



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

MAIN EXAMINATIONS

**SECOND YEAR FIRST SEMESTER EXAMINATIONS
FOR THE
DIPLOMA IN HUMAN NUTRITION AND DIETETICS**

COURSE CODE: DND 064

COURSE TITLE: FOOD PROCESSING AND PRESERVATION

DATE: 13TH DECEMBER 2023 TIME: 9AM-11 AM

INSTRUCTIONS TO CANDIDATES

Answer all questions in SECTION A and B

Answer only TWO questions in SECTION C

Read additional instructions under various sections

TIME: 2 HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over

SECTION A: ANSWER ALL THE QUESTIONS (10 MARKS)

1. Which of the following is not a monosaccharide?
 - A. Fructose.
 - B. Lactose.
 - C. Galactose.
 - D. Glucose.
2. What is the name of the food preservation process in which microorganisms are added to a food, and then create chemical compounds that inhibit the growth of bacteria?
 - A. Canning.
 - B. Freezing.
 - C. Fermentation.
 - D. Dehydration.
3. Which of the following **is not** a function of lipids in food?
 - A. Provide energy.
 - B. Enhance food flavors.
 - C. Acts as a solvent for carrying nutrients.
 - D. Enzyme composition.
4. When foods are exposed to air, vitamins _____ are destroyed.
 - A. A and E
 - B. A and C
 - C. D and B
 - D. K and C
5. The food which can survive without any perceptible signs of spoilage for a couple of weeks are known as _____ foods.
 - A. Perishable foods
 - B. Semi-perishable foods
 - C. Degradable foods
 - D. Non-perishable foods
6. Food packaging employs a variety of materials. Which of the following is a packaging material?
 - A. Non-rigid metal containers such as cans and drums.
 - B. Hard plastics as in pouches and wrappers.
 - C. Rigid card-board, paper and wood as in boxes.
 - D. Metal jars and bottles.

MATCH THE DESCRIPTIONS BELOW CORRECTLY. WRITE ON THE ANSWER BOOKLET.

7. Water activity (aw)	a. This is the water present in between the cells of a food items
8. Water content	b. This is the scientific measure of water present in a food item. It can be measured on wet weight basis or on dry weight basis.
9. Interstitial water	c. This is the water in excess of the water which forms part of the structure of the food and is available for microbial and enzymatic activities. It can be removed.
10. Moisture content	d. This is the total amount of water present in a food item.

E.g. 4=q

SECTION B: ANSWER ALL THE QUESTIONS (30 MARKS)

11. Distinguish among **physically bound, bulk water** and **chemically bound** water in food. (6 marks)
12. With the help of diagrams differentiate between **omega 3 fatty acids** and **omega 6 fatty acids**. (4 marks)
13. List **four(4) essential** amino acids and **four(4) non-essential** amino acids. (4 marks)
14. a. With examples in each, explain the differences between **fat-soluble** and **water-soluble vitamins**. (4 marks)
 b. State **2** and naturally occurring plant pigments, that may be added to foods to enhance the color. (2marks)
15. a. Describe **four (4)** methods of low temperature storage. (4 marks)
 b. Describe these terms as used in Cold Storage of Foods. (6marks)
 - i. Super cooling.
 - ii. Freeze drying.
 - iii. Cook freeze.

SECTION C: THIS SECTION CONTAINS THREE QUESTIONS. ANSWER ONLY TWO QUESTIONS. (30 MARKS)

16. Discuss the factors that influence food spoilage. (15 marks)
17. Explain the following preservation methods. (15 marks)
 - i. Drying.
 - ii. Freeze drying.
 - iii. Dehydration of foods.
18. Discuss **five (5)** food preservation methods based on high temperature. (15 marks)