



UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

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

SEMESTER II

RE-SIT EXAM

JUNE 2019

TITLE OF PAPER: PRINCIPLES OF DAIRY PROCESSING

COURSE CODE: EHS346

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 ONE

- a) An important objective of homogenization is usually to slow down creaming and thereby prevent partial coalescence. Explain how this objective is achieved. [5 marks]
- b) Other than reduction in fat globule size, state other effects of homogenisation of milk. [8 marks]
- c) Discuss the factors that cause the aggregation of fat globules under the following headings:
- i. Concentration of agglutinin. [5 marks]
 - ii. Low temperature. [4 marks]
 - iii. Heat treatment. [3 marks]

[TOTAL: 25 marks]

QUESTION TWO

Discuss the principles and purpose of the following tests done on milk at reception at the dairy:

- a) Acidity test. [5 marks]
- b) Resazurin test. [5 marks]
- c) Aerobic Mesophilic Count. [5 marks]
- d) Freezing point determination. [5 marks]
- e) Clot-on-boiling. [5 marks]

[TOTAL: 25 marks]

QUESTION THREE

- a) Explain the rationale for using alkaline phosphatase to monitor the effectiveness of pasteurization? [5 marks]
- b) Explain why casein proteins do not coagulate when heated below 100°C. [5 marks]
- c) Explain how to analytically distinguish between low and high pasteurization of milk. [15 marks]

[TOTAL: 25 marks]

QUESTION FOUR

Write notes on the following:

- a. Foam stability. [5 marks]
- b. Reverse osmosis. [5 marks]
- c. Lactoperoxidase system. [8 marks]
- d. Thermalisation. [7 marks]

[TOTAL: 25 marks]

QUESTION FIVE

- a) Outline the steps taken in the manufacture of cheddar cheese. [10 Marks]
- b) Briefly discuss similarities and differences between cheddar cheese and Gouda cheese. [15 marks]

[TOTAL: 25 marks]

END OF QUESTION PAPER