

GWANDA STATE UNIVERSITY



FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

BACHELOR OF SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE

LAS 4207 CLIMATE SMART AGRICULTURE

SECOND SEMESTER

SPECIAL EXAMINATION PAPER

JUNE 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. What is the estimated increase in global temperature? [1 mark]
- b. Which signs indicate a decrease in the amount of snow cover in the northern Hemisphere? [1 mark]
- c. Where in the world can evidence of retreating glaciers be observed? [3 marks]
- d. What are the adverse effects of Climate Change on Agriculture? [3 marks]
- e. What is the aim of Climate-Smart Agriculture? [2 marks]
- f. Which are the two benefits of Climate-Smart Agriculture? [2 marks]
- g. Which four Climate-Smart Agriculture practices are beneficial to farmers? [4 marks]
- h. How does agroecology benefit forage production? Give four ways. [4 marks]

QUESTION 2

- a. Which crop can be grown under agroecology? Give one crop [1 mark]
- b. What is involved in herd management? [3 marks]
- c. Which four livestock species suit livestock diversification? [4 marks]
- d. Name the following:
 - (i) One forage grass [1 mark]
 - (ii) One fodder tree [1 mark]
 - (iii) Common name of *Opuntia ficus-indica* [1 mark]
- e. Give names of the following:
 - (i) One indigenous cattle [1 mark]
 - (ii) One indigenous small ruminant [1mark]
- f. Which one is a key indicator of Climate Change? [1 mark]
- g. How does agroecology spread risk in fodder production? [3 marks]
- h. Why is plant breeding a Climate-Smart practice? [3 marks]

QUESTION 3

- a. Which forage legume is suitable for dry land production? [1 mark]
- b. What is the benefit of fodder banking? [2 marks]
- c. How can value be added to crop residues? [1 mark]
- d. How can animal breeds be improved without the use of live breeding males? [1 mark]
- e. Name the following:
- (i) Two indigenous cattle breeds. [2 mark]
 - (ii) One indigenous sheep breed. [1 mark]
- f. Which four crude protein sources are found in farmers' localities? [4 marks]
- g. In what ways are indigenous livestock breeds Climate-Smart? [3 marks]
- h. Which reasons make fodder production important in semi-arid areas? [3 marks]

SECTION B. ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION 4

In what ways can the crop-livestock system of agriculture be taken into the future? [20 marks]

QUESTION 5

How does Climate Change impact on agriculture production? [20 marks]

QUESTION 6

In what ways can agroecology reduce risk of crop failure in fodder production? [20 marks]

END OF QUESTION PAPER

Copyright: Gwanda State University, 2025