

**UNIVERSITY OF SWAZILAND**

**Faculty of Health Sciences**

**(BSC) IN ENVIRONMENTAL HEALTH**

**SUPPLEMENTARY EXAMINATION PAPER**

**TITLE OF PAPER** : ENVIRONMENTAL ECOLOGY1  
**COURSE CODE** : EHS 555  
**DURATION** : TWO HOURS  
**DATE** : DECEMBER 2014  
**MARKS** : 100  
**INSTRUCTIONS** : ANSWER ONLY FOUR QUESTIONS  
: EACH QUESTION CARRIES 25 MARKS  
: BEGIN EACH QUESTION ON A SEPARATE SHEET  
OF PAPER

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED  
BY THE INVIGILATOR**

### QUESTION ONE

As an aspiring environmental manager, explain in detail the nine principles of the caring for the earth that underpin the building of a sustainable society (25 marks)

### QUESTION TWO

- (a) Differentiate between biotic and abiotic environmental factors (4 marks)
- (b) Define the following terms
  - i. Species (1 mark),
  - ii. Populations (1 mark),
  - iii. Communities (1 mark),
  - iv. Ecosystems (1 mark)
- (c) Describe what you understand about the ecological significance of these levels of organization in (b) above (8 marks)
- (d) Ecosystems require energy to function. Where does this energy come from? Where does it go? How does the flow of energy conform to the laws of thermodynamics? (3 marks)
- (e) Describe how environmental factors determine which species live in a given ecosystem and where or how they live (6 marks)

**Total 25 marks**

### QUESTION THREE

Explain how random genetic variation and natural selection lead to

- a. Evolution (5 marks);
- b. Adaptation (5 marks);
- c. Niche specialization (5 marks);
- d. Portioning of resources (5 marks), and
- e. Extinction of species (5 marks)

**Total 25 marks**

### QUESTION FOUR

- 1. Forest biomes frequently undergo disturbances such as fire or flooding. As more of us build homes in these areas, what factors should we consider in deciding how to protect people from natural disasters (10 marks)
- 2. What is taiga biome and where is it found? Why might logging in taiga be more disruptive than in southern coniferous forests? (10 marks)
- 3. How do physical conditions change with depth in marine environments (5 marks)

**Total 25 marks**

**QUESTION FIVE**

Describe five kinds of wetlands and explain why they are important sites of biodiversity and biological productivity (25 marks)