



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES**

**DEPARTMENT OF NATURAL RESOURCE SCIENCES**

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| <b>QUALIFICATION: BACHELOR of NATURAL RESOURCE MANAGEMENT HONOURS</b> |                                       |
| <b>QUALIFICATION CODE: 08BNRH</b>                                     | <b>LEVEL: 8</b>                       |
| <b>COURSE CODE: RGE811S</b>   | <b>COURSE NAME: RANGELAND ECOLOGY</b> |
| <b>SESSION: JULY 2025</b>   | <b>PAPER: THEORY</b>                  |
| <b>DURATION: 3 HOURS</b>  | <b>MARKS: 100</b>                     |

| <b>SECOND OPPORTUNITY EXAMINATION QUESTION PAPER</b> |                     |
|--|---------------------|
| <b>EXAMINER(S)</b>                                   | Prof. Ben Strohbach |
| <b>MODERATOR:</b>                                    | Dr Absalom Kahumba  |

| <b>INSTRUCTIONS</b>  |
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| <ol style="list-style-type: none"><li>1. Answer <b>ALL</b> questions.</li><li>2. Candidates must correctly number their responses on the ANSWER sheet.</li><li>3. Candidates are allowed to use calculators.</li></ol> |

**THIS QUESTION PAPER CONSISTS OF 3 PAGES (Including this front page)**

**Question 1:** [20]

Define the following terms in Rangeland Science context.

- 1.1. Savanna (3)
- 1.2. Biome (3)
- 1.3. Vegetation/Vegetation type (2)
- 1.4. Evapotranspiration Tree Equivalent (ETTE) (2)
- 1.5. Stability (2)
- 1.6. Resilience (3)
- 1.7. Grazing capacity (3)
- 1.8. Stocking rate (2)

**Question 2:** [5]

Explain how vegetation in good condition is more beneficial as opposed to vegetation in bad condition

**Question 3:** [15]

The way a grass grows is closely linked to the way it reacts to different levels of grazing. How can this be used in effective rangeland management?

**Question 4:** [25]

Discuss different forms of rangeland degradation and possible restoration techniques of each of those forms of degradation.

**Question 5:** [10]

Land Tenure has a distinct influence on effective rangeland management in Namibia. Discuss the main land tenure systems and problems associated with these particular land tenure systems.

**Question 6:** [10]

Discuss the importance of cultivated pastures in a livestock farm set-up, factors that should be considered before embarking its establishment and some species that are most commonly cultivated in Namibia under dryland or irrigation?

**Question 7:**

**[15]**

A farmer decided to determine the grazing capacity in a camp on his/her farm. The farmer clipped 40 ( $1\text{m}^2$ ) quadrates with a yield of 25 kg of grass after it was dried in an oven.

8.1. Convert the clipped grass biomass to kg/ha. Show all your calculations. (3)

8.2. Calculate grazing capacity in kg Animal Biomass / ha / year, using a 50% utilization factor. Show all your calculations. (4)

8.3. The camp is 80 ha and the farmer is planning to stock the camp with 1500 ewes with an average mass of 55kg for 240 days. How will you advise the farmer and should he/she go ahead with the plan? Show all your calculations (5)

8.4. What will be the correct stocking density of sheep on the 80 ha camp for the planned 240 days? Show all your calculations. (3)