



(The University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS

2012/2013

FIRST YEAR SECOND SEMESTER EXAMINATIONS

FOR DIPLOMA

IN

CIVIL AND STRUCTURAL ENGINEERING

COURSE CODE: DCE 064

COURSE TITLE: CIVIL ENGINEERING MATERIALS

DATE:

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES

This paper consists two sections A and B

Attempt ALL questions in section A

Attempt any THREE questions in section B

Section A (Compulsory)

Question one (18 Marks)

- a) Differentiate between the following terms (4 marks)
- Porosity and void ratio
 - Elasticity and plasticity
- b) Using a stress-strain diagram describe ductility, strength and toughness (6 marks)
- c) What are alloys and why is it necessary to alloy steel? (4 marks)
- c) Differentiate between addition and condensation polymerisation (4 marks)

Question two (13 marks)

- a) Differentiate between (4 marks)
- Perforated and hollow bricks
 - Over-burnt and under-burnt bricks
- b) Describe decay in timber (6 marks)
- c) Briefly describe seasoning of stone (3 marks)

Section B (Attempt any Three Questions)

Question three (13 Marks)

- a) Outline the characteristics of a good timber for structural purposes (5 marks)
- b) Describe the natural seasoning of wood and state its merits (6 marks)
- c) Define quarrying of stones (2 marks)

Question four (13 Marks)

- a) Outline the importance of annealing of steel (4 marks)
- b) Describe how to prevent diseases in timber (5 marks)
- c) Differentiate between the following; (4 marks)
- Thermoplastic and thermosetting plastic
 - Rubber and plastic

Question five (13 Marks)

- a) Describe conversion in timber (8 marks)
- c) Outline the properties and uses of Plastics (5 marks)

Question six (13 Marks)

- b) State four uses of Rubber (4 marks)
- c) Describe the classification of Polymers (6 marks)
- d) What is the effect of resins and plasticizers as constituents of plastics (3 marks)