



FACULTY OF SCIENCE

DEPARTMENT OF ZOOLOGY

MODULE	Zoo3A01
CAMPUS	APK
EXAM	1ST EXAM 2019

DATE: 1 JUNE 2019

SESSION: Morning

ASSESSOR(S)

PROF B VAN VUUREN

PROF R GREENFIELD

INTERNAL MODERATOR

PROF P TESKE

EXTERNAL MODERATOR

PROF C SIMON

DURATION: 3 HOURS

MARKS: 100

NUMBER OF PAGES INCLUDING THIS ONE: 2

INSTRUCTIONS: ANSWER ALL THE QUESTIONS

QUESTION 1

Scale is fundamentally important in ecology yet often overlooked, it may pertain to the size of the landscape being studied or to the body size of organisms. Various ecological and biogeographic rules have been put forward in an attempt to describe trends in scale. Discuss the underlying ideas behind these rules in detail and provide real life examples for each of them.

(30 marks)

QUESTION 2

The evolution of life history traits involves trade-offs relating to reproduction.

These include (i) age at maturity, (ii) fecundity and survival, (iii) size and number of offspring, and even (iv) the optimal sex of the offspring. Discuss each of these in some detail, clearly highlighting the trade-offs.

(20 marks)

QUESTION 3

Evolutionary Game Theory encompasses Darwinian evolution, including competition (the game), natural selection (replicator dynamics), and heredity.

- (a) Explain what is meant by Evolutionary Game Theory?
- (b) Discuss how Evolutionary Game Theory has contributed to the understanding of:
 - i. group selection;
 - ii. sexual selection;
 - iii. altruism;
 - iv. parental care; and
 - v. co-evolution.

(20 marks)

QUESTION 4

Explain the meaning of the following terms:

- (a) Barcoding;
- (b) Species;
- (c) Inclusive fitness;
- (d) K-strategist; and
- (e) Extinction vortex.

(20 marks)

QUESTION 5

Discuss the abiotic/physical components of an aquatic ecosystem.

(10 marks)

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TOTAL : 100