



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT
DEPARTMENT OF CONSTRUCTION MANAGEMENT/QUANTITY SURVEYING
CONSTRUCTION MATERIALS
BCM 1101

Main Examination Paper

December 2024

This examination paper consists of **three (3)** pages

Time Allowed: **3 hours**

Total Marks: **100**

Examiners' Names: **Mr. E. Kanyamaure & Mr. H. Muzioreva**

INSTRUCTIONS

1. Answer any **two (2)** questions from each Section
2. Each question carries 25 marks
3. Illustrate answers with practical examples where possible.
4. Marks will be awarded to neatly presented and legible work.

MARK ALLOCATION

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

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SECTION A

Question One

- a) Explain any **five (5)** reasons why it is important for a quantity surveyor or construction manager to have knowledge in construction materials. [5 marks]
- b) Outline what is meant by each of the following classes of construction materials and give **five (5)** examples for each.
- i. Natural construction materials. [10 marks]
 - ii. Artificial construction materials. [10 marks]
- [25 marks]

Question Two

- a) Briefly explain any **five (5)** precautions taken in using cement-sand mortar. [5 marks]
- b) Describe how the following concrete tests are conducted:
- i. The slump test. [5 marks]
 - ii. The compressive strength test. [5 marks]
- c) What are the necessary checks that have to be carried out to ensure that the following materials give the best result when used for concrete?
- i. Cement [5 marks]
 - ii. Water [5 marks]
- [25 marks]

Question Three

- a) Explain any **five (5)** advantages that clay bricks have over concrete blocks as building materials. [5 marks]
- b) Describe the process of brick formation, detailing the key stages involved from raw material preparation to final production. [20 marks]
- [25 marks]

SECTION B

Question Four

- a) Explain any **five (5)** defects of paint. [10 marks]
- b) With the aid of a clearly labeled flow diagram, explain the manufacturing process of paint. [15 marks]

[25 marks]

Question Five

- a) As a construction manager or quantity surveyor, you have been tasked to plan a proposed construction site. With the aid of a clearly labelled construction site plan, explain the storage of the following materials.

- i. Cement [5 marks]
- ii. Aggregates [5 marks]
- iii. Timber [5 marks]
- iv. Bricks [5 marks]

- b) Explain any **five (5)** benefits of a well planned construction site. [5 marks]

[25 marks]

Question Six

- a) Explain any **five (5)** uses of stone in construction. [5 marks]
- b) Describe any **five (5)** defects in construction stonework and their remedies. [10 marks]
- c) State any **five (5)** of the following with respect to use of glass in construction.
- i. Advantages [5 marks]
- ii. Disadvantages [5 marks]

[25 marks]

END OF EXAMINATION