



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

INTRODUCTION TO MATERIALS AND CONSTRUCTION I

BAR 1104

Examination Paper

December 2024

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: NONE

Examiner's Name: Mr M.A. Sibanda

INSTRUCTIONS

1. Answer 4 (four) questions.
2. Each question carries 25 marks.
3. Illustrate your answers with sketches where appropriate.

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

QUESTION 1

- a) What are the objectives of timber seasoning? (5)
- b) Explain the characteristics of timber that make it a good building material . (10)
- c) Earth and grass construction are one of the oldest forms of building. Discuss the contemporary uses of earth and grass in modern building construction. (10)

QUESTION 2

- a) State and briefly explain the function of all the materials that make up concrete. (15)
- b) Explain the hydration of cement in concrete manufacture. (5)
- c) Briefly discuss the composition of ordinary cement. (5)

QUESTION 3

- a) State seven (7) properties of good building stones. (7)
- b) Masonry is the art of construction using stones. Explain in detail the classification of building stones. (11)
- c) Discuss any five properties of bricks. (7)

QUESTION 4

- a) Explain five (5) properties of plastics that make them suitable for construction. (10)
- b) Differentiate between thermo plastics and thermo-setting plastics. (5)
- c) State the measures that can be taken to prevent corrosion of metals used in construction? (10)

QUESTION 5

- a) Define the term foundation. (3)
- b) What factors should be considered in the selection of a foundation type? (10)
- c) Name and explain two types of loads that act on buildings. (6)
- d) Name and explain two uses of asphalt in construction. (6)

QUESTION 6

Using neatly drawn, legible and annotated diagrams, explain in detail how bricks are manufactured, using the kiln method. (25)