UNIVERSITY OF ESWATINI

FINAL EXAMINATION PAPER

(2ND SEMESTER- 2018/2019)

PROGRAMME: B. Sc. ANIMAL SCIENCE (DAIRY OPTION) YEAR 4

COURSE CODE: ASD404/ASD 401

TITLE OF PAPER: DAIRY ANIMAL FEEDING

TIME ALLOWED: TWO HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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QUESTION 1

A recent study carried out at Masundvwini dairy farm found that the milking herd, with an average weight of 625 kg, produced 28 kg/day of milk containing **38 g/kg fat, 33 g/kg protein** and **43 g/kg lactose**. These cows were on a diet that supplied 120 MJ/day with metabolisability (q_m) of 0.6. Using the prediction equations by AFRC (1993) in **Appendix 3**, estimate the following:

a) Total metabolisable energy requirement of the cow. **(15 Marks)**

b) Energy balance and further discuss its appropriateness. **(10 Marks)**

QUESTION 2

In your field trip to Gege dairy farm, you noted that the dairy cows varied in terms of their body condition score (BCS). Describe the BSC of the cows shown in Appendices and further advise the manager of its impact on productivity. **(25 Marks)**

QUESTION 3

Eswatini Dairy Board report indicated that the number of small-scale dairy farmers in the Kingdom of Eswatini has declined over the last decade partly because of the high costs of feeding dairy animals. Discuss how the remaining small-scale farmers can cope with this problem. **(25 Marks)**

QUESTION 4

a) Describe the liquid feeding programmes of pre-weaned dairy calves and their effect on rumen development. **(15 Marks)**

b) Discuss the activity shown in Figure 1 in relation to passive immunity and future productivity of the calf. **(10 Marks)**

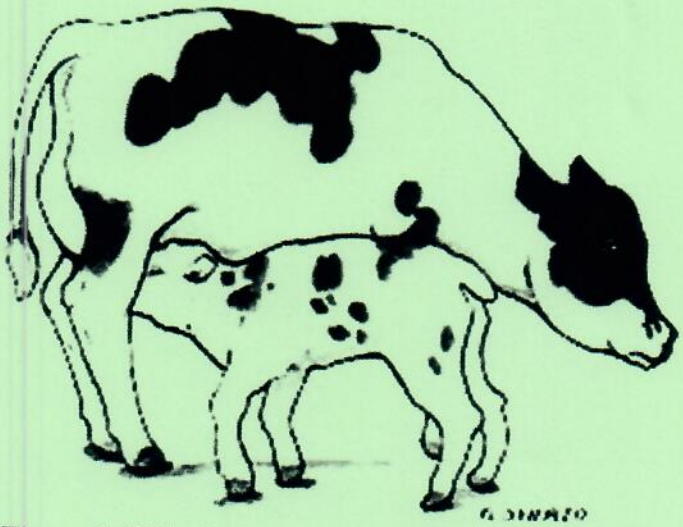

Figure 1: Holstein Frisian cow with its calf

QUESTION 5

Using the skills you acquired whilst pursuing your studies, describe how you would carry out **on-spot assessment** of the quality of the following common dairy feeds:

a) Colostrum **(5 Marks)**

b) Milk replacer **(5 Marks)**

c) Calf starter **(5 Marks)**

d) Grass hay **(5 Marks)**

e) Maize silage **(5 Marks)**

APPENDIX 1

Figure 2A: Holstein Frisian cow after calving

APPENDIX 2

Figure 2B: Holstein Frisian cow before calving

APPENDIX 3

$\mathbf{EV_L\ (MJ/kg)} = 1.509 + 0.0406F$ ..... ***Equation 1***

$\mathbf{EV_L\ (MJ/kg)} = 0.0384F + 0.0223P + 0.0199L - 0.108$ ..... ***Equation 2***

$\mathbf{E_m\ (MJ/day)} = 0.53(BW/1.08)^{0.67} + 0.0091BW$ ..... ***Equation 3***

$K_m = 0.35qm + 0.503$ ..... ***Equation 4***

$K_L = 0.35qm + 0.42$ ..... ***Equation 5***