

# UNIVERSITY OF FORT HARE

**ZOO521**

## SUPPLEMENTARY EXAMINATIONS

**FEBRUARY  
2019**

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**Time: 3 HOURS**  
**Subject: ZOO 521**  
**Marks: 120**

**This paper consists of 3 pages including the cover page**

**Internal Examiners**

**Prof DO Okeyo**  
**Prof NG Vine**  
**Dr D Forbanka**  
**Mr LU Vumazonke**  
**Dr P Pattrick (SAEON)**  
**Dr S Moyo (Albany Museum)**

**External Examiner**

**Dr T McIntyre (UKZN)**

## **INSTRUCTIONS**

**Answer any THREE (3) questions from Section A  
AND  
Answer any ONE (1) question from Section B.**

**Number your answers correctly using the same numbers as on the question  
paper.**

## SECTION A

### QUESTION 1

Some precious minerals have just been discovered within the Amathole District and the area has been earmarked for mining. As part of an Environmental Impact Assessment team, write a description of the ecological community of this area. [30]

### QUESTION 2

Discuss, with examples, Geophagy, Osteophagy and Coprophagy [30]

### QUESTION 3

Based on the book by Charles Clover, and narrated by Ted Danson, *The End of the Line* explores the devastating effect that overfishing is having on fish stocks and the health of our oceans. Based on this film, and your knowledge, discuss the causes of this dilemma and what can we do to solve it. [30]

### QUESTION 4

Aquaculture (marine & freshwater) has the potential of enhancing food security in southern Africa, yet it has seemingly been unable to make any significant contribution. Discuss the reasons for this, providing details on the current situation and what could be done to improve aquaculture development in the region. [30]

### QUESTION 5

Name and briefly describe the three categories of response that animals typically show when confronted by environmental changes. Use examples of a marine invertebrate response to such changes (e.g. in temperature or salinity). [30]

### QUESTION 6

Describe how you would design an experiment or a field study to test for top-down control (i.e. trophic cascade) in a system consisting of predatory lizards, herbivorous arthropods, and plants. Include descriptions of the study design; the data you would collect; the data analyses; as well as your expected observations if a trophic cascade is operating. [30]

## SECTION B

### QUESTION 7

- a) Outline and describe the benefits humans gain from biodiversity, with regards to our food and energy security, our vulnerability to natural hazards, our health, our cultures, our spiritual and religious values, and our social relations. [10]

- b) Using examples, briefly explain what is meant by “Ecological Community”. In your answer also describe approaches used in ecological studies. [10]
- c) In 1893, Norwegian explorer Fridtjof Nansen allowed his 39-m wooden ship, the *Fram*, to freeze into Arctic pack ice about 1100 km south of the North Pole. His goal was to drift with the ice and cross the North Pole thereby determining how ocean currents affect the movement of pack ice. As the *Fram* slowly drifted with the ice, Nansen noticed that the direction of ice and ship movement was not consistent with the prevailing wind direction. Using diagrams, explain this phenomenon observed by Nansen. [10]

### QUESTION 8

- a) Using a species example of your choice, discuss what biological traits are advantageous for aquaculture. [10]
- b) Elephant population control has been a sensitive topic for many conservationists and wildlife agencies. Elephants are viewed as destructive, and the most popular methods of control used by some Southern African countries have been culling and translocation. Summarize the ecological arguments for and against the viewpoint that elephants are destructive animals that require control through measures such as culling and translocation. [10]
- c) Discuss the two terms used to describe how animals are classified according to their ability to tolerate changes in salinity in the marine environment. Use the example of any marine invertebrate to further illustrate your answer. [10]

**END OF PAPER**