



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 13M)

ECV 2101: CIVIL ENGINEERING MATERIALS I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 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 **THREE** printed pages

Question One

- a) Outline the physical classification of rocks giving TWO examples or rocks in each class (6 marks)
- b) Briefly describe the deterioration of stones caused by the following: (6 marks)
- (i) Rain
 - (ii) Wind
 - (iii) Temperature variation
- c) Define the following terms as used in production of stones: (4 marks)
- (i) Quarrying
 - (ii) Dressing
- d) State FOUR factors considered in choosing the location of a quarry site (4 marks)

Question Two

- a) With the aid of a sketch, briefly describe natural seasoning of timber (8 marks)
- b) State: (4 marks)
- (i) TWO advantages of natural seasoning
 - (ii) TWO disadvantages of natural seasoning
- c) Sketch the following timber defects: (8 marks)
- (i) Wane
 - (ii) Cupping
 - (iii) Twisting
 - (iv) Bowing

Question Three

- a) Briefly explain the major operations in the manufacture of clay bricks (8 marks)
- b) State **SIX** qualities of a good clay brick (6 marks)
- c) State **TWO** reasons of drying bricks during the manufacturing process (2 marks)
- d) State **TWO** reasons of glazing clay products (2 marks)
- e) Define the term efflorescence as applied to bricks (2 marks)

Question Four

- a) Define the following terms as used in describing properties of materials:
- (i) Hardness
 - (ii) Brittleness
 - (iii) Ductility

(iv) Malleability (6 marks)

- b) With the aid of a sketch, briefly describe the process of extracting pig iron from iron ore (9 marks)
- c) List SIX non-ferrous metals (3 marks)
- d) Explain the term “heat treatment” to steel (2 marks)

Question Five

- a) State SIX factors considered in selecting building materials (6 marks)
- b) State FOUR objectives of seasoning timber (4 marks)
- c) State FOUR advantages of plywood over natural timber boards (4 marks)
- d) List TWO ores from which the following metals are extracted:
(i) Copper
(ii) Iron (4 marks)
- e) State TWO properties of aluminum (2 marks)