



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN

BACHELOR OF SCIENCE (BIOLOGY)

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF EDUCATION (SPECIAL NEEDS EDUCATION)

SZL 412 : APPLIED ECOLOGY

DATE: 17TH JANUARY, 2025

TIME: 11.00 AM – 1.00 PM

INSTRUCTIONS:

- Answer question **ONE (Compulsory)** and **any other TWO** questions
- Use clean well labelled diagrams wherever appropriate

QUESTION ONE (30 MARKS)

- Explain the term biodiversity. (3 Marks)
- Explain the ecological effects of a very low population. (3 Marks)
- Explain the 'island biogeography theory'. (3 Marks)
- Explain the significance of meta-populations. (3 Marks)
- Explain role of governance in biodiversity conservation. (3 Marks)
- Describe three factors that affect an ecosystem's resilience. (3 Marks)
- Describe the significance of ecosystem fragmentation. (3 Marks)
- Explain the relevance of genetics in ecosystem management. (3 Marks)
- Explain the significance of ecotoxicology in conservation biology. (3 Marks)
- Explain three mechanisms by which impacts of ecological disturbances can be minimized. (3 Marks)

QUESTION TWO (20 MARKS)

Describe factors that affect species richness

QUESTION THREE (20 MARKS)

- a) Despite its potential, bio-control is not commonly used. Discuss. (10 Marks)
- b) Discuss ecological and anthropogenic factors that may facilitate proliferation of invasive species. (10 Marks)

QUESTION FOUR (20 MARKS)

Discuss potential impacts of climate change on biodiversity.

QUESTION FIVE (20 MARKS)

- a) Discuss mechanisms employed to save endangered species. (10 Marks)
- b) Explain factors that affect the success of the efforts in 5(a). (10 Marks)