



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF SOCIAL SCIENCES

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (SPECIAL NEEDS)

BACHELOR OF EDUCATION (ARTS)

AGE 403: APPLIED BIOGEOGRAPHY

DATE: 10/12/2021

TIME: 11.00-1.00 PM

INSTRUCTIONS:

Answer Question One and Any Other Two Questions.

QUESTION ONE(30 MARKS)

- a) Briefly explain the following concepts:
- i. Biodiversity (2 marks)
 - ii. Species evenness (2 marks)
 - iii. Invasive species (2 marks)
- b) Explain the laws of thermodynamics. (6 marks)
- c) Describe the THREE major stages of biotechnology development. (18 marks)

QUESTION TWO (20 MARKS)

- a) Define the term biotechnology. (2 marks)
- b) Examine the role of biotechnology on the following:
- i. Food security (10 marks)
 - ii. Health (8 marks)

QUESTION THREE (20 MARKS)

- a) Assess the major factors that influence the distribution of biomes. (10 marks)
- b) Explain the ways in which forests provide ecological services in an ecosystem. (10 marks)

QUESTION FOUR (20 MARKS)

Citing appropriate examples, discuss the effect of human activities on the biosphere.

QUESTION FIVE (20 MARKS)

- a) Briefly describe the theory of Island Biogeography. (4 marks)
- b) Discuss the effect of the theory on species diversity. (16 marks)