



TECHNICAL UNIVERSITY OF MOMBASA  
**Faculty of Engineering &  
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**CERTIFICATE IN BUILDING & CIVIL ENGINEERING (CBCE 13M)**

EBC 1205: ENGINEERING GEOLOGY

**END OF SEMESTER EXAMINATION**

SERIES: APRIL 2014

**TIME ALLOWED: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

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

All questions carry equal marks

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where necessary  
This paper consists of **TWO** printed pages

### Question One

- a) Distinguish the following: **(4 marks)**
- (i) Quartz from mica based on cleavage
  - (ii) Calcite from fluorite based on hardness
  - (iii) Pyrite from Gaena based on colour
  - (iv) Hematite from magnetite based on streak
- b) Explain the following terms as applied to minerals: **(12 marks)**
- (i) “Streak”
  - (ii) Diaphaneity”
  - (iii) “Luster”
  - (iv) “Hardness”
- c) Explain the abundance of quartz in sands compared to mica. **(4 marks)**

### Question Two

- a) Explain the term “cement” as applied to sedimentary. **(3 marks)**
- b) With the aid of a sketch, describe a dyke **(7 marks)**
- c) Outline FIVE characteristics for a basalt. **(10 marks)**

### Question Three

- a) With the aid of sketches, distinguish “Heave” from overlap as applied to faults. **(6 marks)**
- b) Explain the following: **(14 marks)**
- (i) Significance of folds
  - (ii) FOUR geological effects caused by faults

### Question Four

- a) Briefly explain THREE methods applied to prospect quarries. **(6 marks)**
- b) Explain geological influence of rocks on quarrying of soft rocks. **(12 marks)**

### Question Five

- a) Explain the following terms as applied to geological maps. **(4 marks)**
- (i) In lieu
  - (ii) Strike
- b) Explain FOUR major factors to be considered when selecting a site for construct of a dam. **(8 marks)**
- c) Outline FOUR major geological consecrations that apply to rock tunneling. **(8 marks)**