



**NAMIBIA 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**

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

<b>SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	Dr. E. N. Nghalipo
<b>MODERATOR:</b>	Prof. B. Strohbach

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

**THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)**

### **QUESTION 1**

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

- 1.1 Carrying capacity (2)
- 1.2 Patches (2)
- 1.3 Decreaser grasses (2)
- 1.4 Plant Succession (2)
- 1.5 Prescribed Fire (2)
- 1.6 Ground fire (2)
- 1.7 Desertification (2)
- 1.8 Bush encroachment (2)
- 1.9 National Park Management Plan (2)
- 1.10 Root cause analysis (2)

[20]

### **QUESTION 2**

- 2.1 What are the main objectives for assessing veld/rangeland conditions? (5)
- 2.2 List 5 common bush encroacher species in Namibian rangelands. (5)

[10]

### **QUESTION 3**

- 3.1 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 be sustainably stocked on this portion. A grass biomass assessment indicated that the farm has, on average, 600 kg of dry grass material per ha. An average springbok on this reserve eats 2 kg of dry grass per day. Assuming a utilization factor of 0.35, how many hectares are required per springbok on this farm? (4)
- 3.2 How many springboks can be stocked sustainably on this reserve? (2)
- 3.3 A new private game reserve has been established in the 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 4**

- 4.1 Explain the following terms, the consequences of each, and how they can be prevented in communal areas. (15)
- a) Overstocking
  - b) Overgrazing

[15]

**QUESTION 5**

- 5.1 Fire behaviour is influenced by different factors. Mention *five* factors and briefly explain how these factors influence fire behaviour. (5)

- 5.2 Describe the factors that determine vegetation recovery after fire. (6)

- 5.3 Differentiate between a headfire and a backfire. (4)

[15]

**QUESTION 6**

- 6.1 Adaptive management plays a vital role in the effective management of natural resources. Discuss its relevance and importance in the context of conservation. (10)

[10]

### QUESTION 7

During a road strip count, visibility distance is recorded at 100m intervals, and the distances are listed in the table below.

<i>Sample</i>	<i>Width (m)</i>
1	10
2	10
3	35
4	22
5	20
6	30
7	15
8	20
9	25
10	10

- 7.1 Explain why game count is an important aspect of wildlife management. (2)
- 7.2 During which types of wildlife surveys is MSV used? (2)
- 7.3 Calculate the mean strip visibility from measurements that were taken in a study area and are listed in the table above. (2)
- 7.4 What is the length of the transect along with which these measurements were taken? Show your calculations. (2)
- 7.5 What kind of vegetation type would you expect in this study area? (2)

[10]

### QUESTION 8

- 8.1 Discuss the economic impact of Foot and Mouth Disease (FMD) in Namibia, with reference to its implications for both wildlife conservation and livestock production. (12)
- 8.2 Explain the control measures for Foot and Mouth Disease. (4)
- 8.3 Using relevant examples, differentiate between density-dependent and density-independent factors in wildlife management. (4)

[20]

### QUESTION 9

- 9.1 Explain the importance of holistic resource management in conservation. (5)
- 9.2 Distinguish between brittle and non-brittle environments, highlighting their main ecological characteristics. (10)

[15]

### QUESTION 10

- 10.1 Explain why it is important to carefully consider the placement and maintenance of water points on a game farm/ park (from a wildlife and veld management perspective) (10)

[10]

### QUESTION 11

Pangolin trafficking is a significant conservation issue in Namibia. As a Natural Resource Management student, you have been assigned by the Namibian Chamber of Environment (NCE) to explore and propose solutions to address this problem. **Conduct a root cause analysis on the Pangolin trafficking problem in Namibia, clearly outlining the root causes, contributing factors as well as Corrective actions.**

[15]

Total marks: 150

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