



MACHAKOS UNIVERSITY

UNIVERSITY EXAMINATION FOR 2024/2025 ACADEMIC YEAR
SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCES
SECOND AND THIRD YEAR FIRST SEMESTER EXAMINATION FOR
BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION
BACHELOR OF EDUCATION (SCIENCE)
BACHELOR OF EDUCATION (SPECIAL NEEDS)
ANS 301: RUMINANT PRODUCTION

DATE: 24/1/2025

TIME: 2:00-4:00 P.M

INSTRUCTIONS: Answer question one and any other two questions

QUESTION ONE Compulsory (30 Marks)

- a) Highlight three differences between polygastric and monogastric animals (3 marks)
- b) Briefly highlight three characteristics of a named goat breed adapted for arid and semi-arid lands in Kenya (3 marks)
- c) Briefly discuss the contribution of the ruminant animals to the socio-economic development agenda in Kenya (3 marks)
- d) Describe four prominent characteristics of the dairy cattle (2 marks)
- e) Briefly discuss two control methods of internal parasites of sheep (2 marks)
- f) Highlight two symptoms and two control measures of each of following diseases
 - i) Rinderpest (2 marks)
 - ii) Bloat (2 marks)
- g) Outline the procedure of artificial insemination in dairy cattle (4 marks)
- h) With aid of a labeled graph, discuss the compensatory growth in beef cattle (3 marks)
- i) Explain three climate smart technologies adopted by ruminant farmers to cope with feed problems in arid lands (3 marks)
- j) Briefly describe how closed castration method is carried out on rams (3 marks)

QUESTION TWO (20 MARKS)

- a) Explain four animal-related factors that determine feed intake of ruminants (4 marks)
- b) Outline the procedure of determining the age of goats in a farm (4 marks)
- c) Discuss the basic principle of herd management for ruminants (4 marks)
- d) With aid of a well-labeled diagram, discuss the changes in milk yield in lactation period of cattle (8 marks)

QUESTION THREE (20 MARKS)

- a) Using appropriate illustrations where possible, discuss three types of grazing systems used in ruminant agriculture (6 marks)
- b) Using a schematic diagram, discuss a crossbreeding model required for improvement of milk production of the small east African zebu cattle (6 marks)
- c) Describe the general management of lambs from birth to weaning age (8 marks)

QUESTION FOUR (20 MARKS)

- a) Describe five management measures used to maintain ruminant animals in good health in a large commercial farm (5 marks)
- b) Stating one merit and one demerit of each method, describe two methods of determining the body liveweight of beef cattle (7 marks)
- c) Develop a grazing plan for 4-group herd structure in a 36-acre beef farm (State the necessary assumptions) (8 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss two common identification practices carried out on ruminant animals by pastoral farmers (4 marks)
- b) Describe the steps of the tanning process in a tannery (6 marks)
- c) Discuss the basic principles of camel management in arid lands in Kenya (10 marks)