



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE**

**DIPLOMA**

**IN**

**CIVIL ENGINEERING AND BUILDING CONSTRUCTION**

**COURSE CODE: DCE /DBC 064**

**COURSE TITLE: CIVIL ENGINEERING MATERIALS**

**DATE: THURSDAY 28<sup>TH</sup> APRIL 2022 TIME: 8.00AM – 10.00AM**

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**INSTRUCTIONS:**

- Answer Question **ONE** and any other **TWO** Questions
- Marks for each question are indicated in the parenthesis.
- Examination duration is **2 Hours**
- Use of Mobile phones is **NOT ALLOWED** in the examination room.

**MMUST observes ZERO tolerance to examination cheating**

This Paper Consists of 2 Printed Pages. Please Turn Over.

**Question One – Compulsory (30 Marks)**

- a) A client wants to put up a residential house but is faced by the dilemma on choice of construction materials. Describe FOUR classifications of materials the client would choose from (8 Marks)
- b) Differentiate between flexible and brittle materials and sketch the stress-strain curve for brittle materials (5 Marks)
- c) A cross-section through an exogenous tree shows the various parts of the tree. Explain any FIVE of these parts. (5 Marks)
- d) Admixtures are added to clay products to improve its properties. Discuss any FOUR types of admixtures (4 Marks)
- e) Building stones may deteriorate due to the action of various agencies. Discuss. (4 Marks)
- f) State why you would advice a client to coat surfaces of their buildings using paints (4 Marks)

**Question Two (20 Marks)**

- a) Differentiate between the following; (6 Marks)
  - i. Plastic deformation and elastic deformation
  - ii. Stress and strain
  - iii. Ferrous and non-ferrous metals
- b) Give reasons why you would recommend use of burnt clay hollow blocks for wall partitions (4 Marks)
- c) Discuss with the aid of a diagram knots as structural defects in timber (10 Marks)

**Question Three (20 Marks)**

- a) State the properties of glass giving how and where each property is applicable (5 Marks)
- b) Midland Emporium has plans to own a building stones quarry for their numerous civil engineering works. Advice them on how to locate the quarry (5 Marks)
- c) Define stone dressing and outline the advantages of quarry dressing over site dressing (10 Marks)

**Question Four (20 Marks)**

- a) Define polymerization and state two types of polymerization (3 Marks)
- b) Explain in details how compressive strength and water absorption tests are performed to ascertain the quality of clay bricks (7 Marks)
- c) Give the properties of asbestos as an engineering material stating where they are best applicable (5 Marks)
- d) Outline any FIVE differences between asphalt and tar (5 Marks)