



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF AGRICULTURE AND NATURAL RESOURCE SCIENCES

DEPARTMENT OF NATURAL RESOURCE SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCES MANAGEMENT (NATURE CONSERVATION)	
QUALIFICATION CODE: 07BNRS	LEVEL: 6
COURSE CODE: REM611S	COURSE NAME: RANGELAND ECOLOGY AND MANAGEMENT
DATE: JUNE 2025	
DURATION: 3 HOURS	MARKS: 150

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr. E. N. Nghalipo
MODERATOR:	Prof. B. Strohbach

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer all the questions.2. Read all the questions carefully before answering.3. Make sure your name and surname, question number and the date appear on the answer script.4. Give special attention to the manuscript instructions.

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

QUESTION 1

Describe the following terms and phrases fully, as applied to Rangeland Ecology and Management.

- 1.1 Rangelands assessment (2)
- 1.2 Carrying capacity (2)
- 1.3 Stocking rate (2)
- 1.4 Bush encroachment (2)
- 1.5 Continuous Grazing (2)
- 1.6 *Brittle environment* (2)
- 1.7 Primary succession (2)
- 1.8 Climax community (2)
- 1.9 Prescribed Fire (2)
- 1.10 Adaptive management (2)

[20]

QUESTION 2

- 2.1. Mr. Joshua Martin recently acquired a farm between Okahandja and Otjiwarongo and wants to transform the farm into a wildlife sanctuary. As a Natural Resources Management student, you know that sustainable rangeland management is centred around four **general principles** of which two are: (1) Grasses need an adequate recovery period and (2) Rangeland improvement through bush control. (15)

In your own words explain to Mr. Martin **what the above principles mean, how they can be implemented and their importance in achieving** sustainable rangeland management.

[15]

QUESTION 3

- 3.1. You have been selected to represent Namibia at a Rangeland symposium in Nairobi, Kenya. Rangeland ecologists around the world are keen to know some of the **threats affecting Namibian rangelands and how they can be managed/mitigated.** (20)

[20]

QUESTION 4

- 4.1. You are the newly appointed Warden of Etosha National Park. You are given three years of veld monitoring data for one habitat type and are required to interpret them. (15)

The data you have are as follows:

Results of 200-point step-point survey for the tree and woodland Savanna habitat type:

Year	Decreaser	Increaser I	Increaser II a	Increaser II b	Increaser II c
2022	90	50	20	20	20
2023	80	70	30	10	10
2024	100	60	20	10	10

Use the Ecological Index Method to compare veld conditions for the tree and woodland savanna between 2016-2017-2018.

[15]

QUESTION 5

- 5.1 High Production Grazing (HPG) is a system designed to leave sufficient leaf biomass to promote rapid plant regrowth. This approach is reported to be more effective in arid savannas and grasslands. (10)

Explain the reasons behind its effectiveness in these environments.

[10]

QUESTION 6

- 6.1 Grazing value is an important aspect of forage resources. Name and clearly describe the six aspects of the grazing value (13)

- 6.2 What can be concluded regarding the grazing status of a rangeland if you find a lot of? (3)

- (a) Increaser I grasses
- (b) Increaser II grasses
- (c) Decreaser grasses

- 6.3 Name 6 grass species that make up the "Namibian six-pack" grasses. (4)

[20]

QUESTION 7

- 7.1 Reports on Namibian rangelands indicate that approximately 45 million hectares are affected by bush encroachment, while other regions exhibit high levels of bare ground. Discuss the socio-economic implications of these findings for Namibia. (10)
[10]

QUESTION 8

- 8.1 Landscape Function Analysis (LFA) is a widely recommended approach for rehabilitation work in rangelands, the mining industry and conservation. Explain why this approach is recommended. (10)
- 8.2 What aspects does LFA assess? (2)
- 8.3 What does the presence of fewer patches and more inter-patch areas suggest about the condition of an ecosystem? (3)
- [15]

QUESTION 9

- 9.1 Using a sketch/diagram to illustrate and explain the secondary ecological succession process. (10)
[10]

QUESTION 10

- 10.1 Game counts are a vital component of wildlife management in national parks, conservancies, and game reserves, and are typically conducted on an annual basis. Discuss the significance of game count data in informing effective wildlife management practices. (10)
- 10.2 Mention five **ground** game count methods. (5)
- [15]

Total marks: 150

The END