



# TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT

**UNIVERSITY EXAMINATION FOR:**  
DIPLOMA IN ARCHITECTURE  
DIPLOMA IN QUANTITY SURVEYING  
**EAR 2202: BUILDING TECHNOLOGY II**  
END OF SEMESTER EXAMINATION

YEAR TWO SEMESTER I

SERIES: APRIL 2022

**TIME: 2 HOURS**

**DATE: Pick Date APRIL 2022**

## **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 (30 MARKS)-COMPULSORY**

- a) State FIVE factors that are taken into account when the structural designing of a retaining wall is undertaken. (5 marks)
- b) State FOUR reasons that may justify an underpinning operation to be done on an existing building. (4 marks)
- c) State FOUR reasons why construction sites must be dewatered before erecting a building. (4 marks)
- d) State FIVE factors considered before adopting any method for the excavation of basements. (5 marks)
  
- e) Define the following FIVE terms used in construction of doors and windows:  
Frame; Sill; Shutter; Mullion and Jamb. (5 marks)
- f) Define the following FIVE terms used in the construction of stairs: Tread; Riser; Soffit; Balustrade and Winders (5 marks)
- g) Explain TWO properties a door must have to meet the standard for fire safety. (2 marks)

### **QUESTION TWO (15 MARKS)**

- a) Explain THREE reasons why granular soils (sands or gravels) are the standard materials used for backfilling in construction of retaining walls. (6 marks)
- b) Describe THREE alternative ways that are used in increasing the capacity of an existing foundation of a building. (6 marks)
- c) Explain THREE basic methods used to waterproof basements of buildings. (3 marks)

### **QUESTION THREE (15 MARKS)**

- a) Identify and explain SIX functional requirements of a door. (12 marks)
- b) State SIX classification of doors based on their working operation. (3 marks)

### **QUESTION FOUR (15 MARKS)**

- a) Explain FIVE ways that can be used to minimize the penetration of wind driven rain through windows. (10 marks)
- b) State FIVE different types of hinges used in construction of wardrobes, cupboards and kitchen cabinets. (5 marks)

### **QUESTION FIVE (15 MARKS)**

- a) Explain FIVE basic ways in which stairs are planned. (10 marks)
- b) State the difference between a chimney and a flue. (2 marks)
- c) Identify and explain the THREE functional requirements of chimneys. (3 marks)