



**UNIVERSITY OF SWAZILAND**

**FACULTY OF HEALTH SCIENCES**

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

**SEMESTER II**

**SUPPLEMENTARY EXAMINATION PAPER JULY 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. Describe the principle behind the dye reductions test. [5 Marks]
- b. Explain the effect of adding water on the freezing point of milk. [2 marks]
- c. Explain the role  $\kappa$ -casein plays in stabilising the casein micelle structure. [5 marks]
- d. Explain why casein proteins do not denature when heated at temperatures below 100°C. [3 marks]
- e. Explain the role of proteins in the texture of ice cream. [10 marks]

**[Total: 25 marks]**

### QUESTION 2

- a. Outline the steps followed in the manufacture of Gouda type cheese. [10 marks]
- b. Discuss the difference between Gouda cheese and cheddar. [7 marks]
- c. What is the role of starter cultures in cheese making? [8 marks]

**[Total: 25 marks]**

### QUESTION 3

- a. Discuss the factors that influence the natural creaming of milk. [13 marks]
- b. Discuss the changes that take place in milk after homogenisation. [12 marks]

**[Total: 25 marks]**

### QUESTION 4

- a. Discuss the causes of variation in cows' milk composition. [8 marks]
- b. Describe a bacteriophage. [5 marks]
- c. Explain the impact bacteriophages may have on the dairy industry? State how this impact may be minimised. [12 marks]

**[Total: 25 marks]**

**QUESTION 5**

- a. Use a flow diagram to illustrate the manufacture of stirred-type yogurt. [7 marks]
- b. Describe the differences in the manufacture and properties of set- and stirred-type yogurts. [10 marks]
- c. State the important requirements for good quality butter. [8 marks]

**[Total: 25 marks]**

**END OF EXAMINATION**