



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**CERTIFICATE IN BUILDING & CIVIL ENGINEERING (CBCE 12S)**

EBC 1304: CONSTRUCTION MATERIALS III

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: OCTOBER 2013**

**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

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

### **Question One**

- a) Explain batching of materials by:
- (i) Volume
  - (ii) Weight
- (6 marks)**
- b) Explain the regular attention taken when maintaining and using cement weighing machines
- (7 marks)**
- c) State the advantages of batching cement from silo
- (7 marks)**

### **Question Two**

- a) Explain the properties of hardened concrete and factors that influence them
- (10 marks)**
- b) With the aid of a sketch, briefly describe compacting factor test
- (10 marks)**

### **Question Three**

- a) With the aid of a flow chart, describe wet process of manufacturing cement
- (8 marks)**
- b) Briefly describe the properties of the **FOUR** components of ordinary Portland cement
- (12 marks)**

### **Question Four**

- a) Briefly describe the following types of cement:-
- (i) High alumina cement
  - (ii) Super-sulphated cement
- (10 marks)**
- b) With the aid of sketches, describe the following terms as used in absorption and surface moisture of aggregates:
- (i) Oven dry
  - (ii) Air dry
  - (iii) Wet
  - (iv) Saturated and surface dry
- (10 marks)**

### **Question Five**

- a) State the qualities of:
- (i) Sand for concrete
  - (ii) Water for concrete
- (8 marks)**
- b) State **SIX**
- (i) Advantages
  - (ii) Disadvantages of concrete as a construction material
- (12 marks)**