



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**THIRD YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE  
OF BACHELOR OF SCIENCE IN ANIMAL SCIENCE**

**2024/2025 ACADEMIC YEAR**

**SIAYA**

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COURSE CODE: AAB 1308

COURSE TITLE: Ration Formulation

EXAM VENUE:

STREAM: BSc. Animal Science, Y3, S2

DATE:

EXAM SESSION:

TIME: 2 HOURS

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Instructions:

1. Answer ALL the questions in section A and any TWO in section B.
  2. Candidates are advised not to write on question paper.
  3. Candidates must hand in their answer booklets to the invigilator while in the examination room.
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**SECTION A [30 MARKS]**

**Answer ALL questions from this Section.**

1. a. Explain the following terms:
  - i. As is basis [2 Marks]
  - ii. Roughage [2 Marks]
  - iii. Net Carbohydrate System [2 Marks]
  - iv. Palatability [2 Marks]
  - v. Non-protein Nitrogen [2 Marks]
2. a. Describe the three factors that influence nutrient requirements of livestock. [6 marks]
- b. Outline any two challenges that may be encountered when formulating rations for non-ruminant livestock using cotton seedcake. [4 marks]
3. a. What are the three conditions that a formulated ration should meet? [6 Marks]
- b. Differentiate between *nutrient allowance* and *nutrient requirements*. [4 Marks]

**SECTION B [40 MARKS]**

**Answer any TWO QUESTIONS from this Section.**

4. Discuss **four** physiological functions that determine the nutrient requirements of livestock. [20 Marks]
5. Demonstrate the **four** key steps that should be followed in formulating a balanced ration for livestock, giving appropriate examples. [20 Marks]
6. a. Using examples, discuss any the two factors that influence the dry matter content of feed ingredients. [10 marks]
- b. Argue the role of fiber in the diets of ruminant livestock. [10 Marks]