NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, APPLIED SCIENCE AND NATURAL RESOURCES

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES

QUALIFICATION: Bachelor of Science in Agriculture	
QUALIFICATION CODE: 07BAGA	**LEVEL:** NQF Level 7
COURSE: Agroecology	**COURSE CODE**: AGE721S
DATE: January 2023	
DURATION: 3 Hours	**MARKS:** 100

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S):	Mr C. L. Akashambatwa
MODERATOR:	Mrs. A. Lilungwe

THIS QUESTION PAPER CONSISTS OF 5 PAGES
(INCCLUDING THIS FRONT PAGE)

INSTRUCTIONS

1. Answer ALL the questions.
2. Write clearly and neatly.
3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination paper.
2. Examination script.
3. Calculator

Question 1

1.1. Draw a table with two columns and nine rows and write down the column headings in the first row as in Table 1. Then rearrange the order of the main types of feeder appearing in the second column, correspond with the species best described by that main type of feeder. **[8]**

Table 1

Species	Main type of feeder
Barn owl	Plankton feeder
Elephant	Grazer
Elephant shrew	Browser
Hippo	Granivore
Lesser flamingo	Frugivore
Mousebird	Insectivore
Quelia bird	Predatory carnivore
White backed vulture	Scavenger

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

1.3. Explain the impact of dependency on poison to control ticks has on tick's population today? **[5]**

1.4. Explain what ecological support service is and how human beings benefit from it. **[4]**

1.5. Suggest appropriate indicators for each of the environmental problems shown in the following table, by filling in the relevant cells in reference to the Pressure State Response framework **[15]**

Environmental Problem	Type of indicator	Indicator
Outbreak of locusts	Pressure	
	State	
	Response	
Wind erosion	Pressure	
	State	
	Response	
Bush encroachment	Pressure	
	State	
	Response	
Soil salinization	Pressure	
	State	
	Response	
Decrease in wild animals	Pressure	
	State	
	Response	

1.6. Various human activities in pursuance of food and daily livelihood activities have negative impact on earth. One of the activities is agriculture. Explain the statement **[6]**

1.7. Explain the factors influencing environmental sustainability **[4]**

1.8. What is the importance of wildlife management, in terms of wildlife monitoring **[4]**

(56)

Question 2

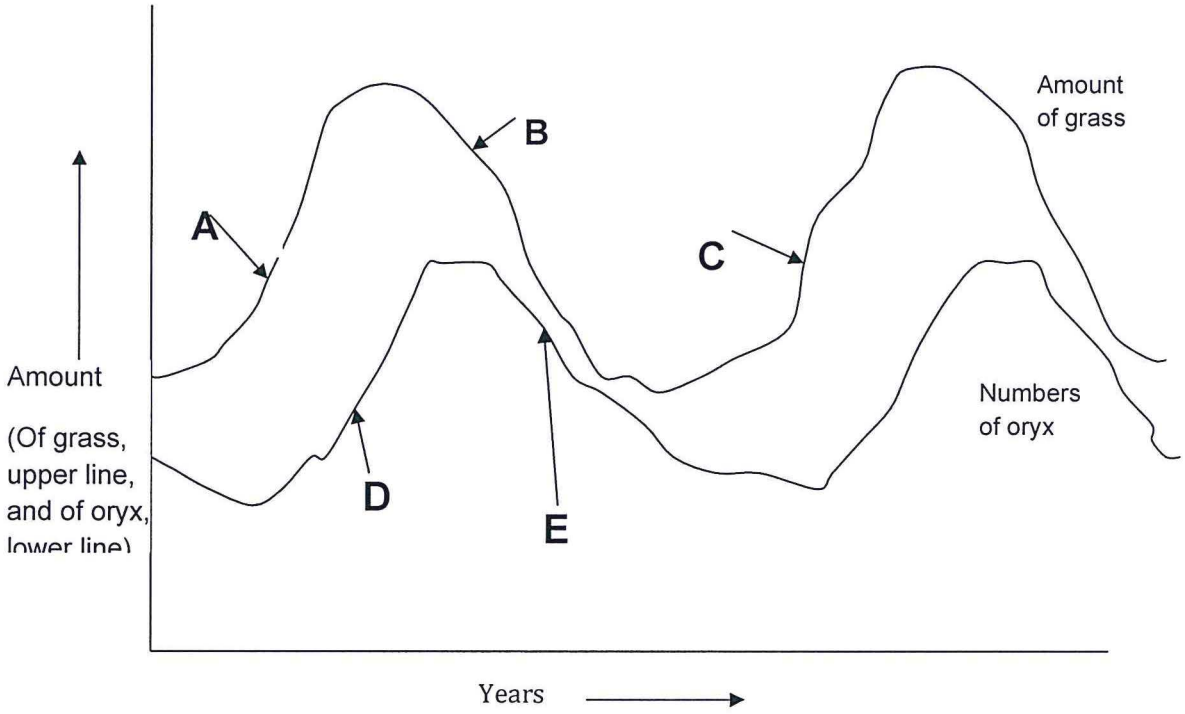
2.1. Suppose that a communal conservancy has a quota of 200 springbok of which 25% are expected to be of trophy quality. A trophy springbok can be sold to professional hunters for N$1500 and the hunters will then allow the community to get the meat and skin. A springbok usually provides 25 kg of meat. If the community members were to buy beef they would have to pay N$20 per kg. A springbok skin is valued at N$100. Any springbok on quota can either be sold to biltong hunters, who keep the meat and skin, for N$1300, or to sport hunters, who give the meat and skin to the community, for N$600. A capture company is willing to capture a minimum of 40 live springbok. However, as they face the cost of transferring their helicopter to the area, regardless of the number of springbok captured, they offer a value on a sliding scale which depends on the number of springbok they get offered as indicated in Table 1 below:

Number of springbok	Price offered per springbok
40 - 80	N$ 1000
81 - 120	N$ 1200
121 - 160	N$ 1400
161 - 200	N$ 1600

2.1.1. Now Show the most financially efficient use which the community could make out of the 200 springboks. **[10]**

2.1.2. If the community decides to use 50 of the non-trophy springboks for their own hunting, what will be the opportunity cost which the community would be losing? **[4]**

2.2. The figure below shows the population control by food supply, explain what is happening to the amount of grass and numbers of oryx at every stage A to E. **[10]**



2.3. A farmer asks for your advice on whether to grow grapes or dates under irrigation, to optimize use of limited irrigation water. You have experienced that farmers who grow grapes usually get a yield of 8 tons/ha and apply the equivalent of 1200 mm of water, while farmers who grow dates usually get a yield of 6 tons/ha and apply the equivalent of 480 mm of water. Suppose further that the farm gate price a farmer can get for grapes is N$15/kg and for dates is N$40/kg. **[12]**

2.3.1. Calculate the water use efficiencies of each crop, in terms of litres of water applied per kg of crop produced (4)

2.3.2. Calculate the water use efficiencies of each crop in terms of litres of water applied per N$ gross income. (4)

2.3.3. Calculate by how much the one fruit is more economically efficient in its use of water than the other fruit. (4)

2.4. Name Namibia's terrestrial animals that are regarded as endangered species, give a brief reason you think some of those animals are endangered. **[8]**

[44]

TOTAL MARKS [100]