

GWANDA STATE UNIVERSITY



FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

BACHELOR OF SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE

CLIMATE SMART AGRICULTURE LAS 4207

SECOND SEMESTER FINAL EXAMINATION

APRIL 2025

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: None
Examiner's Name: Dr. A.S. Hlatshwayo

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

This paper consists of three printed pages including this one

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION 1

- a. Which of the following forage crops are suitable for Climate-Smart Agriculture production?
- i) Three forage grasses. **[3 marks]**
 - ii) Three legume forages. **[3 marks]**
- b. Which two characteristics make forages superior crops? **[2 marks]**
- c. Which are the two major drivers of Climate Change? **[2 marks]**
- d. What are the benefits of Climate-Smart Agriculture? **[2 marks]**
- e. What is the importance of bush meal in livestock production? **[4 marks]**
- f. Which four tree species produce nutritious pods? **[4 marks]**

QUESTION 2

- (a) Define El Nino and La Nina. **[4 marks]**
- (b) What are the implications of El Nino and La Nina on agriculture production? **[3 marks]**
- (c) What are the sources of Climate Change data used by scientists? **[3 marks]**
- (d) Why is it important to adopt Climate-Smart Agriculture practices? **[5 marks]**
- (e) (i) What is the aim of Climate-Smart Agriculture? **[2 marks]**
- (ii) State the objectives of Climate-Smart Agriculture. **[3 marks]**

QUESTION 3

- a. State the major constraint on livestock production in semi-arid areas and how it can be mitigated. **[5 marks]**
- b. What are the advantages of adopting Climate-Smart Agriculture? **[4 marks]**
- c. What are the environmental benefits of bush meal? **[3 marks]**
- d. How does agroecology benefit livestock production in Climate-Smart Agriculture? **[8 marks]**

SECTION B. ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION 4

- a) In what ways is forage production a Climate-Smart Agriculture practice? **[5 marks]**
- b) Describe how a livestock farmer can adapt to Climate Change. **[15 marks]**

QUESTION 5

- (a) Describe how a farmer can remain sustainable in the face of Climate Change. **[10 marks]**
- (b) Explain why indigenous livestock breeds are considered Climate-Smart? **[10 marks]**

QUESTION 6

- (a) Outline five signs that indicate rapid Climate Change. **[10 marks]**
- (b) Explain why diversification of agricultural enterprises is Climate Smart. **[10 marks]**

END OF QUESTION PAPER

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