



UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

**B.Sc. ENVIRONMENTAL HEALTH SCIENCE AND
FOOD SCIENCE**

SEMESTER II

FINAL EXAMINATION PAPER - MAY 2017

TITLE OF PAPER: PRINCIPLES OF DAIRY PROCESSING

COURSE CODE: EHM324

DURATION: 2 HOURS

INSTRUCTIONS:

1. READ THE QUESTIONS CAREFULLY.
2. ANSWER ANY 4 QUESTIONS.
3. EACH QUESTION CARRIES 25 MARKS. WHERE A QUESTION IS SUBDIVIDED INTO PARTS, THE MARK FOR EACH PART IS SHOWN IN BRACKETS.
4. NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
5. WRITE NEATLY AND CLEARLY
6. BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

SPECIAL REQUIREMENTS: NONE

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

QUESTION 1

- a. State the objectives of homogenization. [4]
- b. Homogenised milk is more prone to lipolysis. Explain why this is so. [2]
- c. List 4 factors that may influence fat globule size during homogenisation. [4]
- d. After homogenisation, milk appears whiter than before. Explain why this happens. [3]
- e. List 5 factors that influence the efficiency of separation of milk fat during centrifugation. [5]
- f. Briefly describe the process of spray drying milk. [7]

[Total: 25 marks]

QUESTION 2

- a. Use diagrams to illustrate the manufacture of the following:
 - i. Cultured butter milk. [5]
 - ii. Hardened ice-cream. [5]
 - iii. Set type yoghurt. [5]
- b. Write notes on the following:
 - i. Lactoperoxidase system. [6]
 - ii. Lysozyme. [4]

[Total: 25 Marks]

QUESTION 3

- a. State the objectives of heat treatment of milk. [6]
- b. Why is it possible to use alkaline phosphatase to monitor the effectiveness of pasteurization? [4]
- c. Discuss the changes that occur during heat treatment of milk. [15]

[Total: 25 Marks]

QUESTION 4

Describe FIVE (5) different tests that are done on reception of raw milk at the milk processing plant and explain what information they provide. [25 marks]

[Total: 25 Marks]

QUESTION 5

- a. Discuss the cheese ripening process. Explain the role of starter bacteria and non-starter bacteria in the ripening process. [15 marks]
- b. Discuss the principles behind age thickening of evaporated milk products. [10 marks]

[Total: 25 Marks]

END OF EXAMINATION