NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF CONSTRUCTION MANAGEMENT/QUANTITY SURVEYING

CONSTRUCTION TECHNOLOGY III

BCM 2203

Main Examination Paper

February 2025

This examination paper consists of **two (2)** pages.

Time Allowed: **3 hours**

Total Marks: **100**

Special Requirements: **None**

Examiner's Name: **Mr. B. Gaule & Mr. M. Maphosa**

INSTRUCTIONS

1. Answer **Question One** and any other **three (3)**.
2. You may use either a pen or pencil for drawing.
3. Credit will be given for neat diagrams.

MARK ALLOCATION

QUESTION	MARKS
1. **(Compulsory)**	25
2.	25
3.	25
4.	25
5.	25
TOTAL	**100**

Question One (Compulsory)

a) State any **three (3)** classes of shores. [3 marks]

b) Illustrate, with the aid of a clearly labelled diagram, how you would support two parallel walls that are twelve metres apart and are likely to collapse due to demolition works taking place adjacent to them. [10 marks]

c) With the aid of a clearly labelled diagram, illustrate how you would carry out mass concrete underpinning for a section of a strip foundation measuring twelve metres in length. [12 marks]

[25 marks]

Question Two

a) Explain, using clearly labelled diagrams, how groundwater control can be classified. [8 marks]

b) State any **two (2)** circumstances that can influence the choice of each of the classes of groundwater control in **(a)** above. [4 marks]

c) For each of the classes in **(a)** above, describe, using clearly labelled diagrams, any **one (1)** method that can be implemented to control groundwater. [13 marks]

[25 marks]

Question Three

a) State any **three (3)** attachments that can be used with the demolition plant. [3 marks]

b) With the aid of clearly labelled diagrams, differentiate between an independent and a putlog scaffolding, stating any **two (2)** circumstances where the putlog scaffolding can be used. [10 marks]

c) Describe any **six (6)** key procedures that one should follow when embarking on any demolition works. [12 marks]

[25 marks]

Question Four

a) Poor workmanship is one of the leading causes of premature failure of waterproofing systems for concrete flat roofs. Briefly explain any **five (5)** common errors that occur during the installation of waterproofing systems on concrete flat roofs. [10 marks]

b) Detail, with the aid of clearly labelled diagrams, how you would construct a reinforced concrete wall measuring 12m long, 4m high and 400mm thick above an existing ground floor slab. [15 marks]

[25 marks]

Question Five

a) State any **five (5)** materials that can be used as a damp proof course, indicating the form in which each is available. [10 marks]

b) With the aid of a clearly labelled diagram(s), detail how moisture may penetrate a building and indicate how that can be mitigated. [15 marks]

[25 marks]

END OF EXAMINATION