



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**BACHELOR OF ENGINEERING IN BUILDING & CIVIL ENGINEERING
(BEBC)**

[Institutional Based Programmes]

EBC 4412: ENGINEERING GEOLOGY II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (30 marks)

- a) Outline the stages of site investigations. **(8 marks)**
 - b) Enumerate the major objectives of site investigations. **(5 marks)**
 - c) Distinguish between quarrying and mining. **(2 marks)**
 - d) What type of materials can be obtained through quarrying? **(4 marks)**
 - e) Outline the effects deformational structures (faults folds and joints) may have on construction. **(6 marks)**
 - f) How do earthquakes form? **(2 marks)**
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g) Briefly discuss the **TWO** types of seismic body waves. (3 marks)

Question Two (20 marks)

a) What is mass wasting/mass movement? (2 marks)

b) Outline the main types of mass wasting. (15 marks)

c) Which factors can trigger mass movement? (3 marks)

Question Three (20 marks)

a) Define a dam. (1 mark)

b) Outline the issues that must be addressed in a dam site investigation. (8 marks)

c) What purposes does a spillway serve in a dam? (3 marks)

d) Discuss the main causes of dam failure. (8 marks)

Question Four (20 marks)

a) What is coastal erosion? (5 marks)

b) Briefly discuss the major causes of coastal erosion. (10 marks)

c) Outline the factors that determine the rate of coastal erosion. (5 marks)

Question Five (20 marks)

a) Briefly discuss exploratory drilling as a tool for ground investigation. (5 marks)

b) Outline the effects of earthquakes. (8 marks)

c) What factors determine the method of tunnel construction? (3 marks)

d) Discuss any **TWO** of the following dam types. (4 marks)

(i) Arch Dam

(ii) Gravity Dam

(iii) Rock Fill Dam

(iv) Earth Fill Dam (Earthen Dam)