



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

Faculty of Health, Applied Sciences and Natural Resources

Department of Agriculture and Natural Resources Sciences

QUALIFICATION : Bachelor of Natural Resource Management Honours	
QUALIFICATION CODE: 08BNRH	LEVEL: 8
COURSE: Conservation Biology	COURSE CODE: CSB810S
DATE: June 2022	SESSION: June
DURATION: 3 (three) hours	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr T. Nzuma
MODERATOR:	Prof. H. Ndagurwa

THIS QUESTION PAPER CONSISTS OF 3 PAGES
(Excluding 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

[20]

Define the following ecological terms, using examples.

1.1 Alpha diversity [2]

1.2 Bequest value [2]

1.3 Biodiversity hotspot [2]

1.4 Connectedness [2]

1.5 Demographic stochasticity [2]

1.6 Habitat fragmentation [2]

1.7 Edge effect [2]

1.8 Environmental stochasticity [2]

1.9 Genetic stochasticity [2]

1.10 Umbrella species [2]

Question 2

[20]

Should Management of Biodiversity be Species-Based or Ecosystem-Based? Discuss [20]

Question 3**[20]**

Think of a dam on a river in any part of Namibia. What effects would the removal of this dam have on the: (1) local economy; (2) flow regime of the river; and (3) movement of fish and other aquatic organisms? Considering these factors, would it be a good idea to remove this dam?

[20]**Question 4****[40]**

Diversity indices provide important information about the rarity and commonness of species in a community. The ability to quantify diversity in this way is an important tool for biologists trying to understand community structure. Using the data below sampled from the Namib karoo biome;

Species	Site A	Site B	Site C	Site D	Site E
<i>Zophosis orbicularis</i>	3	1	16	6	0
<i>Cheroides spp.</i>	2	0	1	1	16
<i>Gonocephalum spp.</i>	0	0	77	39	0
<i>Branchinotogluma sandersi</i>	0	0	0	4	1
<i>Himatismus spp.</i>	0	0	6	0	0
<i>Lepidonotopodium piscesae</i>	0	0	0	2	3
<i>Stips stali</i>	3	0	13	34	0
<i>Paralvinella pandorae</i>	1	1	2	4	0
<i>Physadesmia globosa</i>	1	1	11	0	7
<i>Amphisamytha galapagensis</i>	0	0	0	14	0
<i>Gonocephalum spp.</i>	0	0	15	2	5
<i>Depressigyra globulus</i>	0	0	9	0	0
<i>Onymacris laeviceps</i>	0	0	22	9	0
<i>Physadesmia spp.</i>	0	3	3	21	45

Note: All answers should be to 3 decimal places.

- Calculate species richness for the five sites/habitats. **[5]**
- Calculate species diversity using Simpson's diversity index for the 5 habitats. Show all your working and interpret your findings giving one possible ecological reason for the differences in diversity. **[35]**

THE END

Total Marks: 100