



<b>FACULTY</b>	AGRICULTURE, ENGINEERING & NATURAL SCIENCES		
<b>DEPARTMENT</b>	ENVIRONMENTAL SCIENCE		
<b>SUBJECT</b>	INTRODUCTION TO ECOLOGY		
<b>SUBJECT CODE</b>	EBL 3631		
<b>DATE</b>	JUNE 2022		
<b>DURATION</b>	3 Hours	<b>MARKS</b>	120

**WINTER EXAMINATION**

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

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

This Exam paper consists of 4 pages (including the front page)

**Instructions**

- Answer all questions from Section A.
- Answer only 1 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 (30 marks)

1.1 Ecology originated from the foundation developed by different plant geographers and botanists. Briefly describe the studies conducted by the following plant geographers and botanists that led to ecology. (6 marks)

- a. August Thienemann
- b. François-Alphonse Forel
- c. Raymond Lindeman
- d. Charles Darwin

1.2 Briefly explain why is it important to study ecology? (3 marks)

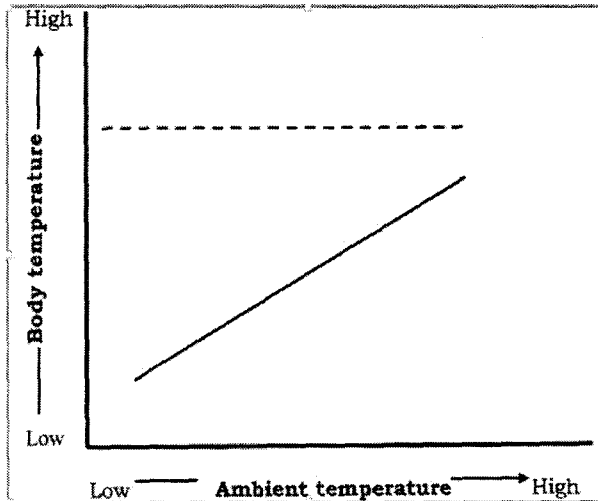
1.3 Differentiate between the following: (8 marks)

- a) Crypsis and aposematism (2 marks)
- b) Dispersion and dispersal (2 marks)
- c) Marine fish and freshwater fish (4 marks)

1.4 Briefly describe the factors that may limit primary production in a terrestrial ecosystem. (4 marks)

1.5 Which strategy (*homeothermy*, *poikilothermy*, or *heterothermy*) that maintains favorable thermal relations is illustrated by the solid line in the figure below? Explain your answer!

(3 marks)



1.6 Compare exponential and logistic models of population growth.

(6 marks)

**/30 marks**

## QUESTION 2 (30 marks)

2.1 You are on holiday, and your grandfather instructs you to clear the vegetation around the river (riparian vegetation) next to your house. As an ecology student, explain whether you will agree or disagree with your grandfather? Give reasons for your answer.

(3 marks)

2.2 Briefly explain why most alien species become good invaders?

(5 marks)

2.3 Discuss the **phosphorus** 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

2.4 Briefly describe the Theory of Island Biogeography. (6 marks)

2.5 Briefly describe the concept of vertical structure in a terrestrial ecosystem and mention the different layers. (10 marks)

**/30 marks**

**QUESTION 3 (30 marks)**

3.1 Briefly explain the **three** main resources that limit plant growth.

(6 marks)

3.2 Briefly describe **three** different adaptations that animals may undertake when encountering hot and cold conditions. (9 marks)

3.3 Briefly discuss the major causes of extinction supported with examples. (15 marks)

**/30 marks**

## SECTION B

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

### QUESTION 4

Recent climate changes have been greatly attributed to human's interference with the carbon cycle.

Write an essay in which you discuss the following:

- a) the general importance of Carbon to ecological systems. (10 marks)
- b) human interference with the Carbon cycle and how this may have led to global warming. (15 marks)
- c) Ecological consequences/impacts of global warming. (5 marks)

(30  
marks)

**OR**

### QUESTION 5

Use relevant examples to explain the different types of interspecific interactions observed in organisms. **NB:** do not forget to name the interactions you are discussing. (30 marks)

**END OF EXAMINATION**