SECOND OPPORTUNITY EXAMINATION QUESTION PAPER

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THIS QUESTION PAPER CONSISTS OF 4 PAGES (EXCLUDING THIS FRONT PAGE)

INSTRUCTIONS

1. Answer ALL the questions.
2. Show clearly all the steps used in any calculations.

PERMISSIBLE MATERIALS

1. Calculator.

3.1 Springbok skins can be renewed faster than mopane timber.
3.2 Mopane worms can be renewed faster than francolins.
3.3 Coal can be renewed faster than copper.
For the problem of "wind erosion" suggest an appropriate indicator, of each of the types appearing below, and indicate the units in which it should be expressed:

4.1 Pressure indicator
4.2 State indicator
4.3 Response indicator

[6]

Question 5

Suppose you record 36 francolin calls along the route of your daily walk in a park. You then harvest 20 francolins from the park and next day repeat the census in the same way. This time you record 28 francolin calls. Estimate:

5.1 The number of francolins that were in the park before you harvested 20.
5.2 The current number of francolins remaining in the park.

[4]

Question 6

Name the factor that kept the oryx population size under control in nature. Then draw a chart that explains how the control worked.

[6]

Question 7

Draw a food web (energy flow diagram) that includes the following species:

Dung beetle
Elephant
Elephant shrew
Mopane tree
Mouse
Owl
Puff adder
Schmidtia papophoroides

Marks will be allocated as follows:

One mark per correct arrow
Minus one mark for highly unlikely
No mark for unlikely but possible [8]
Question 11
Discuss the requirements for effective control over human population size and consumption patterns. [10]

Question 12
Briefly discuss the general differences in energy efficiencies of game animals and livestock. [5]

Question 13
At Brakwater you were shown various permaculture strategies being applied to the vegetable garden.

13.1 Briefly describe three strategies that the farmer was using to optimize the limited space under the shade net. (3)

13.2 Name the four types of crops the farmer rotates, in the sequence of the rotation. (2)

13.3 List five pairs of companion plants that the farmer grows next to each other. Use a new line for each pair. (5) [10]
Question 8

Animals of endangered species that are kept in captivity, such as in zoological gardens, sometimes play a useful role to improve the population of the species in the wild. Briefly discuss this role. [8]

Question 9

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$1,000 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$6 per kg. A springbok skin is valued at N$30. Any springbok on quota can either be sold to biltong hunters, who keep the meat and skin, for N$700, or to sport hunters, who give the meat and skin to the community, for N$650. 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 follows:

<table>
<thead>
<tr>
<th>Number of springbok</th>
<th>Price offered per springbok</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 - 80</td>
<td>N$ 700</td>
</tr>
<tr>
<td>91 - 120</td>
<td>N$ 800</td>
</tr>
<tr>
<td>121 - 160</td>
<td>N$ 900</td>
</tr>
<tr>
<td>161 - 200</td>
<td>N$ 1,000</td>
</tr>
</tbody>
</table>

9.1 Show the most financially efficient use which the community could make out of the 200 springbok. (10)

9.2 If the community decides to use 50 of the non-trophy springbok for their own hunting, what will be the opportunity cost which the community would be losing? (6)

[15]

Question 10

Explain, in terms of benefits and costs, why most Namibians living in rural areas would rationally opt for livestock over wildlife/tourism if given a choice between the two for the use of their land. [8]