



MACHAKOS UNIVERSITY

UNIVERSITY EXAMINATIONS FOR 2022/2023 ACADEMIC YEAR

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR BACHELOR OF ARTS/ BACHELOR OF EDUCATION ARTS& BACHELOR OF EDUCATION SCIENCE

AGE 403: APPLIED BIOGEOGRAPHY

DATE: 9/3/2023

TIME: 11.00 – 1.00 PM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Explain the relevance of the laws of thermodynamics on the biosphere. (8 marks)
- b) Define the following concepts:
 - i. Species richness (2 marks)
 - ii. Species evenness (2 marks)
 - iii. Community stability (2 marks)
- c) Distinguish between tropical and temperate biomes. (6 marks)
- d) Examine ways in which the forests provide ecological services in an ecosystem. (10 marks)

QUESTION TWO (20 MARKS)

Describe the theory of island biogeography and explain its relevance in biodiversity conservation. (20 marks)

QUESTION THREE (20 MARKS)

- a) Briefly describe the history of Biotechnology. (5 Marks)
- b) Discuss the role of biotechnology in the development of a society. (15 marks)

QUESTION FOUR (20 MARKS)

- a) Assess the role of biotic and abiotic factors in species diversity and richness. (12 marks)
- b) Describe the effects of human activities on the biosphere. (8 marks)

QUESTION FIVE (20 MARKS)

Identify and evaluate any FOUR ways of quantifying biodiversity. (20 marks)