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2ND SEM. 2011/2012

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: 	B. Sc. ANIMAL SCIENCE DAIRY OPTION AND B.Sc. ANIMAL SCIENCE YEAR IV

COURSE CODE: 	APH 404/ASD 402

TITLE OF PAPER: 	DAIRY TECHNOLOGY

TIME ALLOWED: 	TWO (2) HOURS

INSTRUCTIONS: 	ANSWER ANY 4 QUESTIONS.

THIS PAPER MAY NOT BE OPENED UNTIL THE CHIEF INVIGILATOR HAS GRANTED PERMISSION.

Question 1

Briefly discuss the fermentation of the following dairy products:

a) Koumis   (8 Marks)

b) Yoghurt   (10 Marks)

c) Emasi   (7 Marks)

Question 2

Outline the principle and procedure for production of sweet cheese.   (25 Marks)

Question 3

a) Describe and illustrate the two anomers of milk lactose   (12 Marks)

b) Define whey and briefly discuss three different ways it can be

utilized   (13 Marks)

Question 4

a) Explain five major differences between caseins and whey

proteins.   (15 Marks)

b) Compare and contrast ice milk and ice cream.   (10 Marks)

Question 5

Milk from Siphofaneni dairies was analysed for proteins and lactose

concentrations and the following results were obtained:

i)   Absorbencies for protein standards

Absorbence	0.150	0.290	0.450	0.580	0.750
Protein concentration (μ/mL)	100	200	300	400	500

ii)   Absorbencies for different dilutions of milk protein samples

     a. $10^{-1} = 1.50$

     b. $10^{-2} = 0.55$

     c. $10^{-3} = 0.05$

iii)   Absorbencies for lactose standards

Absorbence	0.175	0.380	560	0.820	1.20
Lactose concentration (μ/mL)	200	400	600	800	1000

iv)   Absorbencies for different dilutions of milk lactose samples

     a. $10^{-1} = 1.99$

     b. $10^{-2} = 0.52$

     c. $10^{-3} = 0.03$

A. Calculate the concentration of protein in the milk samples   (10 Marks)

B. Calculate the concentration of lactose in the milk samples   (10 Marks)

C. Based on the results of these analysis, what dairy breed is probably kept at Sphofaneni and why do you say so.   (5 Marks)