



# 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