



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT
UNIVERSITY EXAMINATION FOR:
BACHELOR OF ARCHITECTURAL STUDIES
EAR 4208: BUILDING TECHNOLOGY III
SPECIAL & SUPPLEMENTARY EXAMINATION
YEAR TWO SEMESTER II
SERIES: JULY 2025
TIME: 2 HOURS
DATE: Pick Date JULY 2025

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 (30 MARKS)-COMPULSORY

- a) Define the following firefighting terminologies.
 - i. Standpipes (2 marks)
 - ii. Fire Load (2 marks)
 - iii. Ignition Potential (2 marks)
 - iv. Flashover (2 marks)
- b) Mr. Kamau intends to construct his house with a steel-framed structure. With the aid of well annotated sketches provide details of universal columns that he intends to use on a pile foundation. (10 marks)
- c) Explain FOUR functional requirements of stairs. (12 marks)

QUESTION TWO (20 MARKS)

The selection of appropriate formwork materials is a crucial part of any concreting process. Mr. Owino, a local contractor, has selected timber formwork for the construction of a reinforced concrete column.

- a) Outline THREE advantages of timber formwork. (3 marks)
- b) Outline THREE disadvantages of timber formwork. (3 marks)
- c) With the aid of well annotated sketches provide details for the erection of the timber formwork to construct the reinforced concrete column. (14 marks)

QUESTION THREE (20 MARKS)

With the aid of well annotated sketches, explain the following types of concrete structural frames .

- a) Flat Slabs (5 marks)
- b) Ribbed Slabs (5 marks)
- c) Waffle slabs (5 marks)
- d) Beam and Slab (5 marks)

QUESTION FOUR (20 MARKS)

The maintenance team at the TUM are making plans to renovate some of the buildings within the university. Due to the old age of many of the buildings, there is need for construction of temporary supports during the restoration process. With the aid of well-annotated sketches, explain FOUR possible options for the temporary supports.

QUESTION FIVE (20 MARKS)

Staircases provide means of movement from one floor to another in a structure. Staircases can however be classified based on their support systems. With the aid of well-annotated sketches, explain.