



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES

DEPARTMENT OF NATURAL RESOURCES AND AGRICULTURAL SCIENCES

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| QUALIFICATION: BACHELOR OF AGRICULTURAL MANAGEMENT | |
| QUALIFICATION CODE: 27BAGR | LEVEL: 5 |
| COURSE CODE: AGE721S | COURSE NAME: AGROECOLOGY |
| DATE: JANUARY 2019 | PAPER: THEORY |
| DURATION: 3 Hours | MARKS: 100 |

| SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER | |
|--|--------------------------|
| EXAMINER(S) | MS. Angelina Kanduvarisa |
| MODERATOR: | Ms. Angelina Lilungwe |

| INSTRUCTIONS |
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| <ol style="list-style-type: none">1. Answer ALL questions.2. Show clearly all the steps used in any calculations, and units alongside numbers.3. Failure to follow instructions may result in deduction of marks. |

PERMISSIBLE MATERIALS

1. Scientific calculator.

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

Question 1

Write down some advantages and disadvantages of the natural resources if harvested and sold for profit as eco-friendly land uses that complement agricultural uses, they are listed in the following table? [20]

| Natural resource | Advantages | Disadvantages |
|--|------------|---------------|
| Charcoal | | |
| Firewood | | |
| Poles and droppers | | |
| Animal feed e.g. pods of <i>Acacia erioloba</i> and <i>Faidherbia albida</i> | | |
| Fruits (for use of flesh and/or kernels) | | |
| Medicines e.g. devil's claw & <i>Hoodia</i> | | |
| Honey | | |
| Mopane worms | | |
| Kalahari wild silk | | |
| Wild mushrooms (omajova) | | |

Question 2

2.1 For a population which has been stabilized over the past 100 years, with an average life expectancy of 67 years, what would you expect to be?

- (a) The birth rate (2)
- (b) The death rate (2)
- (c) The growth rate (2)

2.2 Find the doubling time for a population which increases from 73 381 to 81 294 over five years? (4)

[10]

Question 3

Discuss the role of Namibian conservancies in improving agroecosystems. [10]

Question 4

What problems are there with management of migratory game species on commercial farms?

[3]

Question 5

Wild animals are better adapted to Namibia's harsh environment than cattle, yet both depend on grazing. Use wild animals, cattle and grasses as examples of differently owned and accessed resources to discuss how ownership and access influences people's attitudes towards natural resources in communal conservancies. [7]

Question 6

Discuss the impacts of genetically modified (GM) crops on agriculture. [10]

Question 7

Suppose that a drought is predicted for the coming rainy season. Explain five different approaches that you would suggest to dryland crop farmers in northern Namibia to minimize their risk of crop failure, while providing an example of each. [10]


Question 8

When farmers come up against a problem, their most common reaction is to try treating the symptoms. Mrs. Kadhikwa is a farmer in the thornbush savanna who faces the problem of severe bush encroachment on her land. She wants to declare war on *Acacia mellifera* and eliminate it from her farm.

Advise her on what she should consider before attempting to eliminate the encroacher bush *Acacia mellifera*? [10]

Question 9

Indicate the level of renewability of the following natural resources by rearranging them in order of renewability? [10]

| | | | |
|-----------------|-----------|--|-----------------|
| MAHANGU | 9.1..... | MOST RENEWABLE | |
| RHINO HORNS | 9.2..... |  | |
| COAL | 9.3..... | | |
| MOPANE WORMS | 9.4..... | | |
| MOPANE TIMBER | 9.5..... | | |
| COPPER | 9.6..... | | |
| ELEPHANT TUSKS | 9.7..... | | |
| SPRINGBOK SKINS | 9.8..... | | |
| RIVER SAND | 9.9..... | | |
| GUINEA FOWLS | 9.10..... | | LEAST RENEWABLE |

Question 10

Name Namibia's terrestrial animals that are regarded as endangered species? [6]

Question 11

Define the following terms:

11.1 Tolerance limit [2]

11.2 Bioaccumulation [2]

[4]