



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING

TCV 4226: CONSTRUCTION TECHNOLOGY II

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.

QUESTION ONE (COMPULSORY) 20 Marks

- a) You are tasked with overseeing the construction of a commercial building using ashlar masonry. Describe the process of constructing an ashlar masonry wall and the key quality aspects to monitor during construction. (10 marks)
- b) Discuss the different types of masonry arches used in construction. In your discussion, highlight the key characteristics of each type and provide examples of where they might be used in real-world projects. (10 Marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 marks)

- a) You are tasked with designing a pitched roof for a residential building in an area with high rainfall.
 - i. Explain the considerations you would take into account when designing the roof, particularly related to drainage and materials. (6 marks)



- ii. What type of roof covering would you recommend for such a climate and why? (4 marks)
- b) You are tasked with choosing a door for a fire exit in a commercial building.
 - i. What type of door would you choose and why? (6 marks)
 - ii. List three features this door must have to meet fire safety standards. (4 marks)

QUESTION THREE (20 Marks)

- a) List and briefly describe three types of windows based on their mode of operation (10 Marks)
- b) Explain the functional requirements of infill panels in building construction. Discuss their role in providing weather resistance, insulation, and fire protection. (10 Marks)

QUESTION FOUR (20 Marks)

- a) What is a dragline excavator, and where is it commonly used? (4 Marks)
- b) You are tasked with choosing construction equipment for a project that involves laying a new road surface.
 - i. What equipment would you recommend for the preparation and compaction of the road surface? (6 marks)
 - ii. Explain how the chosen equipment contributes to the quality and durability of the road. (4 marks)

QUESTION FIVE (20 Marks)

- a) You are tasked with transporting heavy loads of gravel to a construction site. The unloading area is uneven and prone to tipping accidents. (10 Marks)
 - i. Which type of dump truck would you recommend for this task and why? (6 marks)
 - ii. What precautions would you take during unloading to prevent accidents? (4 marks)
- b) Sketch a typical roof truss (e.g., a king post or queen post truss) and label its parts. (10 Marks)

