



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL STUDIES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE
IN ENVIRONMENTAL RESOURCE CONSERVATION

ENS 233: SOIL HABITATS

Date: 2/12/2016

Time: 8:30 – 10:30 AM

INSTRUCTIONS:

Answer Question One and Any Other Two Questions

SECTION A: 30 MARKS (COMPULSORY)

QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) Define the following terms;
- (i) Soil (2 marks)
 - (ii) Ionic double layer (2 marks)
 - (iii) Peds (2 marks)
 - (iv) Soil Cation Exchange Capacity (2 marks)
 - (v) Soil available water (2 marks)
- (b) Describe the Hysteresis phenomenon (10 marks)
- (c) State Five (5) functions of organic matter (5 marks)

- (d) Explain carbonation as a soil forming process. (5 marks)

SECTION B: 40 MARKS: ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- (a) With an aid of diagram show the effect of soil texture on soil-water retention. (7 marks)
- (b) Explain why there is a significant difference between the concentration of Carbon dioxide in the soil and in the atmosphere (5 marks)
- (c) Explain the factors which hasten the rate of soil development. (8 marks)

QUESTION THREE (20 MARKS)

- (a) Explain soil as a three phase system (6 marks)
- (b) Describe the soil Master horizons (14 marks)

QUESTION FOUR (20 MARKS)

- (a) Explain the main types of soil remediation techniques for the removal of various pollutants and contamination from soils (12 marks)
- (b) Explain the following statements;
- (i) Why soil horizon A would tend to be horizon B (4 marks)
- (ii) Why soil horizon B would tend to be horizon A (4 marks)

QUESTION FIVE (20 MARKS)

- Discuss the forms in which essential elements are absorbed by plants. (20 marks)