



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	
QUALIFICATION CODE: 07BNRS	LEVEL: 6
COURSE CODE: REM611S	COURSE NAME: RANGELAND ECOLOGY AND MANAGEMENT
DATE: JUNE 2024	
DURATION: 3 HOURS	MARKS: 150

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

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

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

QUESTION 1

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

- 1.1 Rangelands (2)
- 1.2 Carrying capacity (2)
- 1.3 Stocking rate (2)
- 1.4 Bush encroachment (2)
- 1.5 Rotational Grazing (2)
- 1.6 Pioneer species (2)
- 1.7 Primary succession (2)
- 1.8 Climax community (2)
- 1.9 Fire regime (2)
- 1.10 Adaptive management (2)

[20]

QUESTION 2

- 2.1. Ms. Twapandula Martin recently acquired a farm between Otavi 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 centered around four **general principles** of which two are: (1) Know your grasses and know which grasses livestock/wildlife prefer to eat and (2) Grasses need an adequate recovery period. (15)

In your own words explain to Ms. 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 Nevada, USA. 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 for NamibRand Nature Reserve; you are to rent a 3000-ha portion of the reserve for the following year and want to know how many springboks can sustainably be stocked on this portion. A grass biomass assessment indicated that the farm has on average 600 kg dry grass material per ha. An average springbok in this reserve eats 2 kg of dry grass per day. (10)

Assuming a utilization factor of 0.35, how many hectares are required per springbok on this farm? (4)

4.2 How many springboks can be stocked sustainably on this reserve? (2)

4.3 A new private game reserve has been established in Omaheke region, as a recent NRM graduate, you have been asked to assist in setting up the stocking rate for the game reserve. (4)

What factors do you need to consider when setting up a stocking rate? [10]

QUESTION 5

5.1 Discuss the ecological importance of prescribed fire in rangelands. (10)

[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 (12)

6.2 What can be concluded regarding the grazing status of a rangeland if you find a lot of? (2)

(a) Increaser I grasses

(b) Increaser II grasses

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

[20]

QUESTION 7

7.1 *Adaptive management is critical to the success of natural resources management, discuss the relevance of Adaptive management in conservation.* (10)

[10]

QUESTION 8

8.1 Explain the factors that determine animals' habitat preference. (20)

[20]

QUESTION 9

- 9.1 Game count activities are an important part of wildlife management in national parks, conservancies, and game reserves, and they must be conducted annually. Discuss why the information from the game count is important in wildlife management. (10)
- 9.2 Mention five **ground** game count methods. (5)
- [15]

QUESTION 10

- 10.1 National Parks are vital tools for conserving Namibia's biodiversity. It's therefore important that parks have management plans that guide their operations. **Explain the objectives of park management plans in Namibia.** (10)
- [10]

Total marks: 150

The END