



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE AND BACHELOR OF EDUCATION

SZL 411: THEORETICAL ECOLOGY

DATE: FRIDAY, 3RD DECEMBER 2010

TIME: 8.00 A.M. - 10.00 A.M.

INSTRUCTIONS:

Answer all questions in section A and two from section B. Within each section all questions carry equal marks.

Illustrate your answers with diagrams and give examples where appropriate.

SECTION A (40 marks)

Answer All questions in this section.

1. Explain the following terms:
 - Stable age structure
 - Reproductive rate
 - Finite rate of increase
 - Intrinsic rate of increase
 - Mean generation time
2. List five differences between r- and K-selected species.
3. Explain the meaning of the terms “scramble” and “contest” competition as used in ecology.

4. Explain the best type of life table for a population with overlapping generations and a lifespan of 25 years.
5. Outline the regulatory effects of territoriality on a named animal population.
6. Outline the disadvantages of using “maximum sustainable yield” as the guiding principle in harvesting biological resources.
7. Outline three indices of diversity.
8. The logistic model: $\frac{dN}{dt} = rN \frac{(K - N)}{K}$ is the continuous equivalent of

$$N_{t+1} = \frac{N_t R}{1 + aN_t}$$

Give the similarities and differences between the two models.

SECTION B (30 marks)

Answer ONE question in this section.

9. Critically discuss the competitive exclusive principle.
10. Write an essay on coevolution and specialization of predators.
