



MACHAKOS UNIVERSITY

University Examinations 2016/2017

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: 31/5/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

- *This paper comprises of **five** 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.*

- Briefly explain five engineering techniques that can be used to prevent and mitigate against mass movement hazards. (10 marks)
 - Briefly explain five aims of slope stability. (10 marks)
 - Briefly explain the factors that influence the choice of methods used to investigate sites. (10 marks)
- Discuss the methods used in soil stabilization. (10 marks)
 - Briefly explain the following drilling methods used in soil sampling.
 - Auger boring
 - Wash boring
 - Rotary drilling
 - Percussion drilling (10 marks)
- 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 site explorations. (9 marks)
- c) In what ways does water added to a slope affect its stability? (5 marks)
- 4. 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)
- 5. Briefly describe the four classes of mass movement in natural and artificial slopes. (20 marks)