THE NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF AGRICULTURE

B.Sc AGRICULTURE (ANIMAL SCIENCE) EXAMINATION

ANS 3502: ANIMAL NUTRITION

JANUARY 2024   **MARKS: 100**   **TIME: 3 HOURS**

INSTRUCTION: ANSWER ALL QUESTIONS

QUESTION 1

A. Explain the following nutritional terms; [6]

    i.   Phytonutrients

    ii.   Anti-nutrients

    iii.   Dietary fibre

B. Differentiate between ruminants and non-ruminants in terms of digestion and nutrition? [6]

C. Explain why maize stover is described as feed ingredient but not all of it components are digestible. [4]

D. Briefly explain **digestion** of carbohydrates from the mouth to the small intestines in a **named** non-ruminant animal. [10]

QUESTION 2

A. List any two mechanism of nutrient absorption and show their difference. [4]

B. With the aid of glycolytic pathway, discuss carbohydrate metabolism and describe the efficiency of energy captured by an animal from one mole of glucose. [30]

QUESTION 3

A. Define ration formulation and its significance in animal nutrition. [4]

B. A ration containing 15% crude protein (CP) is needed at the farm. Maize meal of 9% CP is to be mixed with soya bean meal of 40% CP. The total ration should weigh 500 kg. How much of each feed ingredient will be mixed to achieve the required 15% CP ration? [10]

C. Define three different systems of expressing nutrients in a feed. [6]

D. Assume lucerne was analysed to provide 25% CP, as fed. The lucerne contained 50% water (50% dry matter (DM)). What is the % CP of lucerne when expressed on DM basis? [5]

E. A high-moisture barley grain of 70% DM was analysed to provide 90% total digestible nutrient (TDN) on a DM basis. How much TDN does the barley provide, as fed? [5]

QUESTION 4

A. Briefly explain two possible metabolic disorders which can occur if intake of any given nutrient is significantly below or above daily needs of a named animal for a sufficient period and suggest how they can be treated.

    i.   Ketosis [5]

    ii.   Milk fever [5]

END!!!!