



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 CIVIL ENGINEERING

BCECD 303: SOIL MECHANICS II

Date:

Time:

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.

- 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 site explorations. (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)
- 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 five aims 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)