



THE TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

CERTIFICATE IN BUILDING & CIVIL ENGINEERING (CT I 12S)

EBC 1101: CONSTRUCTION MATERIALS I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY 2013

TIME: 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) List **TEN** uses of rocks in civil engineering. (5 marks)
- b) State **THREE** factors considered in locating a stone quarry. (3 marks)
- c) (i) Outline the chemical classification of rocks.
(ii) Give **TWO** examples in each class in c(i) above (8 marks)
- d) Differentiate “dressing” from “quarrying” with respect to stones. (4 marks)

Question Two

- a) State **SIX** characteristics of a good timber. (6 marks)
- b) Draw a cross-section of an exogenous tree trunk and label all the parts. (6 marks)
- c) Illustrate the following timber defects:
 - (i) Cupping
 - (ii) Twisting
 - (iii) Wane
 - (iv) Round knot(8 marks)

Question Three

- a) Illustrate the following methods of conversion.
 - (i) Rotary peeling
 - (ii) Quarter sawing
 - (iii) Through and through sawing(6 marks)
- b) State **SIX** advantages of plywood over natural timber boards. (6 marks)
- c) Outline **EIGHT** characteristics that determine the suitability of building stones. (8 marks)

Question Four

- a) (i) Differentiate between “Ferrous” and “non ferrous metals”
(ii) Give **TWO** examples of each metal in a(i) (6 marks)
- b) Define the following properties:
 - (i) Ductility
 - (ii) Malleability
 - (iii) Hardness
 - (iv) brittleness(4 marks)
- c) Outline the following metal forming processes.
 - (i) Extrusion
 - (ii) Casting
 - (iii) Rolling

(iv) Drawing

(8 marks)

d) Define the term “ore” as used in metals

(2 marks)

Question Five

a) List **EIGHT** products made from clay used in civil engineering.

(4 marks)

b) Briefly explain the major operations in the manufacture of clay bricks.

(8 marks)

c) Outline the main features and uses of the **THREE** classes of bricks according to quality.

(6 marks)

d) With the aid of a sketch, show the dimensions of a standard brick.

(2 marks)