



1ST SEM. 2020/2021

PAGE 1 OF 2

**UNIVERSITY OF ESWATINI
SPECIAL PAPER**

PROGRAMME: BSC. IN AGRICULTURAL EDUCATION YEAR III
BSC. IN ANIMAL SCIENCE YEAR III
BSC. IN ANIMAL SCIENCE (DAIRY OPTION)
YEARS III

COURSE CODE: ASC303

TITLE OF PAPER: NUTRITION, FEEDS AND FEEDING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

QUESTION 1

- a. Briefly, discuss why moisture and Ash determination are key in animal feed manufacturing industries. [5 Marks]
- b. The following Table (Table 1) shows the crude protein (CP) content of hay to feed the beef herd at UNESWA.

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

	Sample ID	Weight of sample (g)	Volume of titre (mL)
Grass hay	A1	0.99	5.0
	A2	1.00	5.2
Blank	B		0.5

Assumptions

Acid Normality = 0.1N

Lab dry matter = 95%

- i. Calculate the crude protein content of the grass hay. [10 Marks]
- ii. An indigenous chicken farmer planted yellow maize (9% CP) to supplement his/her scavenging chickens in the winter season. Assuming that the farmer also has canola meal (36% CP), formulate a 500 kg diet that is 22% CP using yellow maize and canola meal. [10 Marks]

QUESTION 2

Differentiate the following components found in animal feeds and give examples 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 3

Acidosis and bloat are common metabolic disorders in feedlot animals. Discuss common causes of these disorders and how you would advise the local farmers in preventing and treating them. [20 Marks]

Question 4

The anatomy of the GIT between ruminants and non-ruminants affect the way in which these species utilise feeds. Discuss, in detail, how ruminants digest carbohydrates found in their feed, with special emphasis on the different classes of carbohydrates. Explain the main end-products of digestion of these carbohydrates. How does these end-products affect milk production and milk composition?

[25 Marks]

Question 5

Describe, in detail, how pigs digest and absorb proteins found in soya bean meal.

[25 Marks]