



**NAMIBIA UNIVERSITY**  
**OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES SCIENCES**  
**DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS**

<b>QUALIFICATIONS:</b> BACHELOR OF SCIENCE IN AGRICULTURE	
<b>QUALIFICATIONS CODE:</b> 07BAGA	<b>LEVEL:</b> 7
<b>COURSE CODE:</b> APT621S	<b>COURSE NAME:</b> AGROPROCESSING AND TECHNOLOGY
<b>DATE:</b> JANUARY 2025	<b>PAPER:</b> 2
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER:</b>	MS. PAULINA NDINELAGO NAUPU
<b>MODERATOR:</b>	DR. VENAUNE HEPUTE

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer all the questions.</li><li>2. Write neatly and clearly.</li><li>3. Mark all answers clearly with their respective question numbers.</li><li>4. All written work <b>MUST</b> be done in blue or black ink.</li><li>5. No books, notes and other additional aids are allowed.</li></ol>

**PERMISSIBLE MATERIALS**

1. Calculator
2. Examination paper
3. Examination script

**THIS QUESTION PAPER CONSISTS OF 4 PAGES**  
**(Excluding This Front Page)**

**Section A: Multiple choice questions****[15 marks]**

Evaluate the statements below and select the most appropriate answer or phrase from the given possibilities. Fill in the appropriate letter next to the number of the correct statement/phrase on your ANSWER SHEET.

1. What is pasteurization primarily used for in food processing?
  - a) Destroy all microorganisms that contribute to food spoilage.
  - b) Destroy harmful microorganisms.
  - c) Destroy enzymes that contribute to food spoilage.
  - d) Destroy microorganisms and enzymes that contribute to food spoilage.
2. What type of microorganisms are typically used in fermentation pickling to break down carbohydrates and proteins in food?
  - a) Fungi.
  - b) Viruses.
  - c) Bacteria or yeast.
  - d) Algae.
3. Which of the following is NOT a result of fermentation in food processing?
  - a) Production of acids.
  - b) Production of alcohol.
  - c) Production of harmful bacteria.
  - d) Production of ethanol.
4. Why is it important for businesses to maintain food safety and hygiene practices?
  - a) To increase production efficiency.
  - b) To protect consumer health.
  - c) To reduce labor costs.
  - d) To reduce postharvest costs.
5. What is the primary goal of Good Agricultural Practices?
  - a) Maximizing agricultural yields.
  - b) Minimizing the use of pesticides.
  - c) Reducing the cost of agricultural production.
  - d) Ensuring the safety, quality, and sustainability of produce.
6. What is the primary benefit of freezing vegetables in terms of nutrition?
  - a) Decreases the sugar content in vegetables.
  - b) Prevents nutrient degradation by slowing down enzymatic reactions.
  - c) Maintains all vitamins and minerals from vegetables.
  - d) Adds artificial colouring to vegetables.
7. What is the main objective of the Namibia food safety policy?
  - a) Removing duplications in coordination by key ministries.
  - b) Promoting competition among government ministries.
  - c) Increasing the number of ministries involved in food safety.
  - d) Eliminating all government ministries involved in food safety.

8. Which organization is responsible for regulating all standards related to food safety in Namibia?
  - a) Ministry of Health and Social Services.
  - b) Ministry of Agriculture, Water and Land Reform.
  - c) Namibia Standard Institute.
  - d) Ministry of Trade and Industry.
9. Why is expanding food processing industries in developing countries considered beneficial for food security?
  - a) It increases the cost of food production.
  - b) It reduces post-harvest losses and increases overall food availability.
  - c) It leads to shorter shelf life of products.
  - d) It only benefits developed countries.
10. What advantage do value-added products created through food processing have in terms of distribution?
  - a) They require more storage space.
  - b) They are harder to transport.
  - c) They have a longer shelf life, making distribution easier.
  - d) They are more perishable.
11. When is dry cleaning most suitable in food processing?
  - a) When microorganisms are a primary concern.
  - b) When molds, pests, and foreign objects are the main concerns.
  - c) When cleaning wet surfaces.
  - d) When sterilization is required.
12. Which tool is recommended to prevent allergens from becoming airborne during dry cleaning?
  - a) Broom.
  - b) Shovel.
  - c) Vacuum.
  - d) Brush.
13. Which type of cleaning agent is specifically designed to prevent mineral deposits and peptize proteins?
  - a) Acids.
  - b) Surfactants.
  - c) Chelating agents.
  - d) Basic alkalis.
14. Which of the following is NOT considered a biological hazard in food safety?
  - a) Bacteria.
  - b) Viruses.
  - c) Parasites.
  - d) Chemicals.
15. Who established the Codex Alimentarius?



- a) United Nations.
- b) World Health Organization.
- c) Food and Agriculture Organization and the World Health Organization.
- d) Southern African Development Community.

### **Section B: True/False questions**

**[15 marks]**

Evaluate the statements below and indicate whether the statement is true or false. Write the word 'True' or 'False' next to the corresponding number on your ANSWER SHEET.

1. Critical Control Points (CCPs) are points in the food production process where control measures cannot be applied.
2. Establishing critical limits in HACCP involves setting the maximum and minimum values for various food safety parameters.
3. Polysaccharides are composed of repeated monomer units joined together by glycosidic bonds.
4. Starches are considered complex carbohydrates and are made up of amylose and amylopectin.
5. Amylose consists of a linear chain of several thousand glucose molecules.
6. Value is solely determined by the cost of a food product.
7. Processed food products are expected to have consistent quality, even if the raw materials are variable.
8. Food processors do not need to consider customer perspectives when determining product quality.
9. The darkening of potatoes can be an indicator of the frying endpoint during food processing.
10. Natural colour pigments are not affected by food processing and remain stable.
11. ISO 22000 is designed specifically for large food and beverage companies only.
12. ISO/TS 22003:2013 focuses on requirements for bodies that provide audits and certifications of food safety management systems.
13. Forward integration refers to a company in farming expanding its operations by acquiring processing facilities or distributors.
14. The merger of two dairy companies to form a larger cooperative is an example of horizontal integration.
15. Food storage and transportation are not part of food processing objectives.

### **Section C: Short/long questions**

**[70 marks]**

Please answer ALL the questions in this section.

#### **Short questions**

**[35 marks]**

1. Define the following terms
  - a) Minimum processing

**[10]**

- b) Shelf life
  - c) Food safety
  - d) HACCP (Hazard Analysis and Critical Control Points)
  - e) Ionizing radiation
2. Which food processing technique involves applying heat to destroy harmful bacteria in liquid foods? [1]
  3. Name the food processing technique that involves applying heat to prepare food products. [1]
  4. Discuss the primary goal of packaging in the food processing industry. [9]
  5. Provide a description of the two well-known ISO standards that pertain to food safety. [6]
  6. Explain the responsibilities of the Ministry of Trade and Industry as a regulatory body of the Namibia food safety policy. [3]
  7. Provide five (5) rationales for maintaining food safety and hygiene. [5]

**Long questions**

**[35 marks]**

8. Describe the key objectives of food processing in the food technology industry. [15]
9. Discuss in detail the Hazard Analysis Critical Control Point (HACCP) System. [20]

---

**END OF QUESTION PAPER**