



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

DEPARTMENT OF AGRICULTURE

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR
OF SCIENCE IN AGRICULTURE

GAN 415 – GENETICS AND ANIMAL BREEDING

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question ONE 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) Discuss conservation of animal genetics resources under the following:
- i. Ex-situ methods (5 marks)
 - ii. In-situ methods (5 marks)
- b) Explain five (5) applications of molecular marks in animal breeding. (10 marks)
- c) Describe any two (2) types of gene actions. (10 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

Discuss the selection methods listed below:

- a) Individual selection. (5 marks)
- b) Production of progenitors (5 marks)
- c) Collateral relatives (5 marks)
- d) Family selection (5 marks)

QUESTION THREE (20 MARKS)

Discuss application of molecular technologies in animal improvement under the following topics;

- a) Animal health (10 marks)
- b) Animal nutrition and growth (10 marks)

QUESTION FOUR (20 MARKS)

Describe the following mating systems

- a) Inbreeding (10 marks)
- b) Cross breeding (10 marks)