



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE
(BIOLOGY)

SBT 408: FOREST ECOLOGY

DATE: 25/7/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer ALL Questions in Section A and ANY TWO questions in Section B

SECTION A (COMPULSORY)

1.
 - a)
 - i Explain the characteristics of forest ecosystems? (2 marks)
 - ii Explain endemism in reference to Eastern Arc Mountains. (2 marks)
 - iii Explain why are forests different at continental level? (1 mark)
 - b)
 - i Explain meaning of the term vegetation zonation. (2 marks)
 - ii Describe the adaptations of trees to tropical rain forest climate. (3 marks)
 - iii Outline the basic sampling designs used to analyze forest structure and composition. (4 marks)
 - c)
 - i Describe impact of forest degradation on the forest ecosystem. (1 mark)
 - ii State the limitations of protected areas in conserving biodiversity (2 marks)
 - iii Explain the role of tree crown in a forest ecosystem. (1 mark)
 - d)
 - i Describe the effects of disturbance on forest dynamics. (2 marks)

- ii Explain the extent and classification of forest resources in Kenya. (4 marks)
 - iii Outline some of the issues facing forest health in East Africa. (3 marks)
- e)
 - i Explain the three main approaches used to study forest ecosystems. (3 marks)
 - ii Describe nutrient cycling in forest ecosystem. (1 mark)
 - iii State the key issues to be considered in EIA in the implementation of Forest policy in Kenya. (3 marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

- 2.
 - a) Discuss the classification of forests according to latitude. (10 marks)
 - b) Outline the vegetation zonation of East African mountains, case of Mt. Kenya. (10 marks)
- 3.
 - a) Describe mangrove adaptations to their environment. (10 marks)
 - b) Explain the remote sensing techniques used to analyze forest extend and condition. (10 marks)
- 4.
 - a) Discuss the threats facing the conservation of forests in Kenya. (10 marks)
 - b) Discuss the general characteristics of tropical forests. (10 marks)
- 5.
 - a) Describe the abiotic environment of forest ecosystems. (10 marks)
 - b) Discuss objectives and strategies of the National Forest Policy. (10 marks)