



FACULTY	AGRICULTURE, ENGINEERING & NATURAL SCIENCES		
DEPARTMENT	ENVIRONMENTAL SCIENCE		
SUBJECT	INTRODUCTION TO ECOLOGY		
SUBJECT CODE	EBL3631		
DATE	JUNE 2022		
DURATION	3 Hours	MARKS	120

SUPPLEMENTARY EXAMINATION

Examiner: Ms E. M. Nangolo (University of Namibia)

External Moderator: Prof C.T. Downs (University of KwaZulu-Natal)

This **Examination paper** consists of **five** pages (including the front page)

Instructions

- Answer **ALL** questions from Section A.
- Answer **only one** question from Section B.
- Label all your answers appropriately and neatly.

UNIVERSITY OF NAMIBIA EXAMINATIONS

SECTION A

Answer all questions in this section. This section is worth **90 marks**.

QUESTION 1

1.1 Briefly define ecology as described by the following scientists: (4 marks)

- a. Andrewartha (1961)
- b. Odum (1964)

1.2 Briefly describe how ecology can be applied in the following sectors: (4 marks)

- a. Agriculture
- b. Medicine

1.3 Differentiate between the following: (8 marks)

- a. Conduction and convection
- b. Generalist consumers and specialists consumers
- c. Conservationist and preservationist
- d. crypsis and mimicry

1.4 Briefly describe the role of foundation species in an ecosystem. (3 marks)

1.5 Briefly discuss the carbon cycle outlining the following: (6 marks)

- a) Biological importance
- b) Forms available by organisms
- c) Major reservoirs
- d) Two key processes driving movement
- e) Human influence

1.6 Study the life table below and list any five observations.

(5 marks)

Age (years)	FEMALES					MALES				
	Number Alive at Start of Year	Proportion Alive at Start of Year	Number of Deaths During Year	Death Rate†	Average Additional Life Expectancy (years)	Number Alive at Start of Year	Proportion Alive at Start of Year	Number of Deaths During Year	Death Rate†	Average Additional Life Expectancy (years)
0-1	337	1.000	207	0.61	1.33	349	1.000	227	0.65	1.07
1-2	252**	0.386	125	0.50	1.56	248**	0.350	140	0.56	1.12
2-3	127	0.197	60	0.47	1.60	108	0.152	74	0.69	0.93
3-4	67	0.106	32	0.48	1.59	34	0.048	23	0.68	0.89
4-5	35	0.054	16	0.46	1.59	11	0.015	9	0.82	0.68
5-6	19	0.029	10	0.53	1.50	2	0.003	0	1.00	0.50
6-7	9	0.014	4	0.44	1.61	0				
7-8	5	0.008	1	0.20	1.50					
8-9	4	0.006	3	0.75	0.75					
9-10	1	0.002	1	1.00	0.50					

/30 marks

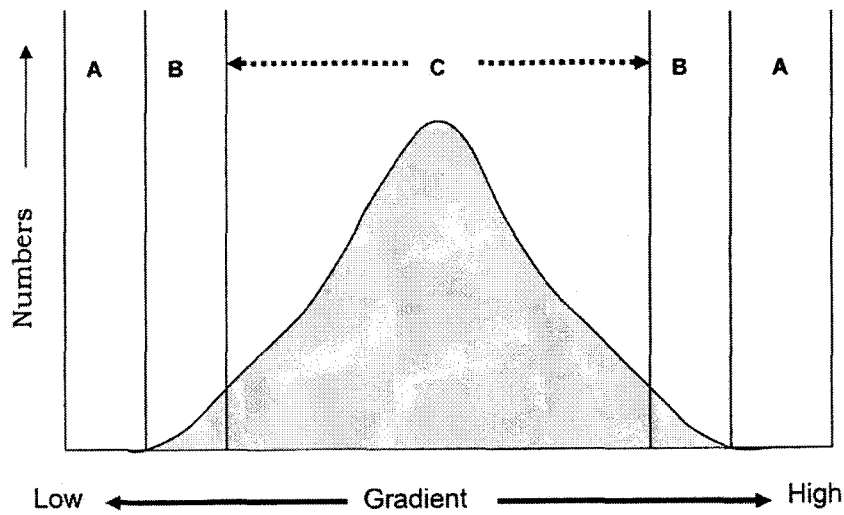
QUESTION 2

2.1 Differentiate between the two processes that determine community stability. (4 marks)

2.2 Explain which pattern of dispersion you would most likely find among individuals of *Welwitschia mirabilis* in the Namib Desert. (4 marks)

2.3 Briefly explain how humans influence the carbon cycle? (4 marks)

2.4 The response of organisms to a given environmental gradient follows a **bell shape** as illustrated below. Name and explain the zones A, B, and C (6 marks)



2.5 Briefly describe, supported by examples, the **three** different adaptation strategies for maintaining favourable thermal relations in animals. (12 marks)

/30 marks

QUESTION 3

3.1 Briefly explain the four levels of extinction. (8 marks)

3.2 Define climate change and briefly discuss the likely impact on ecosystems. (10 marks)

3.2 Differentiate, supported by examples, between the **three** morphological traits used by animals as defence mechanisms for prey. (12 marks)

/30 marks

SECTION B

Answer only one question from this section. This section is worth **30 marks**.

QUESTION 4

Biodiversity is defined by the Convention for Biological Diversity as ‘the variety among living organisms from all sources, and the ecological complexes of which they are part of.’ Discuss the importance of Biodiversity on earth. (30 marks)

OR

QUESTION 5

Discuss the process of ecological succession. (30 marks)

END OF EXAMINATION
