

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER DECEMBER 2011**

**TITLE OF PAPER:      ECOLOGY**

**COURSE CODE:        B304**

**TIME ALLOWED:        THREE HOURS**

**INSTRUCTIONS:**

- 1.    ANSWER ANY FOUR QUESTIONS**
- 2.    EACH QUESTION CARRIES TWENTY FIVE  
(25) MARKS**
- 3.    ILLUSTRATE YOUR ANSWERS WITH LARGE  
AND CLEARLY LABELLED DIAGRAMS WHERE  
APPROPRIATE**

**SPECIAL REQUIREMENTS:**

**NONE**

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

**Question 1**

a) Describe the benthic region of the marine environment, noting the different biozones of this region including the factors used in defining their boundaries. (12 marks)

b) Write a concise essay on the neuston and benthos of aquatic ecosystems. (13 marks)

**[TOTAL MARKS = 25]**

**Question 2**

a) Describe the physical features of a lentic system and highlight the differences between lentic and lotic systems of fresh water ecosystems. (12 marks)

b) Describe the formation of thermal stratification in aquatic habitats and briefly explain its effects in temperate and tropical lakes. (13 marks)

**[TOTAL MARKS = 25]**

**Question 3**

a) Explain the terms ecosystem and population. (4 marks)

b) Briefly discuss the various attributes/characteristics of populations, emphasizing on their distribution patterns. (9 marks)

c) Give your understanding of (i) mutualism and (ii) r-selected species/strategists in population studies. (12 marks)

**[TOTAL MARKS = 25]**

**Question 4**

Write concise essays on the following:

- a) The distribution, climatic conditions and the plant community of tropical rainforests. (15 marks)
- b) Fire as an important ecological factor in the savannah grasslands (10 marks)

**[TOTAL MARKS = 25]**

**Question 5**

- a) Explain the term biogeochemical cycle. (5 marks)
- b) Explain in detail the essential features of the circulation of carbon in the atmosphere including your understanding of the concept green-house effect and global warming. (14 marks)
- c) How does the flow of energy differ from the way by which matter or nutrient is moved through natural ecosystems. (6 marks)

**[TOTAL MARKS = 25]**

**Question 6**

Write concise essays on two of the following:

- a) Soil profile of a matured soil and its significance in soil studies,(12.5 marks)
- b) Wetland, (12.5 marks)
- c) Allogenic and Autogenic successions. (12.5 marks)

**[TOTAL MARKS = 25]**