



MACHAKOS UNIVERSITY

University Examinations For 2021/2022 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

ENS 136: PRINCIPLES OF ENVIRONMENTAL SCIENCE

DATE: 17/12/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS:

Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- a) Citing relevant examples, explain the following concepts
- i. Exponential population growth (2 marks)
 - ii. Ecology (2 marks)
 - iii. Carrying capacity (2 marks)
 - iv. Sustainable development (2 marks)
 - v. Biodiversity (2 marks)
- b) Explain the chemical process that creates photochemical smog which is a key pollutant in urban areas. (10 marks)
- c) “Human well-being depends on sustainable practices”. Discuss this statement using relevant examples. (10 marks)

QUESTION TWO (20 MARKS)

- a) Using relevant examples, discuss the different types of interactions among organisms in an ecosystems. (10 marks)
- b) Discuss the flow of energy in a natural ecosystem and highlight the impact of common activities. (10 marks)

QUESTION THREE (20 MARKS)

Using examples, discuss the potential effects of global warming on the key ecosystems in Kenya

QUESTION FOUR (20 MARKS)

Citing relevant examples, discuss the water and nitrogen cycles in terrestrial ecosystems

QUESTION FIVE (20 MARKS)

Using appropriate examples, explain the key impacts of human land use on the environment