



UNIVERSITY OF SWAZILAND

2nd SEM.2014/2015

FINAL EXAMINATION PAPER

**PROGRAMME: B.Sc. AGRICULTURAL EDUCATION YEAR 4, B.Sc.
ANIMAL SCIENCE YEAR 4**

COURSE CODE: AS 403

TITLE OF PAPER: DAIRY PRODUCTION AND TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ANY FOUR QUESTIONS

**THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR.**

QUESTION 1

- a) A dairy farmer has grown ample amount of Rhodes grass and green maize on separate plots that could feed his stock for a year if preserved.
- i. Explain to the farmer the objectives and principles of main ways of fodder preservation. **(12 Marks)**
 - ii. Advise him on the appropriate preservation systems including all the necessary steps and requirements. **(13 Marks)**

QUESTION 2

- a) A dairy farmer wants to make a plan on how to source replacement heifers. Advise him on possible options indicating the advantages and/or disadvantages of the options. **(10 Marks)**
- b) Identify and describe the milking parlour that is more popular. What are the main draw backs of the other common types of milking parlours? **(15 Marks)**

QUESTION 3

- a) How does the mammary cell number/population and activity differ in the following stages of lactation?
- i. Early lactation **(5 Marks)**
 - ii. The declining phase **(5 Marks)**
- b) Write short notes on the following.
- I. Lactose-malabsorbers **(5 Marks)**
 - II. Casein **(5 Marks)**
 - III. Starter cultures **(5 Marks)**

QUESTION 4

- a) Indicate the appropriate temperature and time combination for the following thermal processes:
- I. Low temperature long time pasteurization. **(4 Marks)**
 - II. Sterilization **(6 Marks)**

b) During the process of cheese manufacture explain how the following essential process steps can be carried out.

I. Clotting of the milk

(9 Marks)

II. Salting

(6 Marks)

QUESTION 5

a) Using a flow chart show the process steps of ice-cream making.

(10 Marks)

b) The dairy wastewater resulting from milk processing industries requires proper attention before disposal. Describe the proper treatment methods used nowadays and reasons that necessitates this management.

(15 Marks)