



## TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING

**TCV 4211: CONSTRUCTION TECHNOLOGY I**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: JULY 2025**

**TIME: 2 HOURS**

### **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **five** questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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### **QUESTION ONE (COMPULSORY) 20 Marks**

- Define dewatering in construction and explain its significance. (4 marks)
- Explain the strip foundation construction process, including the purpose of concrete blinding. (10 marks)
- Describe the difference between end-bearing piles and friction piles, providing examples of when each is appropriate. (6 marks)

### **ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

#### **QUESTION TWO (20 marks)**

- Define site layout in the context of construction and discuss its primary objectives. (5 marks)
- Define and sketch a mobile scaffold and list two precautions for safely moving them on-site. (10 marks)
- Define building construction, and describe two activities involved in the process. (5 marks)



### **QUESTION THREE (20 Marks)**

- a) Describe the needle and pile method of underpinning and discuss its suitability for weak soil areas. (8 marks)
- b) List and describe three methods of temporary groundwater exclusion used in dewatering. (12 marks)

### **QUESTION FOUR (20 Marks)**

- a) List FIVE demolition methods, and for each, identify one scenario where it would be the most effective choice. (10 marks)
- b) Explain the island method of basement excavation, including the role of struts in this method. (5 marks)
- c) Discuss the impact of weather on site layout planning and provide two strategies to mitigate weather-related challenges. (5 marks)

### **QUESTION FIVE (20 Marks)**

- a) Draw a well labelled sketch of a buttress retaining wall and explain the difference between active and passive earth pressures on retaining walls. (7 marks)
- b) Discuss three types of building classifications based on occupancy, providing examples for each. (9 marks)
- c) Identify four precautions to consider when constructing on filled ground. (4 marks)

