



FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

BACHELOR OF SCIENCE HONOURS IN ANIMAL PRODUCTION AND HEALTH

ANIMAL BREEDING (NAP 2203)

SEMESTER 2 MAIN EXAMINATION

April 2025

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: None
Examiner's Name: Mr D Mlilo

Instructions to Candidates:

1. The paper consists of six questions, answer **ALL** questions in **Section A** and **ANY TWO** in **Section B**.
2. Marks for each question are shown in brackets. Where a question has subdivisions, the marks for each subdivision are given.
3. Illustrate your answer, where applicable, with large clearly labelled diagrams.

MARK ALLOCATION

QUESTION	MARKS
SECTION A	60
SECTION B	40
TOTAL ATTAINABLE MARKS	100

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SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION 1

- a) Define the following terms as used in animal breeding:
- i. Animal breeding. [2 marks]
 - ii. Correlated characters. [2 marks]
 - iii. Estimated breeding value (EBV). [2 marks]
 - iv. Compensatory mating. [2 marks]
 - v. Genetic trend. [2 marks]
- b) Briefly describe the differences between qualitative and quantitative traits. [6 marks]
- c) List the 4 branches of genetics. [4 marks]

QUESTION 2

Write shorts on the following:

- i. Heritability. [5 marks]
- ii. Repeatability. [5 marks]
- iii. Genetic correlation. [5 marks]
- iv. Genotype x Environment interaction. [5 marks]

QUESTION 3

Write short notes on the following aids of selection, showing they differ from each:

- i. Mass selection. [5 marks]
- ii. Pedigree selection. [5 marks]
- iii. Progeny testing. [5 marks]
- iv. Genomic selection. [5 marks]

SECTION B: ANSWER ONLY TWO QUESTIONS IN THIS SECTION

QUESTION 4

Describe how the following affects the response to selection:

- | | |
|------------------------------------|-----------|
| i. Accuracy of genetic evaluation. | [5 marks] |
| ii. Selection intensity. | [5 marks] |
| iii. Generation interval. | [5 marks] |
| iv. Selection differential. | [5 marks] |

QUESTION 5

Using appropriate illustrations, describe the components of a breeding program. [20 marks]

QUESTION 6

Discuss the merits and demerits of cross breeding. [20 marks]

END OF QUESTION PAPER