



TECHNICAL UNIVERSITY OF MOMBASA

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

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN FOOD SCIENCE AND QUALITY ASSURANCE

AFS 2103: FOOD ENGINEERING 1

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 (30 Marks)

- a) Name TWO examples contaminants in each of the following categories of contaminants:
- | | |
|------------------------|----------|
| i. Metals | (1 Mark) |
| ii. Minerals | (1 Mark) |
| iii. Plant | (1 Mark) |
| iv. Animal | (1 Mark) |
| v. Chemical | (1 Mark) |
| vi. Microbial Products | (1 Mark) |
- b) Describe Process or Functional Layout under Plant layout of Food processing unit

- c) Describe Apron Conveyors as used in Food Processing Industries **(4 Marks)**
(7 Marks)
- d) State FIVE reasons why blanching is carried out during food processing of fruits and vegetables **(5 Marks)**
- e) Explain the FOUR different peeling methods used in Food Industries **(4 Marks)**
- f) Explain Ultrasonic Degassing under Ultrasonic Cleaning of food raw materials **(4 Marks)**

QUESTION TWO (15 Marks)

Discuss the FOUR main factors one should consider in acquisition of materials **(15 Marks)**

QUESTION THREE (15 Marks)

With an aid of clear labeled diagram(s) explain how the following cleaning methods are conducted:

- a) Aspiration cleaning (winnowing) **(8 Marks)**
- b) Screening **(7 Marks)**

QUESTION FOUR (15 MARKS)

Discuss the following under factors to be considered during bulk grain storage

- a) Temperature **(7 Marks)**
- b) Respiration **(5 Marks)**
- c) Moisture **(3 Marks)**

QUESTION FIVE (15 MARKS)

Discuss the following under common sections of food Industry layout and design.

- a) Reception **(3 Marks)**

- b) Processing Room **(5 Marks)**
- c) Laboratory (3 Marks)
- d) Toilet Facilities 4 Marks)