



**FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE
DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH**

BACHELOR OF SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE

ANIMAL BIOTECHNOLOGY (LAS 4208)

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 FROM THIS SECTION

QUESTION 1

Write short notes on the following:

- i. Probiotics. [5]
- ii. Prebiotics. [5]
- iii. Freeze and vacuum drying. [5]
- iv. Mono clonal antibodies. [5]

QUESTION 2

Write short notes on the following

- i. Marker assisted selection. [5]
- ii. Quantitative trait loci (QTL). [5]
- iii. Direct markers. [5]
- iv. Linked markers. [5]

QUESTION 3

- a) State any **five** methods that can be used in site directed mutagenesis. [5]
- b) Discuss the benefits of using Multiple Ovulation and Embryo transfer (MOET) in animal breeding. [15]

SECTION B: ANSWER ONLY TWO QUESTIONS FROM THIS SECTION

QUESTION 4

Discuss the ethical concerns on genetically engineered foods and medicines. [20]

QUESTION 5

Using examples where possible, discuss the characteristics of stem cells according to their different classifications. [20]

QUESTION 6

Discuss the use of transgenic animals in animal production. [20]