



# MACHAKOS UNIVERSITY

University Examination for 2023/2024 Academic Year

**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**

**DEPARTMENT OF ENVIRONMENTAL SCIENCES**

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR**

**BACHELOR OF EDUCATION (ARTS)**

**BACHELOR OF ARTS**

**BACHELOR OF ARTS (SPECIAL NEEDS EDUCATION)**

**AGE 403: APPLIED BIOGEOGRAPHY**

**DATE:**

**TIME:**

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**INSTRUCTIONS: Answer QUESTION ONE and any other TWO QUESTIONS.**

- a) Distinguish between the following concepts
  - i. Resistance stability and resilience stability (4 marks)
  - ii. Disjoint and endemic distributions (4marks)
- b) Discuss international Union for conservation of nature (IUCN) threat categories of wildlife species (6marks)
- c) Examine the biotic and abiotic factors that determine the geographic range of species (10marks)
- d) Explain the growing impact of present day climate change on ecosystem processes (6marks)

## **QUESTION TWO (20 MARKS)**

Evaluate how the principle of island biogeography can inform the design of protected areas

## **QUESTION THREE (20 MARKS)**

Discuss the role of biotechnology on food security and health

## **QUESTION FOUR (20 Marks)**

Explain different methods of biodiversity conservation and explain their benefits to the economy

## **QUESTION FIVE (20 MARKS)**

Discuss the effects of human population explosion on the biosphere and suggest possible solution