



**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: JUNE 2025	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST 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 PAPER CONSISTS OF 3 PAGES
(Including This Front Page)**

QUESTION 1

Define the following with emphasis on rangeland science:

- 1.1. Large Stock Unit (LSU), (3)
- 1.2. Bush thickening, (2)
- 1.3. Indicator plants, (2)
- 1.4. Stocking rate, (2)
- 1.5. Utilization, (2)
- 1.6. Species diversity, (2)
- 1.7. Prominent plants, and (1)
- 1.8. Faithful species. (1)

[15]

QUESTION 2

- 2.1. Name the five (5) biomes in Namibia ranking them from highest plant density to least plant density. (5)
- 2.2. Name five (5) reasons for burning the rangeland, using a controlled fire. (5)
- 2.3. Name any five (5) advantages of rotational grazing. (5)
- 2.4. Name any five (5) disadvantages of fire in rangelands. (5)

[20]

QUESTION 3

- 3.1. Discuss the plant and soil characteristics used for the determination of trend and condition of rangelands. (10)
- 3.2. Discuss 5 factors that can lead to the increase in undesirable plants in a rangeland ecosystem. (10)

[20]

QUESTION 4

4.1. Discuss a rangeland benchmark in full with special emphasis on its:

- Characteristics, (3)
- The need, (3)
- Usefulness, (3)
- Size, and (3)

- Area to construct a benchmark. (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 15 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 a 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

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

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

3 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