

COURSE CODE: B304 (M) 2011/2012

Page 1 of 3

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]