



FACULTY OF NATURAL RESOURCE MANAGEMENT AND AGRICULTURE
DEPARTMENT OF ANIMAL SCIENCE

BACHELOR OF SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE

ANIMAL FEED PRODUCTION (LAS 4201)

SEMESTER 2 EXAMINATION

MAY/JUNE 2023

Time Allowed: 3 hours
Special Requirements: None
Examiner's Name: V. MDLONGWA

Instructions to Candidates:

1. The paper consists of seven questions, answer **ALL** questions in **Section A** and **any two** in **Section B**.
2. Marks for each question are shown in brackets. Where a question has subdivisions, the marks for each subdivision are given.
3. Illustrate your answer, where applicable, with large clearly labelled diagrams.

MARK ALLOCATION

QUESTION	MARKS
SECTION A	60
SECTION B	40
TOTAL ATTAINABLE MARKS	100

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Section A: ANSWER ALL QUESTIONS IN THIS SECTION

Question 1:

- a) Give **TWO** characteristics of two protein feeds of your choice. [4]
- b) State the important inherent problems in the use of grains for ruminant feeding. [4]
- c) Apart from being used as an energy source what else can molasses be used for in animal feed production. [4]
- d) Discuss the role of water in animal production. [8]

Question 2

- a) Name the three Volatile Fatty Acids derived from feed degradation in ruminants. [3]
- b) With the aid of a diagram, give a brief outline of the factors that affect volatile fatty acids in rumen digestion [7]
- c) Define the following terms used in Animal feed production;
 - i. Feed Nutrients [4]
 - ii. Total Digestible Nutrients [2]
 - iii. Metabolisable Energy [2]
 - iv. Gross Energy [2]

Question 3

- a) What are feed additives? [2]
- b) Give a brief outline of **FOUR** examples of feed additives. [8]
- c) Explain the expected response after the use of feed additives in dairy cattle. [10]

SECTION B: ANSWER ANY TWO QUESTIONS

Question 4

- a) Outline a phase feeding program in cattle. [10]
- b) Discuss the constraints/concerns associated with utilization of non-conventional feed resources in animal production. [10]

Question 5

- a) Discuss the significance of waste feed nutrients in piggery. [10]
- b) Discuss the feeding of lactating sows. [10]

Question 6

Discuss a detailed account of two metabolic disorders associated with livestock nutrition. [20]

Question 7

- a) Discuss factors that affect egg quality in layers. [10]
- b) Discuss factors that affect feed intake in broilers. [10]