



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

SBT 309: ADVANCED PLANT ECOLOGY

DATE: 10/12/2021

TIME: 11:00 – 1:00 PM

INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

- a) Giving examples, define “keystone species” in relation to plant community (3 marks)
- b) List Three impacts of climate change on plant ecology (3 marks)
- c) Describe challenges associated with the study of plants and vegetation (3 marks)
- d) Discuss the concept of plant ecophysiology (3 marks)
- e) Outline the three distribution patterns of plant populations (3 marks)
- f) Define the concept Exponential Growth giving two examples (3 marks)
- g) Discuss the three traditional plant sampling methods used in Kenya currently (3 marks)
- h) Discuss briefly the incentives you can recommend to a community in order to reduce deforestation. (3 marks)
- i) Describe briefly the ecological threats posed by overgrazing. (3 marks)
- j) What are the impacts of constructing a super highway through a national park. (3 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

QUESTION TWO (20 MARKS)

Discuss the biotic and abiotic factors that control plant ecology.

QUESTION THREE (20 MARKS)

As a plant ecologist working with Kenya Wildlife Service, discuss the major plant population characteristics found in Kenya.

QUESTION FOUR (20 MARKS)

- a) Climate change has been described as a major threat to plant ecology. Discuss conservation strategies that can mitigate and create adaptation to climate change. (10 marks)
- b) Discuss the goods and services presented by a healthy plant ecosystem. (10 marks)

QUESTION FIVE (20 MARKS)

Describe the five major types of species interactions.