



# MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

ENS 136: PRINCIPLES OF ENVIRONMENTAL SCIENCE

DATE: 16/8/2021

TIME: 11.00-1.00 PM

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## INSTRUCTIONS:

Answer question ONE and any other TWO questions

### QUESTION ONE (30 MARKS)

- a) Citing relevant examples, explain the following concepts as used in environmental science
- Sustainable development (2 marks)
  - Ecosystem (2 marks)
  - Community ecology (2 marks)
  - Logistic population growth (2 marks)
  - Ecological succession (2 marks)
- b) Using relevant examples, discuss the different types of interactions among organisms in ecosystems. (10 marks)
- c) Citing relevant examples, explain the factors that regulate abundance and distribution of Elephant population in the Tsavo ecosystem. (10 marks)

### QUESTION TWO (20 MARKS)

- a) Discuss how human land use activities affect the environment in your county. (10 marks)
- b) Describe how the stratospheric ozone layer is formed and why is it beneficial. (10 marks)

**QUESTION THREE (20 MARKS)**

Using examples, describe the following cycles which occur within ecosystems.

- a) Carbon cycle (10 marks)
- b) Nitrogen cycle (10 marks)

**QUESTION FOUR (20 MARKS)**

Citing relevant examples, discuss the relationships between human population growth, poverty and environmental sustainability.

**QUESTION FIVE (20 MARKS)**

Discuss the potential impacts of global climate change on different ecosystems in Kenya.