



**UNIVERSITY OF ESWATINI
FINAL EXAMINATION PAPER
(1ST SEMESTER- 2019/2020)**

PROGRAMME: B. Sc. ANIMAL SCIENCE YEAR 3
B. Sc. ANIMAL SCIENCE (DAIRY OPTION) YEAR 3
B. Sc. AGRICULTURAL EDUCATION YEAR 3

COURSE CODE: ASC303

TITLE OF PAPER: NUTRITION, FEEDS AND FEEDING

TIME ALLOWED: TWO HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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BY THE CHIEF INVIGILATOR**

QUESTION 1

Ruminant animals mainly depend on grasses for their productivity. However, grasses vary in the manner they support ruminant animal production.

- a) Describe the grasses indicated in Figure 1 and explain their nutritive value in relation to ruminant production. **(15 Marks)**
- b) Name and categorise grasses that are planted by the UNESWA dairy farm. In addition, briefly describe how grasses are conserved at this farm. **(10 Marks)**

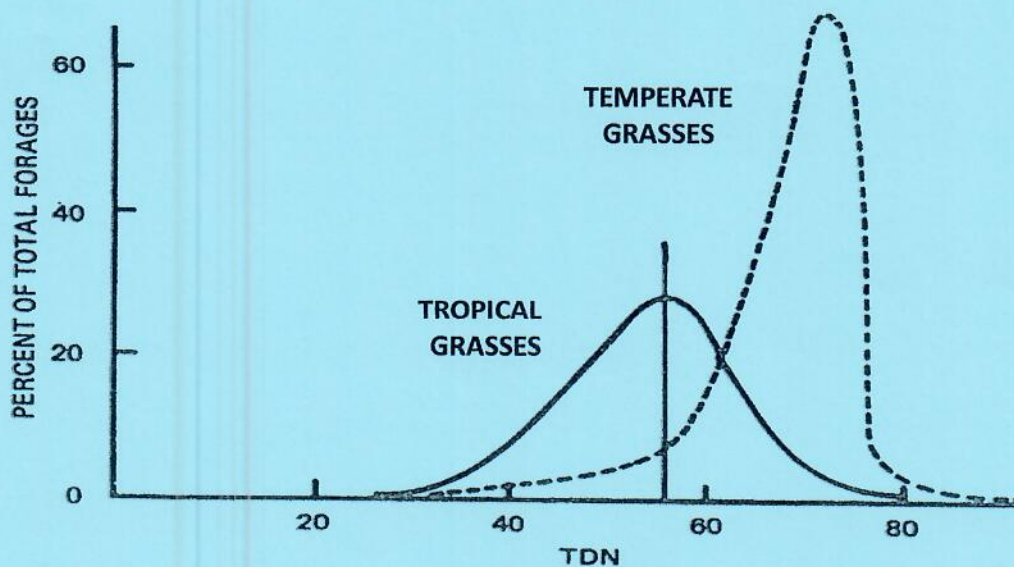


Figure 1: Proportion of tropical and temperate grasses

QUESTION 2

A small-scale pig farmer, struggling to feed her/his animals, received some soybean meal to supplement them. Describe the digestion and absorption of the major nutrient found in this feed.

(25 Marks)

QUESTION 3

Animal feeds have variable moisture content. Assume that you have two groups of dairy cows with voluntary feed intake of 20 kg when fed feeds containing moisture content of 80% and 30%, respectively.

- a) Which of these groups of animals will have high dry matter intake (DMI)? Justify your answer. **(5 Marks)**
- b) Explain the keeping quality of the feeds described above. **(5 Marks)**
- c) Advise on the likely performance of these groups of animals. **(5 Marks)**
- d) Briefly, discuss why moisture determination is key in animal feed manufacturing industries. **(10 Marks)**

QUESTION 4

Differentiate the following components found in animal feeds and give an example of each.

- a) Essential *versus* non-essential amino acids **(4 Marks)**
- b) Saturated *versus* non-saturated fatty acids **(5 Marks)**
- c) Protein *versus* non-protein nitrogen sources **(4 Marks)**
- d) Structural *versus* non-structural carbohydrates **(4 Marks)**
- e) Fat-soluble *versus* water-soluble vitamins **(4 Marks)**
- f) Macro-minerals *versus* micro-minerals **(4 Marks)**

QUESTION 5

An indigenous chicken farmer planted yellow maize (9% CP) to supplement her/his scavenging chickens in the winter season. Assuming that the farmer also has canola meal (36% CP) and dried mealworms (59% CP):

- a) Formulate two rations containing 18% CP with each of the protein sources. **(20 Marks)**

- b) Which of the rations would you prefer? Justify your answer. **(5 Marks)**