



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (HDBCE 13J)

EBC 2102: CIVIL ENGINEERING MATERIALS I

END OF SEMESTER EXAMINATION
SERIES: APRIL 2013
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

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One

- a) Briefly describe the formation of the **THREE** geological classes of rocks giving **THREE** examples of each. **(9 marks)**
- b) State **SIX** factors considered in locating a quarry. **(6 marks)**
- c) State the precautions taken when blasting. **(5 marks)**

Question Two

- a) Explain **FIVE** ways of maintaining stonework. **(5 marks)**
- b) Outline the major operations involved in the manufacture of clay bricks. **(10 marks)**
- c) State **FIVE** qualities of good bricks. **(5 marks)**

Question Three

- a) Briefly explain the following properties of clay bricks:
- (i) Appearance
 - (ii) Strength
 - (iii) Moisture movements **(15 marks)**
- b) Briefly describe the production of glazed bricks. **(5 marks)**

Question Four

- a) (i) Explain the meaning of timber conversion.
(ii) Describe with the aid of sketch the following conversion method:
- Tangential
 - Through and through/slab sawn
 - Quartering **(6 marks)**
- b) Describe briefly the artificial kiln method of seasoning timber. **(5 marks)**
- c) Describe the following preservation methods:
- (i) Hot and cold open tank
 - (ii) Immersion methods
 - (iii) Diffusion process **(9 marks)**

Question Five

- a) Define the following terms used for metals:
- (i) Ductility
 - (ii) Malleability
 - (iii) Hardness **(6 marks)**
- b) Briefly describe the following metal treatment:
- (i) Pickling
 - (ii) Sand blasting

(iii) Sherardizing

(9 marks)

c) State the effects of increase of carbon in steels.

(5 marks)