M.Sc. (DFSM)

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

Ist Year Assignment Booklet

Assignments 1-6

July 2021 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 givenin 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 think 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 responseto the question.

Make sure that your answer:

a) is logical and coherent

b) has clear connections between sentences and paragraphs

c) is written correctlygiving 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 /21-22
Last Date of Submission: 15th November, 2021

Maximum Marks: 100

This assignment is based on Units 1 -12 of the MFN-001 Course. **(80 marks)**

Section A - Descriptive Questions

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

1. a) Differentiate between eukaryotic cells and prokaryotic cells. Draw and label their structure. (6)
   b) What do you understand by the term 'cardiac cycle'? (2)
2. a) What do you understand by 'intracellular fluid and extracellular fluid'? Give example of both. (4)
   b) What is Cell Mediated Immune System (CMIS)? Briefly describe the mode of action of CMIS. (4)
3. a) What do you understand by the term endocrine gland? Enlist the major hormones secreted by these glands. (4)
   b) Briefly discuss the parts of the brain referred to as the emotional brain. (4)
4. a) Briefly discussed the types of artificial kidney dialysis. (4)
   b) What do you understand by the term GFR? What are the factors affecting GFR? (4)
5. a) Give the composition and functions of: (2+2)
      (i) Gastric juice
      (ii) Pancreatic juice
   b) Briefly discuss the role of placenta and list the hormones produce by it. (4)
6. a) List the different organs involved in taste perception and explain the mechanism of taste perception. (4)
   b) Briefly explain how the neurons communicate with each other. (4)
7. a) List the two major hormones secreted by each of the following glands and explain their physiological effect: (2+2)
      (i)Anterior Pituitary
      (ii)Adrenal Gland
   b) What are the important functions of liver? Illustrate the structure of liver. (4)
8. a) What is the difference between active and passive transport? Name the types of both the transport. (4)
   b) Graphically illustrate the organs involved in respiration and describe the mechanism of respiration (4)
9. a) Briefly explain the mechanisms of circulation of blood in our body. (4)
   b) Differentiate between mitosis and meiosis. (4)
10. a) What do you understand by the terms 'Rh incompatibility' and 'Erythroblastosis foetalis'. Discuss why the risk of Rh incompatibility increases with more number of pregnancies. (4)
    b) Name three pairs of salivary glands. (2)
    c) What do you understand by the term blood pressure? How is it measured? (2)

Section B – OTQ (Objective Type Questions) **(20 marks)**

1. a) Define the following: **(5)**

i) Megaloblastic Anemia

ii) TNF

iii) Diabetes Insipidus

iv) Respiratory acidosis

v) Lymphocytes

b) Give the functions/role of the following structure/organs in our today: **(10)**

i) Pineal gland
ii) Cochlea
iii) Urethra
iv) Large intestine
v) Cholecystokinin-pancreozymin(CCK-PZ)
vi) Pyloric orfice
vii) Lungs
viii) Bundle of His
ix) Major Histocompatability complex (MHC)
x) Platelets

b) Match the following **(5)**

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

ASSIGNMENT 2
Nutritional Biochemistry (TMA-2)

Course Code: MFN-002
Assignment Code: MFN-001/AST-1/TMA-1 /21-22
Last Date of Submission: 30th November, 2021
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 is simple sugar? Give its general formula. (4)
   b) List any two chemical properties of the following: (2+2)
      i)Monosaccharide
      ii)Natural fats
   c) Explain briefly why sucrose cannot have α and ß forms? (2)
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)
   c) What is the significance of transaminase reaction? (2)
3. 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)
   c) Illustrate and explain the active transport of glucose. (2)
4. Illustrate the following by giving enzyme names involved in the reactions:
   a) Citric acid cycle (5)
   b) ß-oxidation of fatty acid (5)
5. a) What is hydrogenation? What are the harmful effects of hydrogenation? (4)
   b) Discuss the role of carnitine in transfer of fatty acids. (4)
   c) What are the various enzymes involved in the regulation of glycogenolysis? (2)
6. a) Explain the metabolism of LDL with the help of a diagram. (4)
   b) Briefly explain the general mechanism of signal generation. (6)
7. a) What is the metabolic significance of HMP Pathway? (4)
   b) What do you understand by the term ‘digestion’? Give the digestion of proteins in our body. (4)
   c) What is the metabolic fate of amino acids after the removal of α-amino group? (2)
8. 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.
   c) What is Niemann-Pick Disease? (2)

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

3. a) Define the following: **(5)**

i) Mutarotation

ii) Glycogenesis

iii) Anaplerotic reactions

iv) Type IIb hyperlipoproteinemia

v) Ketosis

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

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

vii) Name defective enzymes of the following:
   a) Phanylketonuria
   b) Gaucher's disease

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) G Protein-Coupled Receptor (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 /21-22
Last Date of Submission: 31st December, 2021
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) What is food microbiology? What aspect does it cover? (4)
   b) Define food hazard and enlist the four types of food hazards giving suitable examples. (4)
2. a) Describe the stages of bacterial growth. (4)
   b) What are the factors affecting the growth of microorganism? (4)
3. a) Enumerate the factors that make a food unacceptable in the context of food safety. (4)
   b)List four important factors that are involved in meat spoilage. (2)
   c) How do biological contaminants lead to food borne illness? (2)
4. a) Give the symptoms, food involved and preventive measures of the following diseases: (5)
      i) Salmonellosis
      ii) Botulism
   b) Enumerate the anti-nutritional compounds present in the food. (3)
5. a) What are food additives? Enlist their different classes and explain their role in foods? (4)
   b) Define the term food adulteration. Give the physical detection methods for the following adulterants: (4)
      i. Sugar solution in honey
      ii. Mineral oil in oils and fats
      iii. Chicory in coffee
6. a) What is HACCP? Briefly discuss the principles of HACCP. (4)
   b) Define the term packaging. Briefly discuss its importance in context to food quality. (4)
7. a) Explain briefly the natural occurring toxicants in plant foods. (4)
   b) Enumerate the various types of environmental food contaminants. (4)
8. a) List few ways by which food handlers may act as an important source of transmitting food borne illnesses. (4)
   b) How can hazards associated with the staff be minimized? (4)
9. a) Discuss the spoilage of following foods: (2+2)
      i. Poultry and Poultry Products
      ii. Cereal and Cereal Products
   b) What are “Prions”? Discuss any two diseases caused by prions? (4)
10. a) Briefly elaborate on the following food regulations/agreements in the area of food standardization and quality control. (4+4)
      i. Food Safety and Standard Regulation, 2011
      ii. Voluntary Based Product Certification

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

1. Explain the following giving appropriate examples: (5)
   i) Listeriosis
   ii) Water Activity
   iii) Ergotism
   iv) Food contaminants
   v) Artificial sweeteners

2. Describe the relationship between the following sets of terms (2x5=10)
   i) Nutrition Labeling and Nutrition Claims
   ii) Canning and Sterilization
   iii) Food Packaging and Food Toxicity
   iv) O-R potential and Spoilage of Meat
   v) Food Borne Intoxication and Food Borne Infection

3. Fill in the blanks : (5)
   i) A few fermented dairy products are ……..and …….
   ii) Bacteria breakdown complex carbohydrates into ……..which results in.....of foods
   iii) Moulds produce toxins called…….
   iv) Enterotoxigenic *E. coli* causes…….
   v) Reproductive process of yeast is known as ……

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, 2022
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) Discuss the concept and scope of public nutrition. (3)
   b) Briefly describe the role of a public nutritionist in health care delivery. (3)
   c) How is India's food security system working to improve nutritional status of the population? (2)
2. Elaborate on the available preventive measures to combat: (4+4)
   (i) Iron deficiency Anaemia
   (ii)Vitamin A deficiency
3. a) What are the commonly used methods for dietary assessment? Explain any one method. (1+3)
   b) Briefly describe the concept of nutrition monitoring and nutrition surveillance highlighting their activities. (4)
4. a) What do you understand by Protein Energy Malnutrition (PEM)? Briefly explain the sub-clinical forms of PEM. (4)
   b) Define the following: (1+1)
   (i) Life expectancy at birth
   (ii) Net reproduction rate (NRR)
   c) Briefly explain the concept of programme management and administration. (2)
5. a) Why do we need to evaluate a nutrition education programme? (2)
   b) List one programme under each of the following and briefly describe its components. (3+3)
   (i)Food supplementation programme
   (ii)Food security programmes
6. a) Discuss the role of dietary diversification and food fortification in combating public nutrition problems. (2+2)
   b) What are the phases of nutrition education process. Elaborate. (4)
7. a) What are the health facilities available for the population at the following levels: (2+2)
   (i)Village
   (ii)National
   b)Explain the dietary actions you would take to promote foods rich in iron. (2)
   c) List the factors which affect high fertility in India. (2)
8. a) Explain in brief the factors responsible for food pricing. (4)
   b) Explain the causes and consequences of malnutrition. (4)
9. a) Define the following and give the measures to prevent these conditions: (2+2+ 2+ 2)
   (i) Fluorosis
   (ii) Lathyrism
   (iii) Rickets
   (iv) Scurvey

10. a) Write down the programme component, target group and significance of following programmes in context of combating malnutrition: (4+4)
    i)PDS and TPDS
    ii)ICDS

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

1. Write short note on following: (10)
    i) National Immunization Schemes
    ii) Mid day meal programme (MDM)
    iii) Urban and Rural Sanitation and strategies
    iv) Goitre
    v) Pellagra

2. Explain the following terms: (5)
    i) Growth monitoring
    ii) Keratomalacia
    iii) Double Fortified Salt
    iv) U5MR
    v) Formative research

3. Match the following: (5)

    i) Tetanus is caused by a toxin produced by the bacillus..... .
    ii) Supplementary food should provide..... Kcal and..... g proteins per day/per child.
    iii) On adequate iodine intake, the median urinary iodine is..... .
    iv) BMI of .....is considered as an indicators of obese grade 2.
    v) Birth weight of a normal child is .....

ASSIGNMENT 5
TMA-5
Principles of Food Science

Course Code:MFN-008
Assignment Code: MFN-008/AST-5/TMA-5 /21-22
Last Date of Submission: 28th February, 2022

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) Define food science and technology and discuss its scope in the context of dietetics and food service management. (4)
   b) Discuss the role of sugars in the appearance of food. (4)
   c) Discuss the food application of microbial polysachharide. (2)
2. a) Briefly describe the application of proteins in the food industry. (4)
   b) Describe the role of enzymes and colors in the food industry. (4)
   c) Differentiate between colloids and crystalloids? Give examples. (2)
3. a) Differentiate between the following and give appropriate examples: (2+2)
      i) Sol and Gel
      ii) Foams and Emulsion
   b) Discuss the 12 D concepts used in sterilizing foods. (3)
   c) Describe the role of sensory evaluation during product life cycle. (3)
4. Explain any one alteration occurring in the following foods during processing.- (2.5 each)
      i) Green leafy vegetable (particularly Spinach)
      ii) Milk and milk product
      iii) Meat
      iv) Fish
5. a) What is role of food lipids in human diet? Mention important functional properties of fats and oils. (4)
   b) Briefly discuss the factors influencing lipid oxidation. (3)
   c) How antioxidants delay the onset of rancidity? (3)
6. a) Discuss the applications of the following in food industry: (3+3)
      i) Vitamin B_{12}
      ii) Vitamin A
   b) Discuss the nutritional role of various minerals. (4)
7. a) What do you understand by the term “concentration” in food industry? Explain various methods of concentration. (4)
   b) What changes can be observed in food due to concentration process? (3)
   c) Explain briefly steps involved in rice processing. (3)
8. a) Differentiate between microwave and conventional heating. (4)
   b) Discuss the role of moulds in fermentation. (4)
   c) List the factors that affect taste quality. (2)

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

1. Explain the following briefly in 2 – 3 lines: (5)
   i) Rheology
   ii) Cohesiveness
   iii) Food irradiation
   iv) Food Emulsifiers
   v) Whey Protein concentrates

2. What are the changes that occurs during: (10)
   i) Baking of cereal
   ii) Sprouting of legumes
   iii) Freezing of egg
   iv) Lipolysis in Lipid
   v) Storage of bread

3. Fill in the blanks: (5)
   i) The process of loss of liquid from gels causing their Shrinkage is called _____
   ii) Enzyme involved in cheese production is _____
   iii) The nutritional value of protein concentrate is expressed as _____
   iv) The dark pigment produced by maillard reaction are termed _____
   v) The tenderness of meat is tested with the help of _____

ASSIGNMENT 6

TMA-6

Understanding Computer Applications

Course Code: MFN-010

Assignment Code: MFN-010/AST-6/TMA/21-22

Last Date of Submission: For July, 2021 session is 15th March 2022

Maximum Marks: 100

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

Section A - Descriptive Questions (100 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 school canteen. Create a worksheet using excel maintaining the monthly expenses of the canteen 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) a) What is mail merge? Write down the basic steps involved in Mail Merge? How do you merge the main document and the data file in mail merge? (10)
   b) Discuss the commands for applying the following formatting concepts to the document: (10)
   i) Find and replace
   ii) Creating columns
   iii)View magnification
   iv)Format painter