



2ND SEMESTER 2019/2020

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: B. SC. ANIMALS SCIENCE (DAIRY OPTION) YEAR IV

COURSE CODE: ASD402

TITLE OF PAPER: DAIRY TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY
THE CHIEF INVIGILATOR**

QUESTION 1

- a) Describe and illustrate milk triacylglycerides (10 Marks)
- b) Outline and illustrate the biosynthetic pathway for milk triacylglycerides in the mammary cell (15 Marks)

QUESTION 2

Explain and illustrate two examples in each case:

- a) Unsaturated fatty acids found in milk (6 Marks)
- b) Fat soluble vitamins found in milk (6 Marks)
- c) Essential amino acid found in milk whey (6 Marks)
- d) Pigment forming vitamins or vitamin precursors found in milk (7 Marks)

QUESTION 3

Given the following information about raw milk from five different farms, answer accordingly:

Farm	Corrected Lactometer Reading	Butter fat (%)	Solid Not Fats (%)
Buhle	28	3.8	9.4
Lubisi	17	2.3	6.6
Masi	37.4	3.8	12.7
Gede	27.5	2.1	8.2
Nkonko	29.0	1.5	12

- a) Calculate the specific gravity of the samples (5)
- b) Calculate the total solids of the samples (5)
- c) Explain which samples are adulterated and how (15)

QUESTION 4

Explain the major differences between the following:

- a) *Salmonella typhimurium* and *Lactococcus lactis ssp lactis* (8 Marks)
- b) The lactoperoxidase system and the hydrogen peroxide system (9 Marks)
- c) Yoghurt and Koumiss (8 Marks)

QUESTION 5

If you had a Jersey dairy farm and you were producing 500 litres of milk per week that has 5.5% butter fat, what products would make a business sense to produce, and also explain how are you going to produce them?

(25 Marks)