



# TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT

**UNIVERSITY EXAMINATION FOR:**

DIPLOMA IN ARCHITECTURE

DIPLOMA IN QUANTITY SURVEYING

**EAR 2108: CONSTRUCTION MATERIALS I**

END OF SEMESTER EXAMINATION

YEAR TWO SEMESTER TWO

SERIES: APRIL 2022

**TIME: 2 HOURS**

**DATE: Pick Date APRIL 2022**

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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### **QUESTION ONE (30 MARKS)-COMPULSORY**

- a) Identify and explain the SIX defects that a builder has to consider when selecting stone for building purposes. (6 marks)
- b) Explain the SIX differences between soft wood and hard wood. (6 marks)
- c) Explain SEVEN properties of bricks that have to be taken into account in the production process. (7 marks)
- d) What are the SIX properties that distinguish ferrous from non-ferrous metals? (6 marks)
- e) Define the following FIVE terms: Quarrying, Mining, Endogenous trees, Exogenous trees, Star shake. (5 marks)

### **QUESTION TWO (15 MARKS)**

- a) Explain the THREE methods used for quarrying stone. (6 marks)
- b) What are the SIX factors that have to be considered in selecting a site for quarrying? (6 marks)
- c) Explain the following TWO tests that are done on stone used for construction purposes: Compression test, Absorption test. (3 marks)

### **QUESTION THREE (15 MARKS)**

- a) Outline the FOUR ways used for the conversion of timber logs to suitable sizes with minimal waste. (8 marks)
- b) Explain the following SEVEN components that constitute the cellular structure of a tree: Pith, heartwood, sapwood, cambium layer, inner back, outer back, medullary rays. (7 marks)

### **QUESTION FOUR (15 MARKS)**

- a) Identify and explain the FOUR crucial tests that are done on clay bricks. (8 marks)
- b) Explain the SEVEN essential requirements that must be met in the production of good bricks to be used for construction purposes. (7 marks)

### **QUESTION FIVE (15 MARKS)**

- a) What are the FOUR advantages that non-ferrous metals have when compared to ferrous metals that makes them more preferable in the construction industry? (4 marks)
- b) Explain the THREE phases used in the integrated steelmaking process. (6 marks)
- c) Explain how the following tests are performed on metals: Tensile strength test, Indentation test. (5 marks)