



# MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2015/2016 Academic Year

**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT**

**DEPARTMENT OF ENVIRONMENTAL STUDIES**

**FIRST SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN ENVIRONMENTAL STUDIES**

**ERC 304: AGROFORESTRY SYSTEMS AND PRACTICES**

**Date:**

**Time:**

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## **INSTRUCTIONS.**

- This paper consists of two sections - A and B.
- Answer questions ONE (compulsory) and any other TWO (2) questions from section B.
- Your answers MUST be written in the booklet provided.

## **SECTION A: (COMPULSORY) (30 MARKS)**

1. (a) Explain the following terms as applied in agroforestry systems
  - (i) Agroforestry (2 marks)
  - (ii) Afforestation (2 marks)
  - (ii) Improved fallows (2 marks)
  - (iv) Biodiversity hot spots (2 marks)
  - (v) Extension forestry. (2 marks)
- (b) Explain five (5) criterion used in selecting suitable tree species or shrubs for wind break in dryland areas of Kenya. (10 marks)
- c) Discuss any five (5) characteristics used in the selection of suitable alley tree species in Kenya. (10 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION. EACH QUESTION CARRIES 20 MARKS.**

2. By use of specific examples, explain ten (10) benefits derived from the application of agroforestry systems in Kenya (20 marks)
3. (a) Explain the potential economic advantages and disadvantages of a silvopastoral practice as opposed to open grazing. (5 marks)  
  
(b) Discuss the structural, functional and ecological classification of agroforestry systems. (15 marks)
4. (a) Explain five challenges facing agroforestry adoption in East Africa. (5 marks)  
  
(b) Discuss the importance of multipurpose trees and shrubs in silvopastoral agroforestry systems in arid and semi arid areas (ASALs)(10 marks)  
  
(c) Citing examples, explain how plant species interactions can be used to mitigate the “Hidden hunger concept” in enhancement of crop productivity within agroforestry systems in Kenya (5 marks)
- 5 (a) Discuss the importance of riparian vegetation buffer strips in dryland areas as applied to agroforestry systems in Kenya. (10 marks)  
  
(b). Discuss how forestry and agroforestry could be applied to address the development agenda in Kenya (10 marks)