

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

June 2024

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. In a Climate-Smart Agriculture practice, name the following forage crops that can be grown for livestock:
- i) Three forage grasses [3 marks]
 - ii) Three legume forages [3 marks]
- b. What characteristics are associated with the forages? [2 marks]
- c. What are the major drivers of Climate Change? [2 marks]
- d. Give two benefits of Climate-Smart Agriculture. [2 marks]
- e. What are the benefits of bush meal in livestock production? [4 marks]
- f. Name any three pod bearing browse trees and state the importance of the pods in a Climate-Smart livestock production system. [4 marks]

Question 2

- a. Describe the El Nino and La Nina phenomenon and indicate their implication on agriculture production. [5 marks]
- b. What are the sources of data on Climate Change? [5 marks]
- c. Why is it necessary to adopt Climate-Smart Agriculture practices? [5 marks]
- d. What is the purpose of Climate-Smart Agriculture, and what are its objectives? [5 marks]

Question 3

- a. What is the major challenge on livestock production in semi-arid areas and how can this be mitigated? [5 marks]
- b. Why should Climate-Smart Agriculture be adopted? [4 marks]
- c. Besides addressing feed shortages, 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. Give reasons why forage production is a Climate-Smart Agriculture practice.

[5 marks]

- b. Discuss measures that a livestock farmer would take to adapt to Climate Change?

[15 marks]

Question 5

As an Animal Science graduate, what advice in terms of Climate-Smart Agriculture would you give to a farmer facing viability problems in a livestock enterprise?

[20 marks]

Question 6

Using examples, discuss the rapid signs of Climate Change.

[20 marks]

END OF QUESTION PAPER

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