

M.Sc. (DFSM)

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

Ist Year Assignment Booklet

Assignments 1-6

July 2017 session and January 2018 session

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



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

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 1-12)

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.
- 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

(80 marks)

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

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 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.
- 1) **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-1/2017-18

Last Date of Submission: For July, 2017 session is 15th November, 2017

For January, 2018 session is 15th April, 2018

Maximum Marks: 100

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

Section A - Descriptive Questions (80 marks)

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

1. a) Physiology is an inter link between nutrition and healthy human body “Elaborate on the statement, highlighting the relationship between nutrition and physiology. (4)
b) What do you understand by the term ‘cell cycle’? Discuss its four phases. (4)
2. a) What are the four components of blood? Explain briefly. (4)
b) What is Erythroblastosis foetalis Why does the risk of RH incompatibility increase with more number of pregnancies? (4)
3. a) What is an ‘Antigen’? How are ‘Antibodies’ classified? (4)
b) What is an Immune system? List the components of immune system. (4)
4. a) What do you understand by the term ‘pacemaker’? Give the names of the pacemakers (Tissue) of our heart. (4)
b) What is mean ‘blood pressure’? How is it calculated? (2)
c) What do you understand by the term ‘cardiac cycle’? (2)
5. a) What are the functions performed by the following organs of the respiratory system: (2+2=4)
i) Larynx
ii) Lungs
b) Explain the mechanism of respiration. (4)
6. a) Enumerate the general structural plan of the gastrointestinal tract. (4)
b) What is the functional unit of the kidney? Illustrate the functional unit. (4)
7. a) What do you understand by ‘intracellular fluid and extracellular fluid’? Give example of both. (3)
b) List the major functions of cerebellum and the spinal cord. (5)

8. a) How would you classify colour blindness and diagnose a case? (4)
- b) Illustrate the structure of nephron. (4)
9. a) Where are the thyroid and parathyroid gland located in our body? Discuss their role in our body? (4)
- b) What are the important functions of liver? (4)
10. a) Briefly discuss the role of placenta and list the hormones produce by it. (4)
- b) What do you understand by the term 'reproductive morbidity'? Briefly discuss its three categories. (4)

Section B - OTQ (Objective Type Questions)

20 Marks

There are four questions in this part

1. Explain the following in 2-3 sentences each: (5)
 - i) Megaloblastic anemia
 - ii) Hypothalamus
 - iii) Blood transfusion
 - iv) Diabetes insipidus
 - v) Lymphocytes
2. Give the functions/role of the following structure/organs in our body: (5)
 - i) Glucagon
 - ii) Blood cell
 - iii) Mitochondria
 - iv) Retinal Nerve Cells – cornea
 - v) Bone Marrow
3. Fill in the blanks: (5)
 - i) The epithelial cells that secrete mucus are _____ cells.
 - ii) The chemical factors influencing the respiratory centers are _____ and _____ .
 - iii) Bluish discoloration of the skin and mucous membranes is called as _____.
 - iv) Oxygen is transported in our body by _____.
 - v) The level of _____ in the blood is proportional to GFR.
4. Match the following: (5)

i) George Whipple	a) Serous cells
ii) Parotid gland	b) Relationship between diet and hemoglobin
iii) Submandibular gland	c) Mireid cell
iv) Tongue	d) Circumvallate papillae
v) Dwarfism	e) Deficiency of GH

ASSIGNMENT 2
(TMA-2)
Nutritional Biochemistry

Course Code: MFN-002

Assignment Code: MFN-002/AST-2/TMA-2/2017-18

Last Date of Submission: For July, 2017 session is 30th November, 2017

For January, 2018 session is 30th May, 2018

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 the questions.

1. a) What is simple sugar? Give its general formula. (4)
b) List any two chemical properties of the following: (4)
 - i) Monosaccharide
 - ii) Natural fats
2. a) Differentiate between saturated and unsaturated fatty acids. Give one example each of saturated, monounsaturated and Polyunsaturated fatty acids. (4)
b) What are vitamins? List a few characteristics which all vitamins possess. (4)
3. a) What do you understand by enzyme specificity? Enumerate types of enzyme specificities. (4)
b) How are lipid transported in blood? List the four major groups of lipoproteins involved in lipid transport. (4)
4. a) What is gluconeogenesis? Explain its reactions and significance. (4)
b) What do you understand by the term 'digestion'. Give the digestion of proteins in our body. (4)
5. a) Name the lipoprotein particles that have the highest percentage concentration of the following : (2)
 - i) Cholesterol
 - ii) Triacylglycerol
 - iii) Protein
 - iv) Phospholipids
b) Briefly explain the metabolism of HDL, LDL, VLDL in our body? (6)
6. a) Illustrate the glycolytic pathway highlighting the enzymes involved in the pathway. (4)
b) Illustrate the reactions involved in the oxidation of fatty acids in the human body. (4)

7. Explain the significance and the reactions involved in the following processes in amino acid metabolism: (2+2+4=8)
- i) Transamination reaction
 - ii) Deamination reaction
 - iii) Urea Cycle
8. a) What is meant by ketogenic and glucogenic amino acids? Give two example of each type. (4)
- b) What do you understand by the term de novo synthesis for purine synthesis? Give the steps involved in de novo synthesis for purine nucleotides. (4)
9. a) Discuss the role of calcium in our body. Highlight the significance of calcium as a signal transmitter. (4)
- b) Describe the metabolic role of the iron in our body. (4)
- 10) a) What do you understand by the term “inborn errors of metabolism”? Discuss its etiology. (2)
- b) Comment on the following statements (6)
- i) In Alcaptonuria the urine becomes dark in colour upon standing.
 - ii) MSUD is also known as branched chain ketonuria.
 - iii) Tay -sach’s disease is caused by abnormal gene.

Section B - OTQ (Objective Type Questions)

20 Marks

There are four questions in this part

1. Explain the following in 2-3 sentences each: (5)
- i) Isozymes
 - ii) Nucleic acid
 - iii) SGOT, SGPT
 - iv) Apo lipoproteins
 - v) Ketosis
2. Name the defective enzymes in the following diseases: (5)
- i) Phanylketonuria
 - ii) Galactosamia
 - iii) Gaucher’s disease
 - iv) Lactose intolerance
 - v) Albinism

3. Give the chemical structure of the following: (5)

- i) Maltose
- ii) Triglycerol
- iii) Alanine
- iv) Nucleotide
- v) Retinal

4. Match the items in Column A with items in Column B. (5)

Column A	Column A
i) Riboflavin	a) Ceruloplasmin
ii) Bitotin	b) FAD and FMN
iii) Type IV hyperlipoproteinemia	c) Cytochromes
iv) Copper	d) Pyruvate carboxylase
v) Iron	e) High VLDL, cholesterol and triglycerides

ASSIGNMENT 3
(TMA-2)
Food Microbiology and Safety

Course Code: MFN-003

Assignment Code : MFN-003/AST-3/TMA-3/2017-18

Last Date of Submission: For July, 2017 session is 31st December, 2017

For January, 2018 session is 15th June, 2018

Maximum Marks: 100

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

Section A - Descriptive Questions (80 marks)

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

1. a) What is food microbiology? What areas does it cover? (4)
b) What are the health related concern of G M foods. (2)
c) How do viral diseases spread? (4)
2. a) What are food hazard? How do they enter our food? (4)
b) What are “ Prions” ?Name any two diseases caused by prions? (4)
c) Explain the following terms: (2)
 - i) Facultative anaerobes
 - ii) Plasmolysis
3. a) Explain the main principle behind food preservation. List the different physical methods of preservation? (6)
b) What are the factors affecting the growth of microorganism? (4)
4. a) Define the following giving examples: (4)
 - i) Food poisoning
 - ii) Food borne disease
 - iii) Neurotoxins
 - iv) Food infections
b) Give the symptoms, food involved and preventive measures of the following diseases: (6)
 - i) Salmonellosis
 - ii) E. Coli diarrhea
 - iii) Hepatitis A

5. a) Define pesticide residue. What are the different pesticides that are used on our foods? (3)
- b) What are the harmful effects of polychlorinated biphenyls(PCBs)? What foods are they more likely to be present in? (4)
- c) Define food additives? Give examples of food additives. (3)
6. a) Why are artificial sweeteners also referred to as intense sweeteners? Name the intense sweeteners permitted for use in India. (2)
- b) List the chief factors to be considered while planning the kitchen layout. (4)
- c) What are street foods? Why is the safety of street food a major concern? (4)
7. a) Why do we need to package food? Give the packaging material commonly used to package foods. (5)
- b) Why is risk assessment important? ? Elaborate its components. (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)

(20 marks)

1. Define the following terms in 2-3 sentences each: (5)
 - a) Codex Alimentarius
 - b) JECFA
 - c) Water activity
 - d) Candling
 - e) Absolute food safety
2. Describe the relationship between the following sets of terms: (5)
 - a) Lathyrism and Food adulteration
 - b) pH and Spoilage of Meat
 - c) Vacuum packaging and Extended shelf life of food
 - d) Canning and Food Preservation
 - e) Toxic heavy metal and Food chain.

3. Fill in the blanks: (5)

- a) Ragi starter is produced byof rice or other starchy powders.
- b) The reproductive process of yeast is termed as..... .
- c) The temperature at which maximum bacterial growth occurs is.....temperatures.
- d) Meat has a high activity which is ideal for the growth of microorganism.
- e) Moulds produce toxin called..... .

4. Match items in Column A with the items in Column B. (5)

Column A

Column B

- | | |
|-------------------------------|---|
| a) Salmonella | i) Predisposes to iodine disorders |
| b) Fruit product order | ii) Sodium hydroxide |
| c) Goitrogens deficiency | iii) Ministry of agriculture |
| d) Alkaline cleaning compound | iv) Ministry of food processing industry |
| e) Meat product control order | v) Motile, non-spore forming gram negative rods |

ASSIGNMENT 4
TMA-4
Public Nutrition

Course Code: MFN-006

Assignment Code : MFN-006/AST-4/TMA-4/2017-18

Last Date of Submission: For July, 2017 session is 31st January, 2018

For January, 2018 session is 31st August, 2018

Maximum Marks: 100

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

Section A - Descriptive Questions

(80 marks)

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

1. a) Discuss the concept and scope of public nutrition. (4)
b) Explain the concept of health care and three different levels at which it is available to the community. (4)
2. a) How can a sectoral approach help to solve nutritional problems? (4)
b) Define food and nutrition security. Explain the four factors determining food security. (4)
3. a) What are the different clinical forms of PEM? Briefly discuss prevention and control of PEM. (4)
b) Which are three major micronutrient deficiencies affecting large segments of population in our country? Elaborate. (4)
4. a) What is anemia? List the preventive measures of iron deficiency anemia. (4)
b) Discuss the role of dietary diversification in combating public nutrition problem. (4)
5. a) Explain causes, symptoms and preventive measures of following disease : (8)
 - i) Ariboflavinosis
 - ii) Scurvy
 - iii) Lathyrism
 - iv) Xerophthalmia
6. a) Explain economic consequences of malnutrition. (4)
b) Define the following: (4)
 - i) Net Reproduction Rate (NRR)
 - ii) Infant Mortality Rate (IMR)
 - iii) Maternal Mortality Rate (MMR)
 - iv) Demographic Transition

7. a) List any two ecological factors used for nutritional assessment (2)
- b) Enumerate the goals / objectives of ICDS. (2)
- c) Mention various methods of direct assessment of nutritional status. What are the common measurements used in nutritional anthropometry? (4)
8. a) What do you understand by clinical and biochemical assessment? Enumerate giving examples. (2)
- b) Answer these briefly: (6)
 - i) Common methods used to assess dietary intake.
 - ii) Strengths and limitations of 24 – hour recall.
 - iii) Strengths and limitation of food frequency questionnaire.
9. a) What is Nutrition Surveillance? (2)
- b) Explain the term “Supplementary feeding” and “Nutrient Supplementation’W’. Briefly elaborate on their relevance as a strategy to combat malnutrition. (6)
10. a) “Nutritional education aims to change behavior”. Justify the statement giving appropriate, examples. (4)
- b) What are the phases of nutrition education process. Elaborate. (4)

Section B – OTQ (Objective Type Questions)

20 Marks

There are four questions in this part

1. List the clinical signs the following nutritional disorders: (5)
 - i) Vitamin ‘A’ deficiency
 - ii) Folic acid and vitamin ‘B₁₂’ deficiency
 - iii) Vitamin ‘C’ deficiency
 - iv) Fluorosis
 - v) Vitamin ‘B’, (Thiamia) deficiency
2. Explain the following briefly in 2-3 sentences (5)
 - i) BMI
 - ii) National Immunization Scheme
 - iii) Social Marketing
 - iv) Mid Day Meal Programme (MDM)
 - v) Formative Research

3. Read the following statements carefully, indicate whether each is true or false: (5)

- i) Bal Poshak Project in Rajasthan was a unique project in which self help groups were involved in preparation of food supplements for young children.
- ii) Community food banks are innovative local efforts which can improve nutrition security especially for the poorer segments of the population living in vulnerable areas.
- iii) We need a paradigm shift to improve food security at the state level to nutrition security at the individual level.
- iv) Iodine deficiency is world's major cause of preventable mental retardation.
- v) In spite of having sufficient food stock at national level, large number of people still do not consume diets with adequate calories and protein.

4. Match the following: (5)

- | | |
|---------------------------------------|--|
| i) Self help group | a) Riboflavin |
| ii) Representative group | b) Beriberi |
| iii) Serum albumin | c) Elected and answerable to the community |
| iv) Erythrocyte glutathione reductase | d) Run by people for their own benefits |
| v) Thiamine (B1) | e) PEM |

ASSIGNMENT 5
TMA-5
Principles of Food Science

Course Code: MFN-008

Assignment Code : MFN-008/AST-5/TMA-5/2017-18

Last Date of Submission: For July, 2017 session is 28th February, 2018

For January, 2018 session is 15th September, 2018

Maximum Marks: 100

This assignment is based on Units 1 -12 of the MFN-008 Course.

Section A - Descriptive Questions (80 marks)

There are ten questions in this part. Answer all questions

1. a) Define food science and technology and discuss its scope in the context of dietetics and food service management. (4)
- b) Discuss the role of sugar in : (4)
 - i) Preparation of dough and batters
 - ii) Formation of egg foam
 - iii) Baking of cakes
 - iv) Surface cracking in cookies
2. a) Define lipids and mention main sources of lipids. (2)
- b) What are the functional properties of gums that are considered to be important? Explain giving examples. (6)
3. a) Mention the applications of the following : (4)
 - i) Why protein concentrate
 - ii) Soy protein isolates
- b) List the factors affecting the process of deep fat frying. (4)
4. a) Discuss the commercial/pharmacological applications of the following in food industry (4)
 - i) Vitamin A
 - ii) Sodium
- b) Discuss the effect of following on stability of enzymes: (4)
 - i) Ascorbic acid
 - ii) Organic acid
 - iii) Metal Ions
 - iv) Light

5. a) Define the following terms: (8)
- i) Solubility
 - ii) Osmosis
 - iii) Specific gravity
 - iv) Concentration
 - v) Suspension
 - vi) Foam
 - vii) Emulsion
 - viii) Food emulsifiers
6. a) Define the following terms: (4)
- i) Elasticity
 - ii) Texture
 - iii) Rheology of foods
 - iv) Retention time
- b) Comment on the process of gelation in egg. (4)
7. a) What are the changes that occur during: (6)
- i) Baking cereals
 - ii) Storage of bread
 - iii) Sprouting of legums
- b) Define food processing and food preservation. (2)
8. a) What do you understand by the term 'pasteurization'. Also explain the types of pasteurization. (4)
- b) What are moulds? Give the functions of moulds in the food industry? (4)
9. a) What are the preliminary steps involved during preparation of raw materials. (4)
- b) List the methods of oil extraction. (4)
10. a) Name the main active ingredient in oat products. (2)
- b) Define Shelf life. (2)
- c) What is sensory evaluation? What method you will adopt for sensory evaluation of food. (4)

Section B - OTQ (Objective Type Questions)

(20 marks)

There are three questions in this part

1. Explain the following briefly in 1-2 lines: (5)
 - a) Maillard reaction
 - b) Caramelization
 - c) Weeping
 - d) Amadori Reaction
 - e) Single cell proteins (SCP)

2. Give the applications of the following Vitamins: (10)
 - a) Vitamin B₁₂
 - b) Biotin
 - c) Folic acid
 - d) Nicotinic acid
 - e) Pantothenic acid

3. Name the enzymes tht are used in: (5)
 - a) Banking of bread
 - b) Brewing
 - c) Classification of fruit juices and wines
 - d) Cheese production

ASSIGNMENT 6
TMA-6
Understanding Computer Applications

Course Code: MFN-010

Assignment Code: MFN-010/AST-6/TMA/2017-18

Last Date of Submission: For July, 2017 session is 15th March 2018

For January, 2018 session is 30th September, 2018

Maximum Marks: 100

This assignment is based on Units 1 - 12 of the MFN-010 Course.

There are five questions in this part. Answer all questions

1. Enumerate different windows applications. Discuss the functions and steps involved in various window applications. (20)
2. Create a MS PowerPoint presentation on any topic of your interest, consisting of about 10 slides involving all the following activities: (20)
 - (i) It should have a Master Slide with the title.
 - (ii) Insert the header and footer in all the slides except master.
 - (iii) Set the font properties.
 - (iv) One table should be one of the slides.
 - (v) One slide should contain a Graph.
 - (vi) Insert an image on one of the slide.
3. a) Discuss the names and functions of the tools of the standard tool bar and formatting toolbar. (10)
b) Discuss the commands for applying the following formatting concepts to the document: (10)
 - i) Auto format
 - ii) Header and footer
 - iii) Numbering pages
 - iv) Inserting section break
 - v) Aligning text
4. You are the manager of a canteen. Create a worksheet using excel maintaining the monthly expenses of the canteen under various heads, for a year. Your assignment should contain: (20)

Formulas that automatically calculate

You must find the average expenses per month

Automatically find the month when the minimum amount was spent

Create a chart for head wise expenditure per month

5. Explain the following term with the help of an example/diagram, if needed: (20)

- i) Modem
- ii) Check/Scan Disk
- iii) Networking
- iv) Ergonomics
- v) Data Processing Cycle
- vi) Maintenance of your computer
- vii) Thesaurus
- viii) Computer Virus
- ix) Input/output Device
- x) TCP/IP