



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

**FOURTH YEAR SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE IN APPLIED BIOLOGY/ BED(SC.)/BED(SPECIAL NEEDS)**

SBT 408: FOREST ECOLOGY

DATE: 9/3/2023

TIME: 8.30 – 10.30 AM

INSTRUCTIONS

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

QUESTION ONE (30 MARKS)

- a) Explain the factors that determine the distribution of forests (3 marks)
- b) Describe three characteristics of forest ecosystems (3 marks)
- c) Discuss the three classes of crown (3 marks)
- d) Outline the importance of boreal forests (3 marks)
- e) Discuss the importance of a forest snag (3 marks)
- f) Outline the stages of forest development (3 marks)
- g) Using diagrams describe vertical and horizontal forest structure (3 marks)
- h) Discuss the advantages of a complex ecosystem over a simple ecosystem (3 marks)
- i) Describe the characteristics of Temperate Forests (3 marks)
- j) Discuss zonation of a named forest (3 marks)

QUESTIONS TWO (20 MARKS)

- a) Describe Energy flow in a forest ecosystem (10 marks)
- b) Discuss *exsitu* and *insitu* conservation of forests (10 marks)

QUESTIONS THREE (20 MARKS)

Discuss the carbon cycle in a forest ecosystem (20 marks)

QUESTIONS FOUR (20 MARKS)

- a) Describe the requirements of sustainable forest management as used in forest conservation (10 marks)
- b) Discuss the effects of man-made disturbances on forests (10 marks)

QUESTIONS FIVE (20 MARKS)

- a) Using illustrations, explain the process of succession in a forest ecosystem (10 marks)
- b) Discuss the importance boreal forests (10 marks)