



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

PROGRAMME: **DIPLOMA IN AGRICULTURAL
EDUCATION III**
DIPLOMA IN AGRICULTURE III

COURSE CODE: **APH 301**

TITLE OF PAPER: **NUTRITION, FEEDS AND FEEDING**

TIME ALLOWED: **TWO (2) HOURS**

INSTRUCTIONS: **ANSWER ANY 4 QUESTIONS.**

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QUESTION 1

- a. As a ranch manager you are required to monitor feed resources for a beef herd.
Discuss briefly on the type of information you will require to carry out this exercise.
(10 marks)
- b. In livestock feeding, classification of feeds is very important, especially during ration formulation. Classify the following feeds into their three main categories and explain why they fall into those classes.
- i. Soybean meal, fishmeal and forage legumes **(5 marks)**
 - ii. Cereal grains, molasses and citrus pulp **(5 marks)**
 - iii. Grasses, maize stover and cereal straws **(5 marks)**

QUESTION 2

- a. A sheep consumed 1 kg/day of rye grass that has 75% dry matter (DM) and excreted 0.6 kg/day of faeces that has 45% DM. What is the DM digestibility of the feed expressed as a percent and coefficient? **(7 marks)**
- b. Lignin affects the utilisation of feeds by farm animals. Explain briefly how this happens and highlight the nutritive value of lignin? **(6 marks)**
- c. The dietary protein of growing pigs is higher than that of finishing pigs. Fully discuss the digestion of protein in these animals. **(12 marks)**

QUESTION 3

- a. Using a diagram, describe the partitioning of dietary energy in farm animals.
(20 marks)
- b. Which one of the various categories of dietary energy that you have described would you use to describe energy value of foods that you would feed to your feedlot cattle? Explain your choice.
(5 marks)

QUESTION 4

- a. The farm manager at UNISWA purchased bales of grass hay for the beef herd after pastures at Dalcrue were burned by wild fires. The farm manager decided to determine crude protein content of the grass hay and obtained the data indicated in the table below.

Table 1: Data on duplicate analysis of crude protein content of the grass hay using the Kjeldahl method.

	Sample ID	Weight of sample (g)	Volume of titre (mL)
Grass hay	A ₁	0.99	5.0
	A ₂	1.00	5.2
Blank	B	-	0.5

Acid normality = 0.1N

- i. Calculate the crude protein content of the grass hay.
(5 marks)
- ii. Give your comments and recommendations based on this analysis.
(5 marks)

b. Accurate moisture determination is critical in the feed industry for many reasons.

i. Briefly discuss five of these reasons. **(10 marks)**

ii. What can compromise accurate measurement of moisture in feeds?
(5 marks)

QUESTION 5

You are required to analyse protein content of dairy meal in the laboratory using the Kjeldahl method. Describe how you are going to prevent bodily harm during this analysis.

(25 marks)