



TECHNICAL UNIVERSITY OF MOMBASA

---

School of Applied and Health Sciences  
DEPARTMENT OF PURE AND APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

BACHELOR OF TECHNOLOGY IN APPLIED CHEMISTRY

AFS 4411: FOOD PROCESSING

END OF SEMESTER EXAMINATION

**SERIES: December 2024 SERIES**

**TIME: 2 HOURS**

**DATE: December 2024**

**Instructions to Candidates**

You should have the following for this examination

*Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

---

**Question ONE**

- a) Define the term 'Food safety' [2 marks]
- b) Describe the basic elements of taste [4 marks]
- c) State the importance of water activity in food stability [4 marks]
- d) Explain the importance of starch retrogradation as food quality indicator [4 marks]
- e) Describe the stability of Vitamin E in food processing [4 marks]
- f) Illustrate the loss of minerals in food undergoing processing [4 marks]
- g) Using relevant examples, show the application of leavening agents in baking [4 marks]

- h) Relate freezing rate to quality of frozen food [4 marks]

### **Question TWO**

Describe the following modification process in edible fats and oils

- a) Hydrogenation [ 6 marks]  
b) Interesterification [14 marks]

### **Question THREE**

- a) With the aid of a suitable diagram, describe the Moisture Sorption Isotherms for different foods and food processing aids [12 marks]  
b) Discuss the stability and safety of food with water activity between 0.25 and 0.8 [8 marks]

### **Question FOUR**

- a) Summarise the production process of Stirred yoghurt [12 marks]  
b) State Factors affecting the quality of yoghurt [8 marks]

### **Question FIVE**

Describe the following stages in processing of fruit jam

- a) Boiling [10 marks]  
b) Filling [5 marks]  
c) Packaging [5 marks]