



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT
DEPARTMENT OF PROPERTY STUDIES AND URBAN DESIGN
CONSTRUCTION TECHNOLOGY 1

BCM 1102

Examination Paper
November 2024

This examination paper consists of 3 pages.

Time Allowed: **3 Hours**
Total Marks **100**
Special Requirements **None**
Examiner's Name: **K. Maponga / E.T Gumbo**

INSTRUCTIONS

Section A is compulsory. Answer **any three (3)** questions from **Section B**.

MARK ALLOCATION

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

SECTION A

QUESTION 1

Site investigations are the basis for the design and construction of a building. Discuss the main activities which would normally occur during a site investigation for a low-rise building.

[25 marks]

SECTION B

QUESTION 2

You are managing the construction of a new building project on campus, and part of your role is to advise the building team on the foundation design.

- i. Explain any five (5) key factors to consider when determining the size of a strip foundation (10)
- ii. With the aid of clearly labelled diagrams, describe the **three(3)** types of strip foundations (15)

[25 marks]

QUESTION 3

a) Define the following terms:

- i. Foundation (3)
- ii. Timbering (3)

b) With the aid of well-labelled diagrams, describe the following:

- i. Pad foundation (6)
- ii. Strip foundation (6)

c) Illustrate a section through a suspended timber ground floor. (7)

[25 marks]

QUESTION 4

a) Define the following terms:

- i. Party wall (2)
- ii. Window (3)

- b) With the aid of labelled sketches, explain the following forms of wall construction
- i. Masonry walls (5)
 - ii. Frame walls (5)
- c) Illustrate the following brick bonding types
- i. Stretcher bond (3)
 - ii. Flemish bond (3)
- d) Explain how strength and stability of the wall can be attained. (4)

[25 marks]

Question 5

- a) Outline any five (5) functional requirements of a roof. (5)
- b) Show diagrammatically and explain the following roof forms:
- (i) Flat roof. (5)
 - (ii) Monitor roof. (5)
 - (iii) North light roof. (5)
 - (iv) Saw tooth roof (5)

[25 Marks]

Question 6

- a) Using clearly labelled diagrams, compare and contrast flexible and rigid pavement. (15)
- b) Explain how storm water is drained from pavements. (10)

[25 Marks]