FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

BACHELOR OF SCIENCE HONORS DEGREE IN ANIMAL SCIENCE

APPLIED ANIMAL NUTRITION (LAS 4203)

Semester II, Examination

June 2024

Time Allowed	:	3 hours
Special requirement	:	Calculator
Examiner	:	Mr. B Mpala

Instructions to Candidates:

1. This paper consists of six 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 PER SECTION	MARKS
SECTION A	**60**
SECTION B	**40**
TOTAL ATTAINABLE MARKS	**100**

This paper consists of three printed pages including this one.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION 1

a) Define the following terms used in animal nutrition:
   i). Diet [2]
   ii). Ration [2]
   iii). Complete ration [2]
   iv). *Ad libitum* feeding [2]

b) Briefly discuss the following nutritional management systems used in dairy production:
   i. Total Mixed Rations [4]
   ii. Unmixed or Component-fed Rations [4]
   iii. Pasture-based Feeding Systems [4]

QUESTION 2

a) Discuss three methods used in ration formulation. [10]

b) An indigenous chicken farmer planted yellow maize (9% CP) to provide additional food for her scavenging chickens during the winter season. Recently, the farmer purchased canola meal (36% CP) to mix with maize. Assist the farmer determine the mixing ratios required to create a 500 kg diet that contains 22% CP, using yellow maize and canola meal. [10]

QUESTION 3

a) Using examples, explain the following terms:
   i) Roughage [2]
   ii) Maintenance type roughages [2]
   iii) Non-maintenance type roughages [2]
   iv) Productive type roughages [2]

b) Discuss roughage processing methods used to improve the quality and nutritive value of roughages. [12]

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION 4

Write short notes on the following antinutritional factors found in plant feedstuffs and explain their adverse effects in livestock production and the management interventions for minimising their effects.

a) Tannins [10]
b) Protease inhibitors [10]

QUESTION 5

Acidosis and bloat are common nutritional disorders in feedlot animals. Discuss common causes, signs/symptoms of these disorders and how you would advise local farmers in preventing and treating them. [20]

QUESTION 6

Improper storage of cereal grains and oil meals can lead to the proliferation of fungi which produce mycotoxins that can be harmful to animals. Discuss the effects of aflatoxins on livestock productivity and health. [20]