



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

BACHELOR OF (ENVIRONMENTAL SCIENCE)

ENS 136: PRINCIPLES OF ENVIRONMENTAL SCIENCE

DATE:

TIME:

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the following concepts
- i. Ecology (2 marks)
 - ii. Ecological efficiency (2 marks)
 - iii. Keystone species (2 marks)
 - iv. Ecosystem resilience (2 marks)
 - v. r-selected species (2 marks)
- b) Explain the main types of population growth models used in ecology (10 marks)
- c) “Earth’s biodiversity is the product of *evolution*”. *Discuss this statement using suitable examples* (10 marks)

QUESTION TWO (20 MARKS)

- a) Describe the flow of energy in a savanna ecosystem (10 marks)
- b) Discuss the importance of biological diversity in terrestrial ecosystems (10 marks)

QUESTION THREE (20 MARKS)

Using suitable examples, discuss the potential impacts of human activities on the carbon cycle

QUESTION FOUR (20 MARKS)

Discuss the effects of climate change on marine and terrestrial ecosystems in Kenya

QUESTION FIVE (20 MARKS)

Using examples, discuss the impacts of global environmental changes on human well-being