



MURANG'A UNIVERSITY OF TECHNOLOGY
SCHOOL OF AGRICULTURE AND ENVIRONMENTAL
SCIENCES

DEPARTMENT OF AGRICULTURAL STUDIES

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR

OF SCIENCE IN AGRICULTURE

GAN 315 – ANIMAL NUTRITION

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question ONE and any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A – ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) Define the terms
- i. Metabolisable energy (ME) (2 marks)
 - ii. Digestible energy (DE) (2 marks)
 - iii. Heat increment (HI) (2 marks)
 - iv. Basal metabolism (2 marks)
 - v. Chelates (2 marks)
- b) Explain the four processing methods used during extraction of oil in oil seeds. (4 marks)
- c) List four sources of high protein feeds. (4 marks)
- d) State the anti-nutritive factors found in the following: (4 marks)
- i. Cotton seed cake
 - ii. Irish potatoes
 - iii. Sorghum
 - iv. Peanuts
- e) List any four advantages of using fats in the animal diets. (4 marks)
- f) Discuss two conditions caused by vitamin E deficiency. (4 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a) Discuss five types of feed additives. (10 marks)
- b) Explain five factors to consider before formulating a ration. (10 marks)

QUESTION THREE (20 MARKS)

Describe the digestion process in ruminants. (20 marks)

QUESTION FOUR (20 MARKS)

With an aid of a diagram, describe the wet milling process of maize and the resulting by-products. (20 marks)