MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

BCECD 303: SOIL MECHANICS II

DATE: 9/8/2021 **TIME: 2.00-4.00 PM**

INSTRUCTIONS

- *This paper consists of **Five** questions.*
- *Answer question **ONE** and any other **TWO** questions*
- *Maximum marks for each part of the question are as shown.*

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Explain *THREE* objectives of soil exploration. (6 marks)

b) Illustrate *FOUR* techniques used for improving soils. (12 marks)

c) Using sketches, describe *THREE* types of slope failures. (12 marks)

QUESTION TWO (20 MARKS)

a) Explain *FOUR* causes of instability in slopes. (8 marks)

b) Outline *FOUR* stages of site investigation. (12 marks)

QUESTION THREE (20 MARKS)

a) Explain *FOUR* types of landslide movements. (8 marks)

b) With the aid of sketches, describe the following methods of soil investigation: (12 marks)

i. Open excavation

ii. Boring.

QUESTION FOUR (20 MARKS)

a) Outline the standard penetration test as used in soil exploration. (8 marks)

b) Explain *FOUR* categories of flow that occur in soils. (12 marks)

QUESTION FIVE (20 MARKS)

a) Explain the term soil improvement. (2 marks)

b) Distinguish between the following types of soil sample: (6 marks)

i. Disturbed sample

ii. Undisturbed sample

iii. Non representative sample

c) Outline *SIX* sections of a soil investigation report. (12 marks)