



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATIONS: BACHELOR OF SCIENCE IN AGRICULTURE	
QUALIFICATIONS CODE: 07BAGA	LEVEL: 7
COURSE CODE: RRG611S	COURSE NAME: RANGELAND REGENERATION
DATE: JULY 2025	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER:	DR. JEROME BOYS
MODERATOR:	PROF. HILMA RANTILLA AMWELE

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer all questions.2. Please write neatly and legibly.3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.4. No books, notes and other additional aids are allowed.5. Mark all answers clearly with their respective question numbers.

PERMISSIBLE MATERIALS:
<ol style="list-style-type: none">1. None-programmable calculator

ATTACHMENTS
<ol style="list-style-type: none">1. None

**THIS QUESTION CONSISTS OF 3 PAGES
(Including This Front Page)**

QUESTION 1

Define the following with emphasis on rangeland science:

- 1.1. Sampling, (2)
 - 1.2. Problem plants, (2)
 - 1.3. Zero grazing, (2)
 - 1.4. Grazer Unit, (2)
 - 1.5. Browser Unit, (2)
 - 1.6. Rotational grazing, (2)
 - 1.7. Dominants, and (2)
 - 1.7. Benchmarks. (1)
- [15]

QUESTION 2

- 2.1. Name the three (3) primary and three (3) secondary determinants of vegetation. (6)
 - 2.2. Name any four (4) factors that determine the choice of a rotational grazing system. (4)
 - 2.3. Name any five (5) rotational grazing systems (5)
 - 2.4. Name any five (5) disadvantages of continuous grazing systems (5)
- [20]

QUESTION 3

- 3.1. Discuss five (5) reasons why a farmer would want to burn a piece of rangeland on his/her farm. (10)
 - 3.2. Discuss five (5) factors that will influence the effects of a rangeland fire. (10)
- [20]

QUESTION 4

- 4.1. Discuss how the following factors affect rangeland production.
 - Climate, (3)
 - Soils, (3)
 - Physiographic factors, and (3)

- Grass and condition. (3)

4.2. Explain how the effects of grazing can contribute to the retrogression of rangelands.

(3)

[15]

QUESTION 5

A farmer decided to determine grazing capacity in a single camp on his/her farm. The farmer clipped 40, (0.5m x 0.5m) quadrates with a TOTAL yield of 8 kg of grass after it was dried in an oven.

5.1. Calculate the grazing capacity from the dry matter yield for a year (365 days) in kg Animal Biomass / ha / year, using a 50% utilization factor, and 3% daily forage consumption. Show all your calculations. (5)

5.2. The camp is 80-ha and the farmer is planning to stock the camp with 1500 ewes with an average mass of 55kg. How many days can the farmer use this camp? (6)

5.3. The farmer prefers the grazing capacity to be calculated in ha/SSU. Please do it for the farmer? (4)

[15]

QUESTION 6

You have done a woody survey in a 50m x 2.5m belt transect and recorded the following plants with their plant heights:

25 x *D. cinerea*: 2.8m height/plant

17 x *G. flava*: 2.3m height/plant

13 x *B. albitrunca*: 4.7m height/plant

6.1. What is the plant density (plants/ha) on a species basis? (6)

6.2. What is the total plant density (plants/ha)? (2)

6.3. What is the total plant density (Tree Equivalents/ha)? (5)

6.4. Why are there more Tree Equivalents (TE)/ha than plants/ha? (2)

[15]

END OF QUESTION PAPER