



UNIVERSITY OF SWAZILAND
(2ND SEMESTER- 2016/2017)

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BSC ANIMAL SCIENCE (DAIRY OPTION)

COURSE CODE: ASD 401

TITLE OF PAPER: DAIRY ANIMAL FEEDING

TIME ALLOWED: TWO HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1

- a) Nutrition is one of the major changes that cause post-weaning stress, which subsequently leads to weight loss in dairy calves. Qualify the above statement and further discuss how dairy farmers could best adapt their calves to the change in nutrition as well as other environmental factors. **(15 Marks)**

- b) Briefly describe the nutrient composition of colostrum as opposed to transition milk. **(6 Marks)**

- c) Explain the importance of colostrum to dairy calves and when should it be fed. **(4 Marks)**

QUESTION 2

A 500 kg dairy cow producing 20 kg/day of milk containing 40 g/kg fat and 32 g/kg protein with an energy value of 3.14 MJ/kg is fed a ration consisting of grass silage and dairy concentrate. The net energy requirement for maintenance and the dry matter (DM) intake of this cow are 41.0 MJ/day and 15 kg DM/day, respectively.

- a) Given that the efficiency of utilisation of energy for maintenance (k_m) and lactation (k_L) is 0.70 and 0.60 respectively, calculate the metabolisable energy requirement for maintenance and lactation of this cow. **(5 Marks)**

- b) In relation to your answer above, indicate the metabolisable energy requirement of this cow. **(2 Marks)**

- c) How much metabolisable energy would be provided per kilogram of DM consumed? **(2 Marks)**

- d) With an aid of a diagram, briefly describe the energy partition in the animal. **(16 Marks)**

QUESTION 3

The proverb, “*What happens today is a result of what happened yesterday*” is well known by most dairy experts. Explain briefly how it best applies to the following;

- a) Milk fever (5 Marks)
- b) Delayed age at first calving (5 Marks)
- c) Poorly developed rumen at twelve weeks (5 Marks)
- d) High mortality of calves before weaning (5 Marks)
- e) Culling at first lactation (5 Marks)

QUESTION 4

- a) Raising dairy calves is one of the expensive investments in any dairy enterprise due to the high cost of milk-replacers. Discuss potential strategies that dairy farmers could adopt to reduce costs associated with milk feeding. (10 Marks)
- b) Encouraging intake of solids in the early life of dairy calves improves their performance once they are put into a pasture. Explain. (10 Marks)
- c) Describe how the calf must be introduced to solid feed and how much should be intake prior to weaning? (5 Marks)

QUESTION 5

- a) Discuss the challenges faced by the local small-scale farmers in relation to feeding their dairy herd. (15 Marks)
- b) Write a brief outline on how these problems can be addressed. (10 Marks)