

M.Sc. (DFSM)

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

Ist Year Assignment Booklet

Assignments 1-6

July 2020 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 1-12)

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 /20-21
Last Date of Submission: 15th November, 2020

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 questions.

1. a) What are eukaryotes? Explain basic parts of eukaryotic cell. (6)
 b) Enlist phases of mitosis. (2)

2. a) What are the functions of plasma proteins? (4)
 b) How erythropoiesis is regulated? (4)

3. a) Define erythroblastosis foetalis. What do you understand by Rh incompatibility? (4)
 b) What are the different types of anemia? Explain. (4)

4. a) What is the role of antibodies in our body and give their classification? (4)
 b) Explain one cardiac cycle and factors affecting cardiac output. (4)

5. a) Briefly explain how exchange of gases takes place within lungs? (4)
 b) Explain digestion, absorption and utilization of fats. (4)

6. a) Explain counter current mechanism of kidneys. (4)
 b) What are different fluid compartments in our body? Explain. (4)

7. a) What is the difference between active and passive transport? Name the types of both
 the transport. (4)
 b) Discuss how the signals are conveyed to central nervous system in our body? (4)

8. a) Explain the functioning of autonomic nervous system. (4)
 b) Explain the mechanism of taste perception. (4)

9. a) Explain the functions, consequences of hyposecretion and hypersecretion of the major
 hormones secreted by the pituitary gland. (4)
 b) How kidney work as an endocrine gland? (4)

10. a) Explain the physiology of lactation. (3)
 b) What are the various disorders of image formation? Explain. (3)
 c) Name three pairs of salivary glands? (2)

Section B – OTQ (Objective Type Questions)

- 1. a) Define the following:** (5)
- i) Polycythemia
 - ii) TNF
 - iii) Positive chronotropic effect
 - iv) Respiratory acidosis
 - v) Tidal volume

- b) Give one word for the following:** (5)

- i) Name the only hemoglobin which can cross the placental barrier.
- ii) This system is found buried within the cerebrum and is also referred to as the emotional barrier.
- iii) Decreased secretion of thyroid hormone result in the development of which disease.
- iv) Name a hormone secreted by pineal gland.
- v) A violet colored photosensitive pigment present in the cones is known as what?

- 2. a) Differentiate between the following:** (5)

- i) Antibody mediated immune system and cell mediated immune system
- ii) Antigens and Antibodies

- b) Match the following** (5)

- | | |
|--------------------|---------------------------------|
| i) James Lind | a) Precursor of all blood cells |
| ii) Kymograph | b) Visual areas |
| iii) THSC | c) Scurvy |
| iv) Occipital Lobe | d) Cons |
| v) Fovea | e) Records blood pressure |

ASSIGNMENT 2
Nutritional Biochemistry (TMA-2)

Course Code: MFN-002

Assignment Code: MFN-001/AST-1/TMA-1 /20-21

Last Date of Submission: 30th November, 2020

Maximum Marks: 100

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

Section A - Descriptive Questions

(80 marks)

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

1. a) What do you understand by the term isomers? Give the properties of monosaccharides. (5)
b) Explain Ninhydrin and Sanger's reaction. (3)
c) Explain briefly why sucrose cannot have α and β forms? (2)
2. a) What are the major classes of enzymes and the types of reaction catalyzed by them? (5)
b) Give the structure of glucose. How would you classify a sugar as 'D' or 'L'? (3)
c) What are the various enzymes involved in the regulation of glycogenolysis? (2)
3. a) What is hydrogenation? What are the harmful effects of hydrogenation? (5)
b) Explain the physico-chemical properties of thiamine and riboflavin. (5)
4. Illustrate the following by giving name of the enzymes involved in the reactions:
a) Citric acid cycle (5)
b) β -oxidation of fatty acid (5)
5. a) What is the metabolic significance of HMP Pathway? (3)
b) How phospholipids are synthesized? What is its significance? (3)
c) Discuss the role of carnitine in transfer of fatty acids. (4)
6. a) Explain the metabolism of HDL with the help of a diagram. (5)
b) Give the composition of various plasma proteins. (3)
c) What is Niemann-Pick Disease? (2)
7. a) Indicate various reactions involved in urea cycle with their enzymes and coenzymes. (5)
b) How amino acids are classified according to the nature of their metabolic end products? (3)
c) What is the metabolic fate of amino acids after the removal of α -amino group? (2)
8. a) Give graphical representation of antioxidant defense system. (3)
b) Explain the homeostasis of calcium and vitamin D. (3)
c) Briefly explain the general mechanism of signal generation. (4)

Section B - OTQ (Objective Type Questions)

3. a) Define the following: (5)

- i) Mutarotation
- ii) Fehling's solution
- iii) Anaplerotic reactions
- iv) Type IIb hyperlipoproteinemia
- v) Amino acid pool

b) Give one word for the following: (5)

- i) Name any one enzyme whose concentration increases during:
 - a. Myocardial Infarction
 - b. Acute Pancreatitis
 - c. Renal Tubular Necrosis

- ii) Name defective enzymes of the following inborn error diseases:
 - a. McArdle's Disease
 - b. Primary hyperoxaluria

4. a) Describe the significance/role of following (10)

- i) Conversion of IMP to AMP and GMP
- ii) Synthesis of orotic acid
- iii) Oxygen free radicals
- iv) GPCR
- v) Fight or flight response

ASSIGNMENT 3
TMA-3
Food Microbiology and Safety

Course Code: MFN-003
Assignment Code: MFN-003/AST-3/TMA-3 /20-21
Last Date of Submission: 31st December, 2020

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) Describe the role of microbes in the food industry. (2)
b) What are the hazards to food safety? Explain each giving suitable examples. (4)
c) Illustrate the four stages of bacterial growth. (2)
2. a) What are the health related concerns of genetically modified food? (2)
b) Briefly explain the contribution of nutrition, temperature and moisture in growth of microorganisms. (3)
c) Briefly discuss any one physical methods of food preservation. (3)
3. a) Briefly discuss the microorganism involved and chemical changes occurring due to spoilage in the following: (6)
i) Fish
ii) Fruits and vegetables
iii) Bakery products
iv) Raw milk
b) What are mycotoxins? Elaborate on few important mycotoxins that affect humans. (2)
4. a) Give the symptoms, food involved and preventive measures of the following diseases: (2+2+2)
i) Shigellosis
ii) Botulism
iii) Cholera
b) What are naturally occurring toxicants? Illustrate the toxicants present in animal and plant food. (2)
5. a) How food additives are classified? Enlist food additives permitted to be used in our country. (4)
b) Name the adulterant and their ill effects in the following: (1+1)
i) Oil
ii) Milk
6. a) Enumerate the features/requirements of the following with regards to food safety in a food service establishment: (2+2)
i) Premises
ii) Storage
b) What food safety measures/factors a street food vendor needs to be educated about. Elaborate. (4)

7. a) Briefly discuss the working and role of various cleaning agents and disinfectants. (4)
- b) Describe the various packaging methods used nowadays in food industries. Give suitable food application of each method. (4)

8. a) What do you understand by nutrition labeling and nutrition claims. Explain giving appropriate examples. (4)
- b) Briefly discuss the principles of risk analysis, management and risk communication. (4)

9. a) What is HACCP? Discuss the benefits of HACCP. Enlist its principles. (6)
- b) List the important features of Food Safety and Standard Act 2006. (2)

10. Briefly discuss the role of the following in the area of food safety. (2x5=10)
 - i) BIS
 - ii) Agmark
 - iii) Codex Alimentarius
 - iv) WHO
 - v) ISO

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

1. Explain the following giving appropriate examples: (5)
 - i) Prions
 - ii) Flexible packaging
 - iii) Anti-nutritional factors
 - iv) Food contaminants
 - v) Artificial sweeteners

2. Describe the relationship between the following sets of terms: (2x5=10)
 - i) Food borne intoxication and food borne infection
 - ii) Pesticide residue and environment contamination
 - iii) pH and microbial growth
 - iv) Food packaging and Toxicity
 - v) O-R potential and spoilage of meat

3. Fill in the blanks : (5)
 - i) A few fermented dairy products areand
 - ii) Bacteria breakdown complex carbohydrates intowhich results inof foods.
 - iii) Listeriosis is caused by the pathogenic bacterium called.....
 - iv) Enterotoxigenic *E. coli* causes.....
 - v) Ascospore formingare responsible for spoilage in canned fruit products.

ASSIGNMENT 4
TMA-4
Public Nutrition

Course Code: MFN-006
Assignment Code: MFN-006/AST-4/TMA-4 /20-21
Last Date of Submission: 31st January, 2021

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. Each question carries equal marks. Answer all the questions.

1. a) Enumerate the health care delivery system in India. (2)
b) What are the health facilities available for the population at the following levels: (2+2+2)
 - i) Block level
 - ii) Village level
 - iii) Centre level
2. a) How is India's food security system working to improve nutritional status of the population? (2)
b) Briefly explain the different clinical forms of PEM. Give the consequences of PEM and the measures to prevent PEM. (2+2+2)
3. a) Briefly explain the classification of vitamin A deficiency. What strategies would you adopt to prevent vitamin A deficiency at community level? (4)
b) Enlist the consequences and preventive measures of iron and zinc deficiencies. (2+2)
4. a) Explain causes, symptoms and preventive measures of following disease: (4)
 - i) Beri-beri
 - ii) Scurvy
 - iii) Rickets
b) Explain the economic consequences of malnutrition. Enlist the various government nutrition programme for control of malnutrition in India. (4)
5. a) What do you understand by the term demography? Enumerate the various stages of a demographic cycle. (2)
b) Explain the following terms: (1+1+1)
 - i) Birth and death rate
 - ii) Net reproduction rate
 - iii) Infant mortality rate
c) What do you understand by food based strategies? Explain giving examples. (3)
6. a) What are the common measurements used in nutritional anthropometry? (3)
b) What do you understand by clinical and biochemical assessment? Enumerate giving examples. (2)
c) Briefly explain the various common methods used to assess dietary intake. (3)

7. a) What is nutrition monitoring? Briefly explain the function of organizations involved with nutrition monitoring in India. (4)
 b) Briefly explain the reasons for limited impact of nutrition programmes in reducing malnutrition in India? What is the priority actions required to rectify the situation? (4)
8. Write down the programme component, target group and their significance in context of combating malnutrition of following programmes: (2+2+2+2)
- i) ICDS
 ii) NIDDCP
 iii) NNACP
 iv) PMGY
9. a) Briefly explain the steps involved in designing a nutrition health programme. (4)
 b) Describe the techniques commonly used to conduct situational analysis. (2)
 c) Briefly explain the various theories of nutrition education. (2)
10. a) Enlist the various channels through which nutrition/health information can be communicated. Explain any one in detail. (2+2)
 b) Explain the contribution of nutritional education programme in changing the behavior of targeted population. Support with methods involved in measurement. (4)

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

1. Explain the following in context of combating malnutrition: (10)
- i) National Immunization Schemes
 ii) Mid day meal programme (MDM)
 iii) Urban and Rural Sanitation and strategies
 iv) Dietary diversification and food fortification
 v) Food security programmes
2. Explain the following terms: (5)
- i) Growth monitoring
 ii) Food Based Strategies
 iii) Social marketing
 iv) U5MR
 v) Formative research
3. Match the following: (5)
- | | |
|---------------------------|---------------------------------------|
| i) Kesari dhal | a) Riboflavin deficiency |
| ii) Neurological problems | b) Iodine |
| iii) Growth retardation | c) Zinc deficiency |
| iv) Angular stomatitis | d) Vitamin B ₁₂ deficiency |
| v) Cretinism | e) Lathyrism |

ASSIGNMENT 5
TMA-5
Principles of Food Science

Course Code:MFN-008
Assignment Code: MFN-008/AST-5/TMA-5 /20-21
Last Date of Submission: 28thFebruary, 2021

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 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. (2)

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) Briefly discuss on enzyme utilization in food industry. (2)
- c) What are natural pigments? Enumerate some of the novel sources of natural colourants. (2)

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)

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)
8. a) Enumerate the various factors influencing the heating under a microwave. Enlist any four industrial applications of microwaves. (4)
- b) Briefly describe the steps involved in rice processing. (2)
9. a) What are minimally processed foods? Enlist some of their advantages. (2)
- b) Define shelf life. Briefly explain the methods of shelf life examination. (2)
10. a) Briefly explain the different methods for developing a new product, giving suitable examples. (4)
- b) What is sensory evaluation? Elaborate on the different stages in the product cycle, at which sensory evaluation is used. (2+2)

Section B - OTQ (Objective Type Questions)

(20 marks)

1. Explain the following briefly in 2 – 3 lines: (5)
- i) Rheology
 - ii) Fermentation
 - iii) Food irradiation
 - iv) Sweeteners
 - v) Caramelization
2. What are the changes that occurs during: (10)
- i) Irradiation of meat
 - ii) Freezing of milk
 - iii) Freezing of egg
 - iv) Browning of canned fish
 - v) Storage of bread
3. Fill in the blanks: (5)
- i) Semolina is made from endosperm cells of hard durum.....
 - ii) Flavor is a combination of both and
 - iii)are antioxidant molecules found in plant sources often responsible for colour.
 - iv) The two forms of vitamin D are..... and
 - v) The most important use of cellulose is its... holding capacity.

ASSIGNMENT 6
TMA-6
Understanding Computer Applications

Course Code: MFN-010

Assignment Code: MFN-010/AST-6/TMA/20-21

Last Date of Submission: 15th March, 2021

Maximum Marks: 100

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

Section A - Descriptive Questions

(80 marks)

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

- 1) Create a MS Power point presentation on any topic of your interest, consisting of about 10-12 slides. Also write steps to perform following activities and prepare a CD for presentation and submit along with the assignment. It should involve all 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 of the slides
 - v. Insert picture in one of the slides
 - vi. Also, insert a video clip related to the topic at the end of the presentation

- 2) Suppose you are a manager of a cafeteria. Create a worksheet using excel maintaining the monthly expenses of the cafeteria under various heads, for a year. Your assignment should contain the following: (20)
 - i. Make an account of purchases of fruits and vegetables
 - ii. You must find average expense per month
 - iii. Automatically find the month when a minimum amount was spent
 - iv. Create a chart for head wise expenditure per month
 - v. Use formulas to find sum and average

- 3) a) What is software and hardware troubleshooting? Suggest various measures to solve or prevent problems related to computer software and hardware. (10)
b) Explain various advanced functions of MS word. (10)

- 4) 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)

- 5) Explain the following terms with the help of an example/diagram, if needed: (20)
 - a) Debugging
 - b) Control Panel
 - c) Ergonomics
 - d) Disk Defragmenter
 - e) Thesaurus
 - f) Networking
 - g) Macros
 - h) Active cell
 - i) Slide sorter view
 - j) ISP