



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

ECV2101 : CIVIL ENGINEERING MATERIALS

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2019

TIME: 2 HOURS

DATE: Pick Date Aug 2019

Instructions to Candidates

You should have the following for this examination

- Answer Booklet, examination pass and student ID*
- Drawing instruments.*
- Scientific calculator*

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.

PAPER 1

QUESTION ONE

- a) With the aid of sketches illustrate the following methods of conversion of timber:
- i. Through and through
 - ii. Rotary conversion of plywood
- (6marks)
- b) Illustrate the following timber defects
- i. Cupping
 - ii. Bowing
- (4marks)
- c) Draw a cross section of a tree trunk and label all the parts
- (6marks)
- d) State FOUR properties of a good timber preservative
- (4marks)

QUESTION TWO

- a) Outline FOUR properties that you would consider when selecting building stones
- (6marks)
- b) Outline the physical classification of rocks
- (6marks)
- c) Explain FOUR factors considered in selecting the location of a stone quarry
- (6marks)
- d) State TWO reasons for dressing stones
- (2marks)

QUESTION THREE

- a) Outline the method of manufacture of clay bricks.
- (8marks)

b) List SIX clay products used in civil engineering (6marks)

c) Outline the effect of the following in a brick earth

i. Pebbles of stone and gravel

ii. Organic matter

(4marks)

d) Explain TWO reasons for drying bricks before burning

(2marks)

QUESTION FOUR

a) i. Differentiate between ferrous and non-ferrous metals

ii. Give TWO examples of metals in a (i)

(4marks)

b) Outline the following metal forming processes

i. Drawing

ii. Casting

(8marks)

c) Sketch SIX common forms (shapes) of commercial steel

(8marks)

QUESTION FIVE

a) Outline any TWO principal constituents of glass and state the main function of each ingredient.

(4marks)

b) State FOUR:

i. Desirable properties of a good paint

ii. Properties of plastics

iii. Reasons for painting

(12marks)

c) Differentiate between tar and bitumen

(4marks)