MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST SEMESTER EXAMINATION FOR
DIPLOMA IN BUILDING CONSTRUCTION AND TECHNOLOGY
DIPLOMA IN CIVIL ENGINEERING

BCE CD/BCE BD 303: SOIL MECHANICS II

Date: 12/8/2016 **Time: 8.30-10.30 AM**

INSTRUCTIONS:

- *This paper comprises o **ffive** questions*
- *Question **one** is **compulsory** and carry 30 marks*
- *Answer **question one** and any **other two** questions*
- No mobile phones are allowed in the exam room.

1. a) Briefly explain why it is necessary to carry out site investigations citing six reasons. (6 marks)

   b) Describe briefly the role of desk studies, reconnaissance and sub-surface exploration in siteexplorations. (9 marks)

   c) In what ways does water added to a slope affect its stability? (5 marks)

   d) Briefly explain the factors that influence the choice of methods used to investigate sites. (10 marks)

2. a) Discuss the major triggering events for mass movement processes. (10 marks)

   b) Define the following terminologies:

      i. Angle of repose

      ii. Sensitive soils

      iii. Hydrocompacting clays

      iv. Groundwater

v. quick clays (10 marks)

3 a) Briefly explain five engineering techniques that can be used to prevent and mitigate against mass movement hazards. (10 marks)

b) Briefly explain fiveaims of slope stability. (10 marks)

4. a) Discuss the methods used in soil stabilization. (10 marks)

b) Briefly explain the following drilling methods used in soil sampling.

i. Auger boring

ii. Wash boring

iii. Rotary drilling

iv. Percussion drilling (10 marks)

5. Briefly describe the four classes of mass movement in natural and artificial slopes. (20 marks)