



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY
FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

QUALIFICATION: Bachelor of Science in Agriculture	
QUALIFICATION CODE: 07BAGA	LEVEL: 6
COURSE CODE: RRG611S	COURSE NAME: Rangeland Regeneration
DATE: July 2022	SESSION: July
DURATION: 3 Hours	MARKS: 95

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
<ol style="list-style-type: none">1. Write clearly and neatly.2. Number your answers clearly.3. Make sure your student number appears on the answering script.4. Include the formulas used for each calculation.

PERMISSIBLE MATERIALS

1. Calculator

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

Question 1

The division of a grass species into decreaseers and the different types of increaseers is specific to any area. With reference to some of the grass species from Waterberg, based on information contained in an old table kindly provided by Dr Jankowitz.

Copy down the table below. Then mark with (x) the species that corresponds with the most relevant description by dividing grass species into decreaseer, increaseer 1, increaseer 2a, increaseer 2b or increaseer 2c

Grass Specie	Decreaser	Increaseer 1	Increaseer 2a	Increaseer 2b	Increaseer 2c
<i>Aristida congesta</i>					
<i>Eragrostis rotifer</i>					
<i>Urochloa brachyura</i>					
<i>Anthephora pubescens</i>					
<i>Brachiaria nigropedata</i>					
<i>Chloris virgata</i>					
<i>Enneapogon cenchroides</i>					
<i>Cenchrus ciliaris</i>					
<i>Eragrostis tricophora</i>					
<i>Schmidtia pappophoroides</i>					

[10]

Question 2

Suppose a farmer with rangeland of 6500ha estimates at the end of the growing season that a representative square with sides of 27m is required by one LSUday and that the dry season will last for 240 days

2.1 Estimate the grazing capacity? (5)

2.2 Determine the number of LSU that the farmer should stock? (5)

[10]

Question 3

Suppose that during a drought, grass species A is found to have died in both the benchmark and the continuously grazed surroundings, grass species B is found to have died out in the

surroundings but survived in the benchmark, and grass species C is still alive in both the benchmark and the surroundings.

Use a table like that below to indicate, for each of the three grass species in the above scenario, the type of species it is (3), and the reasons why you consider it to be this type of species (3).

<u>Grass species</u>	<u>Type of grass</u>	<u>Explanation for the conclusion</u>
<u>A</u>		
<u>B</u>		
<u>C</u>		

Then explain what this tells you about the condition of the rangeland (2) and its management potential (2).

[10]

Question 4

The abundance of plants of a particular type or species can be a useful measure when determining rangeland condition. However, there are different types of abundance and in the course of Rangeland Regeneration you learnt about five of them. Copy down the table below and in it name each of these five types of abundance, together with an example of the units in which each may be expressed.

Type of abundance example of units in which the abundance is expressed

Type of abundance	Example of units in which the abundance is expressed

[10]

Question 5

The most critical time of the year for grazing management is usually at the start of the rainy season. Explain how you would advise a farmer to minimise harm to her perennial grass:

- 5.1 If the farmer has some areas with sandy soil and other areas with loamy soil. (4)
 - 5.2 If the farmer has a large artificial pasture of *Cenchrus ciliaris* cultivar Molopo. (4)
- [8]

Question 6

Benchmarks are areas where the land is in its most healthy condition. Explain the usefulness of benchmark sites [6]

Question 7

Discuss the characteristics about the soil for measuring rangeland condition [9]

Question 8

To prevent overgrazing, a maximum grazing period and a minimum rest period are required. Both differ, depending on the conditions, so the grasses should be monitored in order to determine the maximum grazing period and minimum rest period. Answer the following questions below:

- 8.1 Give an example of the rough guidelines used by rangeland managers on the range for determining grazing and rest periods for the growing season? (4)
 - 8.2 Is there is a maximum grazing period or minimum rest period needed during the dormant season for the benefit of the grass give reasons for your answer? (2)
 - 8.3 Explain how the maximum grazing period is determined during the dry season for the benefit of the animals (4)
- [10]

Question 9

Discuss some reasons why prescribed burning may be applied? [12]

Question 10

Describe the main methods used for reseeding of rangeland plants [10]

TOTAL: 95