



# MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF AGRICULTURE AND NATURAL RESOURCE MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL STUDIES

FIRST YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE  
ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT.

ECD 109: ECOLOGY AND HUMAN ADAPTATION

Date: 29/11/2016

Time: 2:00 – 4:00 pm

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**INSTRUCTIONS:**

Answer Question One and Any Other Two Questions

**SECTION A**

**QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) Explain the following concepts:
- i) Limits to growth (2 marks)
  - ii) Gaia hypothesis (2 marks)
  - iii) Natural selection (2 marks)
  - iv) Ecological footprint (2 marks)
  - v) The law of diminishing returns (2 marks)
- b) Explain the four categories of ecosystem services (8 marks)
- c) Explain the components of a desert ecosystem (10 marks)
- d) Differentiate between negative and positive competition (2 marks)

**SECTION B: ANSWER ANY OTHER TWO QUESTIONS**

**QUESTION TWO (20 MARKS)**

Explain the following cycles and their relevance to their environment:

- a) Carbon cycle (10 marks)

b) Nitrogen cycle (10 marks)

**QUESTION THREE (20 MARKS)**

Explain the five (5) environmental management paradigms (20 marks)

**QUESTION FOUR (20 MARKS)**

a) Explain the three (3) pillars of sustainability? (6 marks)

b) Explain any seven (7) sustainable development goals as outlined in the 2015 United Nations General Assembly? (14 marks)

**QUESTION FIVE (20 MARKS)**

Explain ten (10) strategies human beings have used to adapt to their present and changing environment. (20 marks)