



**UNIVERSITY OF CHOICE
MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
MAIN CAMPUS
UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR
MAIN EXAMS
OF**

**BACHELOR OF SCIENCE IN AGRICULTURAL
EDUCATION AND EXTENSION AND RELATED
OPTIONS (ODEL)**

COURSE CODE: AAP 405

**COURSE TITLE: ANIMAL BREEDING AND
BIOTECHNOLOGY**

DATE: 25.04.2024

TIME 3-5PM

INSTRUCTIONS TO CANDIDATES

- i) Answer ALL questions in Section A and any TWO Questions in Section B
- i) Write answers to questions clearly and logically

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Pages. Please Turn Over

SECTION A: ANSWER ALL QUESTIONS (40 Marks)

QUESTION ONE

- a) Briefly discuss the application of genetics in animal breeding management.
(8 Marks)
- b) Explain the meaning of permanent environmental effect in the context of animal breeding
(4 Marks)

QUESTION TWO

Discuss briefly the applications of biotechnology in animal breeding.

(12 Marks)

QUESTION THREE

Briefly discuss the following:

- a) The pathways of selection in genetic improvement of animal populations
(8 Marks)
- a) The factors that affect the rate of genetic gain in an animal selection programme.
(8 Marks)

SECTION B ANSWER ANY TWO QUESTIONS(30 Marks)

QUESTION FOUR

Discuss effects of the following in a population of animals.

- a) Cross breeding scheme
(8 Marks)
- b) Linebreeding
(7 Marks)

QUESTION FIVE

Biotechnology in animal breeding perspective is the application of biological knowledge in improving animal population. Critically

discuss the above statement.

(15Marks)

QUESTION SIX

Discuss components of a sustainable closed nuclear breeding scheme for including areas where biotechnology could be used to improve rate of genetic gain.

(15Marks)