



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION.)

BACHELOR OF EDUCATION (SPECIAL NEEDS EDUCATION)

BACHELOR OF EDUCATION (SCIENCE)

SOL 100: INTRODUCTION TO SOIL SCIENCE

DATE: 17/6/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS:

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

SECTION A: COMPULSORY: (30 MARKS)

QUESTION ONE (30 MARKS)

- Explain TWO differences of soil materials transported by water compared to those transported by wind (4 marks)
- Describe TWO ways in which time affects soil forming process (4 marks)
- Explain FOUR factors that influence the rate of humification (4 marks)
- Explain TWO differences between Cheluviation and leaching (4 marks)
- Explain FOUR effects of soil structure to plant growth (4 marks)
- Explain the sources of charges on soil colloids (4 marks)
- Explain TWO effects of clay to the cation exchange capacity (4 marks)
- Explain TWO beneficial activities of soil micro-organisms to crop production (2 marks)

SECTION B: Answer any TWO Questions (40 Marks)

QUESTION TWO (20 MARKS)

With an aid of a well labelled diagram, describe the soil horizons

QUESTION THREE (20 MARKS)

- a) Discuss FIVE roles of bacteria to soil formation (10 marks)
- b) Discuss FIVE effects of mineral type to soil behaviour (10 marks)

QUESTION FOUR (20 MARKS)

Discuss the effects of climate in the soil forming process

QUESTION FIVE (20 MARKS)

Describe silicate clays giving examples in each case