



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF AGRICULTURE AND NATURAL RESOURCE SCIENCES

DEPARTMENT OF NATURAL RESOURCES SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCES MANAGEMENT	
QUALIFICATION CODE: 08BNRH	LEVEL: 8
COURSE CODE: RGE811S	COURSE NAME: RANGELAND ECOLOGY
DATE: JUNE 2023	
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Jerome Boys and Prof Ben Strohbach
MODERATOR:	Dr Absalom Kahumba

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination question paper
2. Answering book
3. Calculator and Ruler

THIS QUESTION PAPER CONSISTS OF 2 PAGES (Excluding this front page)

Question 1: [20]

Define the following terms in Rangeland Science context.

- 1.1. Ecosystem (3)
- 1.2. Biome (3)
- 1.3. Veld/Vegetation type (2)
- 1.4. Plant association (2)
- 1.5. Plant community (2)
- 1.6. Carrying capacity (3)
- 1.7. Grazing capacity (3)
- 1.8. Livestock farmer (2)

Question 2: [10]

Discuss the Dwarf Shrub Savanna in detail with focus on: (2)

- 2.1. Its location in Namibia, (2)
- 2.2. Broad plant composition, (2)
- 2.3. Adaptability of plants, (2)
- 2.4. Grazing/fodder availability throughout the year and (2)
- 2.5. Its suitability for livestock farming. (2)

Question 3: [20]

Discuss the growth and development of a grass plant in detail with focus on:

- 3.1. Growth point development (2)
- 3.2. Growth reserves (3)
- 3.3. Root growth (3)
- 3.4. Growth cycle (12)

Question 4: [20]

Discuss the different forms of rangeland degradation and possible techniques on how to restore these degraded rangelands from each form of degradation.

Question 5: [5]

Explain how veld in good condition is more beneficial as opposed to veld in poor condition.

Question 6: [5]

What are the consequences of grazing a specific camp/area in the summer year after year in the Dwarf Shrub Savanna with sheep only?

Question 7: [5]

Name any five (5) vegetation/veld types that fall in the Tree and Shrub Biome in Namibia.

Question 8: [15]

A farmer decided to determine grazing capacity in a single camp on his/her farm. The farmer clipped 40, 1m² 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. (3)

8.2. Calculate grazing capacity in kg Animal Biomass / ha / year, using a 50% utilization factor. (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? Can he go ahead or not? (5)

8.4. What will be the correct number of sheep that can be kept in the 80 ha camp for the planned 240 days? (3)