



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**

END OF SEMESTER EXAMINATION

SERIES: JANUARY 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**

- Discuss two types of timbering methods for trench support, detailing the conditions each is best suited for. (10 marks)
- Compare two pile driving methods: drop hammer and hydraulic hammer. Describe one scenario where each method would be ideal. (10 marks)

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

**QUESTION TWO (20 marks)**

- Define manual demolition and explain two situations where it is preferable over mechanical demolition. (10 marks)
- Discuss the perimeter trench method of basement excavation and describe one situation where it is particularly useful. (10 marks)

**QUESTION THREE (20 Marks)**

- Describe the “cut and fill” technique in soil level reduction and explain its significance in construction. (6 marks)
- Identify four precautions to consider when constructing on filled ground. (4 marks)



- c) With the aid of a sketch, explain the cantilever retaining wall structure, detailing the function of the stem, heel, and toe. (10 marks)

**QUESTION FOUR (20 Marks)**

- a) Identify and discuss four factors to consider when planning for material storage on a construction site. (10 marks)
- b) Describe the process of tying-in scaffolds, explaining its significance in maintaining scaffold stability. (10 marks)

**QUESTION FIVE (20 Marks)**

- a) Discuss the impact of weather on site layout planning and provide two strategies to mitigate weather-related challenges. (5 marks)
- b) List and explain three signs of a failing foundation that would indicate a need for underpinning. (6 marks)
- c) Identify two problems associated with high subsoil water during excavation and explain their effects on construction. (4 marks)
- d) Explain the importance of removing topsoil and describe two methods used for this purpose. (5 marks)

