



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES  
THIRD YEAR SECOND SEMESTER UNIVERSITY EXAMINATION FOR THE  
DEGREE OF BACHELOR OF SCIENCE IN AGRIBUSINESS MANAGEMENT  
AND BACHELOR OF SCIENCE IN AGRICULTURAL EXTENSION AND  
EDUCATION**

**2024/2025 ACADEMIC YEAR  
SIAYA**

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**COURSE CODE: AAS 3321**

**COURSE TITLE: Ruminants and Non-ruminants**

**DATE:**

**TIME:**

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**INSTRUCTIONS TO CANDIDATES**

1. This paper is divided into two sections, **A and B**.
2. Answer **ALL** Questions in **SECTION A** and any Two in **SECTION B**
3. Candidates are advised not to write on question paper.
4. Candidates must hand in their answer booklets to the invigilator while in the examination room.

**SECTION A: ANSWER ALL QUESTIONS (30 MARKS)**

Q1.

- a) Compare and contrast absorption of fats in ruminants and non-ruminants. (3 marks)
- b) Outline the qualities used for grading eggs. (3 marks)
- c) State the most important farm records a dairy farmer in Kenya should possess on their farm. (3 marks)
- d) Why do ruminants need rumen by-pass protein? (3 marks)
- e) Differentiate between Somali and Merino sheep breeds. (3 marks)
- f) Name the popular layer and broiler breeds reared in Kenya. (3 marks)
- g) What are the key limitations to leather production industry in Kenya? (3 marks)
- h) List the observable signs during estrus in a sow. (3 marks)
- i) Illustrate the importance of meat grading to the farmer. (3 marks)
- j) Delineate the impact of body condition score (BCS) on reproduction in dairy animals. (3 marks)

**SECTION 2: ANSWER ANY TWO QUESTIONS (40 MARKS)**

- Q2. a) Discuss the key factors that will drive the Kenyan livestock industry in 2040. (8 marks)
- b) Describe important feed additives used in ruminants to support growth, feed efficiency and health. (12 marks)

- Q3. a) Describe the process of rumination in beef cattle. (7 marks)
- b) Show the key signs to look out for in rabbits before breeding. (5 marks)
- c) “Water is so common that its importance as a nutrient is often forgotten”. Support this statement. (8 marks)

- Q4) a) Describe the key nutrients that are fed to farm animals. (10 marks)
- b) Explain the gestation period in farm animals. (6 Marks)
- c) Discuss disease classification in livestock production. (4 Marks)

- Q5) a) Explain the importance of day-old chick management and the main consideration that should be made at this stage of growth. **(10 marks)**
- b) Discuss piglet feeding in the first 28 days of its life. **(5 marks)**
- c) Outline the importance of milk fever in ruminants. **(5 marks)**