UNIVERSITY OF SWAZILAND DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION:

MAY 2006

TITLE OF PAPER

: **BIOGEOGRAPHY**

COURSE NUMBER

: GEP 312

:

TIME ALLOWED

THREE (3) HOURS

INSTRUCTIONS

SECTION A IS COMPULSORY

ANSWER ANY TWO QUESTION S FROM

SECTION B

ILLUSTRATE YOUR ANSWERS WITH

APPROPRIATE DIAGRAMS

MARKS ALLOCATED

QUESTION 1 CARRIES 40 MARKS

THE OTHER QUESTIONS CARRY 30

MARKS EACH

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

SECTION A

QUESTION 1 (COMPULSORY)

(a) "Whereas the continents and oceans of the world are few in number... islands exist in teeming multitudes lending themselves to biogeographical study" (Pielou, 1979: 173).

Discuss. (25 Marks)

(b) 'Organisms in an ecosystem are often referred to as dynamic and capable of adjusting to any external environmental change'. Discuss. (15 Marks)

(40 Marks)

SECTION B

Answer any two (2) questions from this section

QUESTION 2

- (a) Discuss the physical and biological factors affecting the characteristics and development of an ecosystem. (20 Marks)
- (b) Discuss the types of fire as an ecosystem management tool in the study of Biogeography. (10Marks)

(30 Marks)

QUESTION 3

(a) 'All forms of energy are interconvertible in an ecosystem w	hich tend to obey the
First Law of Thermodynamics'. Discuss.	(15 Marks)

(b) Define the following concepts or phrases:

(i)	Competition	(3 Marks)
(ii)	Compensating point (CP)	(3 Marks)
(iii)	Photosynthetic efficiency	(3 Marks)
(iv)	Biomass	(3 Marks)
(v)	Predation	(3 Marks)

(30 Marks)

QUESTION 4

- (a) Elucidate the mechanisms whereby pioneer species quickly demonstrate
 high rates of nutrient losses following the removal of vegetative cover
 from an ecosystem.
 (15 Marks)
- (b) Describe how autotrophic and heterotrophic organisms produce energy and matter for their sustainability • (15 Marks)

(30 Marks)

QUESTION 5

(a) Compare and contrast phosphorus and carbon cycles and the processes involved in the movement of energy and nutrients in an ecosystem.

(30 Marks)