody Mediated Immune System? Explain briefly its mode of action. (3)
c) Enlist four laboratory tests that can detect antigen-antibody interaction. (2)
3. a) Explain one cardiac cycle and factors affecting cardiac output (4)
b) What is blood pressure? Enumerate the mechanisms that regulate blood pressure. (2)
c) What is EEG? How is it useful? (2)
4. a) Explain the chemical factors that affect respiration. (3)
b) What are gastrointestinal hormones? List any five gastrointestinal hormones and also give their functions. (5)
5. a) What is the functional unit of kidney? Draw its structure and show its major parts. (4)
b) List the non- excretory functions of kidney. (4)
6. a) What is passive transport across cell membranes? Briefly explain any three types of passive transport. (5)
b) Explain briefly the peripheral nervous system. (3)
7. a) Draw and label parts of a neuron. (2)
b) What is a neurotransmitter. List the characteristics of a neurotransmitter. Name any two neurotransmitters. (6)
8. a) Briefly explain any three disorders of image formation. How are they corrected? (3)
b) List the different organs involved in taste perception. Explain briefly the mechanism of taste perception (5)
9. a) What is haemostasis? Enumerate the disorders of haemostasis. Give an example of each. (4)
b) List the two major hormones secreted by each of the following glands and explain their physiological effects: (2+2)
 (i) Thyroid gland
 (ii) Posterior Pituitary
10. a) Name the female reproductive hormones and the target tissues they act on? (4)
b) Enlist the male reproductive organs. Write a review of the inflammatory infections affecting these organs. (4)

Section B – OTQ (Objective Type Questions)

(20 marks)

1. Define the following:

(5)

- i) Mitosis
- ii) Aplastic Anemia
- iii) Interleukin-1
- iv) Emphysema
- v) Nephrotic Syndrome

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

(10)

- i) Adrenal gland
- ii) ECG
- iii) Pleura
- iv) Secretin
- v) Neurotransmitters
- vi) Purkinje fibers
- vii) Temporal lobe
- viii) Myopia
- ix) Small intestine
- x) Ageusia

3. Match the items in List I with items in List II:

(5)

List I	List II
I Theory of Ageing	A B.M.R
II Granulopoiesis	B Auditory
III B.S.A	C Mucous cells
IV Sublingual gland	D Process of formation of neutrophils
V Occipital lobe	E Visual areas
	F Free radical

ASSIGNMENT 2
TMA-2
Nutritional Biochemistry

Course Code:MFN-002

Assignment Code:MFN-002/AST-2/TMA-2/23-24

Last Date of Submission: 30th November,2023

Maximum Marks:100

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

Section A –Descriptive Questions

(80 Marks)

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

1. a) What is starch? Give its biochemical structure. (2)
b) List the important reactions of monosaccharides. Explain any two in detail. (4)
c) Give an example of a Trisaccharide. What is it made up of? (2)
2. a) What are Eicosonoids? Briefly describe their role in the body. (4)
b) Discuss the four basic structural levels of proteins, giving examples. (4)
3. a) List the different classes of enzymes. Explain any two in detail. (2)
b) Explain briefly the three major classes of enzyme inhibition? (4)
c) Name the enzymes whose blood levels are determined during clinical diagnosis of nephrotic syndrome. (2)
4. a) Describe the role of enzymes in digestion of food in the body. (4)
b) Explain the process of absorption and transport of lipids in our body. (4)
5. a) What is gluconeogenesis? Discuss the four substrates used in gluconeogenesis. (4)
b) What is Phosphogluconate pathway? Give any three significance of this pathway. (4)
6. a) Write briefly the steps involved in cholesterol synthesis in the body. (4)
b) What do you understand by the term hyperproteinemias. (3)
c) Name three ketone bodies seen in ketosis. (1)
7. a) Explain the Urea cycle indicating the enzymes and co-enzymes involved in it. (4)
b) Explain the different ways by which non essential amino acid is biosynthesised . (4)
8. a) Describe the role of free radicals in lipid peroxidation. (4)
b) What are antioxidants? Give their classification and role in brief. (4)
9. a) Indicate the steps involved in formation of vitamin D3. (4)
b) Why minerals are essential for us? Give the biochemical role of zinc in our body. (4)
10. a) What do you understand by the term “inborn errors of metabolism”? (4)
b) Differentiate between Group I and Group II hormones, giving examples. (4)

Section B - OTQ (Objective Type Questions)**(20 Marks)****1. Explain the following in 2-3 sentences. Also give the structure wherever possible. (10)**

- a. Isomer
- b. Essential fatty acids
- c. Isoprene
- d. Turnover number
- e. Brush border
- f. Electron Transport Chain
- g. Ketosis
- h. Metalloflavoproteins
- i. Transcription
- j. Allosteric mechanisms

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

- a) Alcaptonuria
- b) Gaucher's disease
- c) Homocystinuria
- d) Pentosuria
- e) Albinism

3. Match the items in List I with items in List II : (5)

List I		List II	
I	Maltose	A	Glucose + Maltose
II	Type IV hyperproteinemia	B	Glucose + Glucose
III	Sucrose	C	Glucose + Galactose
IV	Type II a hyperproteinemia	D	Glucose + Fructose
V	Lactose	E	Increase cholesterol +Triglyceride
		F	Increase cholesterol +LDL
		G	Increase cholesterol +Triglyceride+VLDL

ASSIGNMENT 3
TMA-3
Food Microbiology and Safety

Course Code:MFN-003

Assignment Code:MFN-003/AST-3/TMA-3/23-24

Last Date of Submission: 31st December,2023

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) Enumerate the various physical, chemical and biological hazards that may be present in our food. (4)
b) List the factors which affect the growth of microorganisms. Explain briefly any two of these factors. (4)
2. a) Describe the chemical changes due to spoilage with respect to nutrients present in the food when bacteria acts upon them. (4)
b) Give the different types of spoilage in the following foods, giving the micro-organisms involved: (2+2)
(i) Fruits and Vegetables
(ii) Fish
3. Define food borne diseases. Enumerate the various food born infections, food intoxications, food borne toxic infections affecting food safety, giving examples. (8)
4. a) Define the term 'food contamination'. Briefly discuss the different types of environmental contaminants that impact food safety. (5)
b) Write a brief review on naturally occurring toxicants in plant foods. (3)
5. a).What is a food additive? Give the functional role of any two food additives. (5)
b). Explain the role of Codex Alimentarius Commission in food regulations. (3)
6. a). What is adulteration ? What are reasons for adulterations? (4)
b) Give any four adulterants giving their harmful effects. (4)
7. a) Explain the factors to be considered for ensuring safety of street foods. (3)
b) Describe the basic criteria to be considered while selecting equipments and utensils of a catering establishment. (3)
c) What are the personal hygiene guidelines for employees of a food service unit? (2)
8. Discuss the following:
a) Health status of food handlers and its impact on food safety. (4)
b) The various cleaning agents and waste disposal used for sanitation in food industry. (4)
9. a) What is food packaging? What are various methods of packaging employed in the food industry? Enumerate, giving examples. (4)
b) Briefly describe some toxicity hazards which result from interactions between packaging and food. (4)
10. a) What do you understand by risk communication? List the various agencies which are responsible for the process of risk communication. (4)
b) Discuss the need and relevance of HACCP in the context of food safety. (4)

Section B - OTQ (Objective Type Questions)**(20 Marks)**

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

- i) Probiotics
- ii) Facultative anaerobes
- iii) Putrefaction
- iv) Neurotoxin
- v) Polychlorinated biphenyls
- vi) GRAS food additives
- vii) Exhausted spices
- viii) Iodophors
- ix) Shrink wrapping
- x) Acceptable Daily Intake

2. Differentiate between the following set of terms with examples : (5)

- i) Nutrition labeling and Nutrition claim
- ii) Prions and Dioxins
- iii) Hazard and Toxicity
- iv) Food Contaminations and Food Adulteration
- v) Gram positive cell wall and Gram negative cell wall

3. Match the items in List I to items in List II : (5)

List I	List II
I Shigella	A Aspergillus flavus
II Aflatoxicosis	B Predisposes to iodine deficiency disorders
III Potato	C Fermented fresh cabbage
IV Goitrogens	D Fermented milk
V Sauerkraut	E Solanine
	F Motile ,gram negative flagellated rods
	G Non-motile, non-spore forming gram negative rods

ASSIGNMENT 4
TMA-4
Public Nutrition

Course Code: MFN-006

Assignment Code: MFN-006/AST-4/TMA-4/23-24

Last Date of Submission: 31st January, 2024

Maximum Marks: 100

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

Section A -DescriptiveQuestions

(80 marks)

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

1. a) Define Public Nutrition. Elaborate the role of public nutritionist in health care delivery. (1+3)
b) What do you understand by food security? Discuss various determinants of food security. (1+3)
2. a) What are Sustainable Development Goals(SDGs)? Enlist any four SDGs. (1+1)
b) Give clinical and sub-clinical forms of PEM. What characteristic features you will observe for differentiating between marasmus and kwashiorkor? (4)
c) List various causes of PEM in children. (2)
3. a) Discuss various measures you will recommend for preventing iron deficiency anaemia in community. (4)
b) Explain manifestations and treatment for pellagra in detail. (4)
4. a) Discuss causes and prevention of the following: (2+2)
 - i. Fluorosis
 - ii. Lathyrismb) Briefly explain different aspects of nutrition economics and their interaction. (4)
5. a) What do you understand by demographic transition? Explain various stages of demographic cycle in detail. (1+3)
b) Define Nutritional Anthropometry. Explain how it is used as a tool to assess nutritional status of an individual. (1+3)
6. a) What are biochemical tests used to assess PEM and Vitamin A deficiency? Explain. (2+2)
b) Describe the methods to assess dietary intakes of an individual. (4)
7. a) What is the objective of NIPI? Describe its programme strategy in detail. (1+3)
b) Elaborate diet /food based strategy used to combat nutrition problems. (4)
8. a) Enlist various research action programmes implemented in different states of our country to improve the nutritional status of vulnerable groups. Elaborate any two. (2+2+2)
b) What skills are required by a personnel manager? (2)
9. a) What is Key informant approach? Give advantages of key informant approach. (1+3)
b) Explain Delphi technique and Nominal group process technique for situational analysis. (2+2)
10. a) Elaborate different phases for planning a nutrition education in a community. (4)
b) Briefly describe various channels of communication. (4)

Section B - OTQ (ObjectiveTypeQuestions)

(20marks)

1. Explain the following in 2-3 sentences each: (10)
- i) Nutrition policy
 - ii) ICDS
 - iii) Indirect assessment of nutritional status
 - iv) Consequences of malnutrition
 - v) Classification of goitre
2. Explain the following terms: (5)
- i) NIDDCP
 - ii) Primary health care
 - iii) Population policy
 - iv) Ariboflavinosis
 - v) Community participation
3. Match the items in List I with the items in List II: (5)

LIST -I		LIST -II	
I	Referral services	A	Iodine
II	Cretinism	B	Body weight
III	Knock-knees	C	Triple A cycle
IV	Salter scale	D	Primary Health Care
V	NSS	E	Rickets

ASSIGNMENT 5
TMA-5
Principles of Food Science

Course Code: MFN-008

Assignment Code: MFN-008/AST-5/TMA-5/23-24

Last Date of Submission: 28th February, 2024

Maximum Marks:100

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

Section A -DescriptiveQuestions

(80 marks)

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

1. a) Explain in brief function of sugars in foods. (4)
b) How melanins (brown pigments) are formed during food processing? Explain. (4)
2. a) Discuss gelatinization and retrogradation of starches in brief. (4)
b) What are food hydrocolloids? List its uses in food processing industry. (1+2)
c) What is extruded starch? Give example. (1)
3. a) Describe various factors which influence the process of deep fat frying. (3)
b) Explain how autoxidation causes deterioration of fats and oils. (3)
c) Give examples of transport proteins in plasma. (2)
4. a) Briefly describe advantages and disadvantages of using microorganisms as a source of protein. (2+2)
b) What is WPC? Write its uses and functional properties. (4)
5. a) Give nutritional and functional role of following: (4)
 - i. Copper
 - ii. Iron
 - iii. Biotin
 - iv. Cynocobalaminb) Write about microbial and animal sources of natural colours used in foods. (2+2)
6. a) Differentiate between sols, gels and suspension by giving their properties (2+2+2)
b) Explain Dash Pot Model for measuring rheology parameters. (2)
7. a) Briefly describe advantages of food irradiation over conventional process of preservation. (4)
b) Describe alterations occurring in milk and milk products while processing. (4)
8. a) Explain the following methods of food processing: (4)
 - i. Smoking
 - ii. Pickling
 - iii. Fermentation
 - iv. Irradiationb) Briefly explain process of Canning of different foods. (4)
9. a) What do you understand by microwave heating? Give its application in food processing. (4)
b) Discuss various bacterial fermented foods and their characteristics. (4)
10. a) Explain term 'Minimally Processed Fresh Foods'. Also give advantages of these products. (2+2)
b) Discuss physical, chemical and microbiological changes that occur during food storage and distribution. (4)

Section B - OTQ (ObjectiveTypeQuestions)

(20marks)

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

- I. Product development
- II. HTST pasteurization
- III. Emulsions
- IV. Cryogenic Freezing
- V. Marinating

2. Differentiate between the following: (10)

- i) Primary processing and Secondary processing of cereals
- ii) Preservation and Fermentation
- iii) Guar gum and Gellan gum
- iv) Autoxidation and lipolysis
- v) Spray drying and Roller drying

3. Match the following: (5)

LIST -I		LIST -II	
I	Irradiation	A	-18°C to -40°C
II	Freezing	B	Kilograys
III	Stability of dough	C	Compressimeter
IV	Chilling	D	Farinograph
V	Softness of baked products	E	0°C to 5°C

ASSIGNMENT 6

TMA-6

Understanding Computer Applications

Course Code: MFN-010

Assignment Code: MFN-010/AST-6/TMA/23-24

Last Date of Submission: 15th March 2024

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 new MS Word document on topic 'Nutritional deficiency diseases in India' consisting of 3 pages. Your document should be prepared with given specifications:
 - I. Font-typeface- Times New Roman (1)
 - II. Font size-12 (1)
 - III. Font Colour- Headings in black colour and text in blue colour (1)
 - IV. Headings should be bold and underline (1)
 - V. Text of document should be center alignment (1)
 - VI. Spacing-Double spaced (1)
 - VII. Margins-Top-2inch, Bottom-2.5inch (1)
 - VIII. Create table((minimum rows-6, coloumns-3) with fixed column width (1)Take a printout of document and submit along with the assignment. Write the steps involved to create the above document. (12)

2. Suppose you are a class teacher of class V. Create a worksheet using excel to maintain the monthly test report of your class. Your excel sheet should have different columns depicting the Serial number, Name of the Student, Roll number, Attendance, Marks of different subjects in different columns like Marks of English, Hindi, Maths, Science and Social Science. Total students in your class should be 40. 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: (3)
 - i. Find average attendance per month (3)
 - ii. Automatically find which student got highest marks overall (3)
 - iii. Create chart for marks obtained by students (3)
 - iv. Use formula to find sum and average attendance of students.

3.
 - a) Define ergonomics. List some points you should consider while working on computer in order to remain healthy. (5)
 - b) Why Control Panel is important? Explain. (5)
 - c) Define Network and elaborate its type in detail. (5)
 - d) How audio/video can be incorporated in a slide? Explain. (5)

4. a. List and explain editing features of MS-word. (2+4)
b. What is Microsoft PowerPoint? Discuss its uses in education and research. (2+4)
c. Define alignment? Describe various alignments you can use in MS-word. (2+5)
d. What is modem? (2)
e. Enlist various Windows Applications and describe their features briefly. (3+6)
5. Differentiate between the following terms: (10)
- i) Page margins and scaling
 - ii) Command Line Interface and Graphical User Interface
 - iii) Paint and Paint 3D
 - iv) Notepad and WordPad
 - v) URL and FTP