



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

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

EBC 1201: ENGINEERING GEOLOGY

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2015**

**TIME ALLOWED: 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 of the **FIVE** questions

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required

This paper consists of **TWO** printed pages

### **Question One**

- a) Outline the role of engineering geology in construction sites **(12 marks)**
- b) Explain the term “mineral hardness” and its significance in use of excavation plant **(3 marks)**
- c) Distinguish an igneous intrusive from a volcanic stratum if the two rock formation occur on a site **(5 marks)**

### **Question Two**

- a) Distinguish the following:
  - (i) A sill from a dyke
  - (ii) Conglomerate from Agglomerate **(10 marks)**
- b) Outline FOUR characteristics for a basalt **(8 marks)**
- c) Explain the term “cement” as applied to diagenetic changes in sedimentary petrology **(2 marks)**

### **Question Three**

- a) With the aid of sketches, distinguish normal fault from reverse fault **(6 marks)**
- b) Outline SIX geological significance caused by faults in sedimentary beds **(12 marks)**
- c) A construction site is suspected to consist of folded strata. Explain criteria for recognition of the folds if you visited the site **(6 marks)**

### **Question Four**

- a) Describe the THREE types of quarries based on use of excavated material and naming TWO rock types for each **(8 marks)**
- b) Explain the influence of geology on excavation of lateritic soils required for roadwork **(12 marks)**

### **Question Five**

- a) Explain the following terms as geological features:
  - (i) Strike
  - (ii) Outlier **(4 marks)**
- b) Outline FOUR for the following:
  - (i) Major geological problems associated with tunnels
  - (ii) Major geological criteria used for selection of dam sites **(16 marks)**