



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations for 2014/2015

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND SEMESTER EXAMINATION FOR DIPLOMA IN BUILDING
CONSTRUCTION TECHNOLOGY AND DIPLOMA IN CIVIL ENGINEERING

BCE CD 116: ENGINEERING MATERIAL 1

DATE: 1/4/2015

TIME: 2:00 – 4:00 pm

Instructions

- *This paper consists of five questions*
- *Answer question 1 (compulsory) and any other two questions*

1. a) Sketch a cross section of a tree trunk and name any five parts stating their functions.
(10 marks)
- b) Discuss the following group of stones and state two building stone from each group.
 - (i) Igneous
 - ii) Sedimentary
 - iii) Metamorphic(9 marks)
- c) Discuss the following type of clay product.
 - i) clay brick
 - ii) Clay floor tiles(5 marks)
- d) Define the following terms as used in metal.
 - i) Malleability
 - ii) Harness

- iii) Strain (6 marks)
2. a) With an aid of sketch, discuss the following type of timber defect.
- i) Cup shake
 - ii) Star shake
 - iii) Waney edge (9 marks)
- b) With an aid of sketch explain the following methods of timber conversion:-
- i) Tangential
 - ii) Through and through (8 marks)
- c) Differentiate between a block board and a lamin board. (3 marks)
3. a) State five properties of steel. (5 marks)
- b) Explain the process of manufacturing cast iron. (6 marks)
- c) Explain the heat treatment given to a metal
- i) Tempering
 - ii) Case hardening
 - iii) Annealing (9 marks)
4. a) Outline five qualities of good building stones. (5 marks)
- b) State 3 advantages and 3 disadvantages of stones as building stone. (3 marks)
- c) State four uses of stone. (4 marks)
- d) Describe crushing test for a stone. (5 marks)
- e) Explain wedging method as a way of mining stone. (3 marks)
5. a) Discuss the procedure of manufacturing of clay products. (10 marks)
- b) Explain two methods of glazing applied to clay product. (6 marks)
- c) Describe two ingredients of a good brick earth. (4 marks)