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.

QUESTION ONE

a) Differentiate between softwoods and hardwoods   (6marks)

a) Illustrate the following timber defects
   i. Twisting
   ii. Cupping

       (4marks)

b) Draw a cross section of a tree trunk and label all the parts

       (6marks)

c) State FOUR advantages of plywood over natural timber boards

       (4marks)

QUESTION TWO

a) Outline FOUR properties that you would consider when selecting building stones   (6marks)

b) Briefly describe the formation of sedimentary rocks   (6marks)

c) outline FOUR factors considered in selecting the location of a stone quarry

       (4marks)

d) Explain FOUR uses of stones as a construction material (4marks)

QUESTION THREE

a) Outline the major operations in the 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

    iii. Excess lime

(6marks)

QUESTION FOUR

a) i. Define the term" ferrous metals"

    ii. list FOUR non-ferrous metals

(4marks)

b) outline the following metal forming processes

    i.   Drawing

    ii.   Rolling

    iii.   Forging

    iv.   extruding

(8marks)

c) Sketch FOUR common forms (shapes) of steel sections   (8marks)

Question five

a) Differentiate between

   i.   Annealed and tempered glass

   ii. Thermosetting plastics and thermoplastics

   iii. Tar and bitumen

                                                              (12marks)

b) State FOUR:

   i. Desirable properties of a good paint

   ii. Reasons for painting   (8marks)