NAMIBIA 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:	**LEVEL:** 8
COURSE CODE: RGE811S	**COURSE NAME:** RANGELAND ECOLOGY
DATE: JULY 2023	
DURATION: 3 HOURS	**MARKS:** 100

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

INSTRUCTIONS
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. Evapotranspiration Tree Equivalent (ETTE) (2)
1.5. Plant community (2)
1.6. Carrying capacity (3)
1.7. Grazing capacity (3)
1.8. Livestock farmer (2)

Question 2: **[15]**

Discuss the Highland Savanna in detail with focus on:

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, (2)
2.5. Its suitability for livestock farming and (2)
2.6. Adjacent savannas (5)

Question 3: **[10]**

Discuss the growth and development of a Karoo Dwarf Shrub in detail with focus on:

3.1. Growth point development (2)
3.2. Growth reserves (3)
3.3. Reasons for slow growth rate (4)
3.4. Active growth time (1)

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 a poor condition.

Question 6: **[10]**

Discuss the importance of cultivated pastures in a livestock farm set-up, factors to consider before embarking its establishment and some species that are most commonly cultivated in Namibia under dry land or irrigation.

Question 7: **[5]**

Name any five (5) characteristics of good pasture plants from a nutritional point of view.

Question 8: **[15]**

A farmer decided to determine grazing capacity in a single camp on his/her farm. The farmer clipped 40, (0.5 x 0.5m^2) quadrates with a yield of 15 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 advice 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)