



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN CIVIL ENGINEERING

DCE 2102: CONSTRUCTION MATERIALS I

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2024

TIME: 2 HOURS

DATE: 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, and student ID

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.

QUESTION ONE

a). State **FIVE** characteristics of materials that determine their suitability in construction

(5marks)

b). State **FIVE** factors that cause deterioration of construction materials (5marks)

c). Briefly explain the classification of construction materials based on source (5marks)

d). Define the following terms as applied in construction materials:

- Durability
- Hardness
- Strength
- Abrasion
- Porosity

(5marks)

QUESTION TWO

a) i) Briefly describe the geological classification of stones

ii) Give **TWO** examples of stones in each class, above

(10marks)

b) Define the following terms as applied in building stones production:

- I. Dressing
- II. Quarrying

(4marks)

c) List up **SIX** uses of stones as a construction material

(6marks)

QUESTION THREE

a) Compare and contrast softwood and hardwood

(6marks)

b) State **FOUR** objectives of seasoning timber

(4marks)

c) With the aid of sketches, briefly describe two methods of timber conversion

(6marks)

d) State **FOUR** reasons for timber conversion

(4marks)

QUESTION FOUR

a) Briefly describe the major operations in the manufacture of clay products (8marks)

b) State **TWO** reasons for drying bricks before burning

(2marks)

c) i) Differentiate between ferrous and non-ferrous metals

- ii) Give **TWO** examples of each type in c) i. (4marks)
- d) Outline the following metal forming processes
- i. Rolling
 - ii. Drawing
 - iii. Extruding (6marks)

QUESTION FIVE

- a) Define the term alloy and give **THREE** examples (6marks)
- b) Briefly explain the following as applied in metal technology
- Hardening
 - Tempering
 - Annealing (6marks)
- c) List up **FOUR** advantageous properties of ferrous metals (8marks)