



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

SOL 100: INTRODUCTION TO SOIL SCIENCE

DATE: 5/12/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Answer *ALL* questions from Section A and any other *TWO* from Section B:

SECTION A: COMPULSORY: (30 MARKS)

QUESTION ONE

- Explain FOUR functions of humus (4 marks)
- Describe FOUR ways in which soil water is held (4 marks)
- Explain FOUR factors that influence soil structure development (4 marks)
- Describe the THREE classifications of clay minerals (3 marks)
- Describe the FOUR transformation processes in nutrient cycling (4 marks)
- Describe the FOUR classifications of soil structure based on the grade of soil (4 marks)
- Explain the THREE bacteria involved in mineral transformation (3 marks)
- Describe FOUR classification of soil survey based on scale of mapping (4 marks)

SECTION B: Answer any TWO Questions (40 Marks)

QUESTION TWO (20 MARKS)

Discuss FIVE factors that affecting population of soil microorganisms

QUESTION THREE (20 MARKS)

Discuss FOUR factors that influence soil formation

QUESTION FOUR (20 MARKS)

Discuss the FIVE principles of soil survey

QUESTION FIVE (20 MARKS)

Giving TWO examples in each case, describe the role of the following microorganisms in the soil

- a) Bacteria (5 marks)
- b) Protozoa (5 marks)
- c) Fungi (5 marks)
- d) Algae (5 marks)