



MACHAKOS UNIVERSITY

University Examinations for 2021 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

**THIRD YEAR SUPPLEMENTARY/SPECIAL EXAMINATION FOR
BACHELOR OF SCIENCE IN BIOLOGY**

SBT 309: ADVANCED PLANT ECOLOGY

DATE: 7/3/2023

TIME : 2.00 – 4.00 PM

INSTRUCTIONS

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

QUESTION ONE (30 MARKS)

- a) Differentiate between applied ecology and basic ecology (3 marks)
- b) List atleast 6 (six) Major vegetation types in the world (3 marks)
- c) List the core principles of plant ecology (3 marks)
- d) Outline the three distribution patterns of plants populations (3 marks)
- e) As a plant ecologist working with Kenya Wildlife Service, discuss 3 (three) major plant population Characteristics found in Kenya (3 marks)
- f) Differentiate exponential growth and logistic growth (3 marks)
- g) Discuss the (3) three traditional vegetation sampling methods (3 Marks)
- h) Describe briefly the ecological threats posed by charcoal burning (3 marks)
- i) Giving examples, define ecotone boundary as used in landscape ecology (3 marks)
- j) What are the impacts of constructing a railway line through a national park (3 marks)

QUESTIONS TWO (20 MARKS)

- a) Discuss the biotic components that control plant ecology (10 Marks)
- b) Describe the research areas in the study of landscape ecology (10 Marks)

QUESTIONS THREE (20 MARKS)

- a) Describe the (5) five major types of species interactions (10 Marks)
- b) Discuss the major quantitative characters of a plant community (10 Marks)

QUESTIONS 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) Describe how ecological balance is important for human existence (10 Marks)