



# MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (APPLIED BIOLOGY)

BACHELOR OF EDUCATION (SPECIAL NEEDS)

BACHELOR OF EDUCATION (SCIENCE)

SBT 408:FOREST ECOLOGY

DATE: 13/8/2021

TIME: 8:30 – 10:30 AM

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## 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) | Describe three characteristics of forest ecosystems                   | (3 marks) |
| b) | Explain the factors that determine the distribution of forests        | (3 marks) |
| c) | Outline the importance of boreal forests                              | (3 marks) |
| d) | Discuss the three classes of crown                                    | (3 marks) |
| e) | Describe vertical and horizontal forest structure                     | (3 marks) |
| f) | Distinguish between the following terms                               | (3 marks) |
|    | i) Forest hedge and forest edge                                       |           |
|    | ii) Anemochory and Autochory                                          |           |
|    | iii) Zonation and succession                                          |           |
| g) | Outline the stages of forest development                              | (3 marks) |
| h) | Describe the characteristics of Tropical Deciduous Forests            | (3 marks) |
| i) | Explain the steps involved in Environmental Impact Assessment (EIA)   | (3 marks) |
| j) | Discuss the advantages of a complex ecosystem over a simple ecosystem | (3 marks) |

**SECTION B: ANSWER ANY TWO (2) QUESTIONS (TOTAL 40 MARKS)**

**QUESTION TWO (20 MARKS)**

- a) Discuss the process of succession in a forest ecosystem. (10 marks)
- b) Discuss the importance of forests (10 marks)

**QUESTION THREE (20 MARKS)**

- a) Describe the flow of Nitrogen in a forest ecosystem (10 marks)
- b) Discuss *ex-situ* and *in-situ* conservation of forests (10 marks)

**QUESTION FOUR (20 MARKS)**

Discuss the role of abiotic factors in a forest ecosystem (20 marks)

- a) Describe how sustainable forest management (SFM) can be used in forest conservation. (10 marks)
- b) Discuss the effects of natural disturbances on forests (10 marks)