



MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)

UNIVERSITY EXAMINATIONS  
2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE OF  
BACHELOR OF TECHNOLOGY EDUCATION  
IN BUILDING AND CIVIL TECHNOLOGY

COURSE CODE: TEB 224  
COURSE TITLE: CONSTRUCTION MATERIALS AND  
EQUIPMENT

DATE: FRIDAY 22<sup>ND</sup> APRIL 2022

TIME: 12.00 – 2.00 PM

---

**INSTRUCTIONS:**

1. This paper consists of FOUR questions. Answer Question 1 and any other two questions.
2. All marks are indicated on the parenthesis.
3. Provide neat sketches and diagrams where required.

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

## ANSWER QUESTION 1 AND ANY OTHER THREE QUESTIONS

### Question 1 (30 marks)

- (a) With the aid of neat illustrations discuss in brief the common defects occurring in timber. *(10 marks)*
- (b) What is curing in concrete? Outline FOUR common methods used in curing concrete. *(10 marks)*
- (c) State and explain FIVE characteristics of good building stones. *(10 marks)*

### Question 2 (20 marks)

- (a) (i) Differentiate between hardwoods and softwoods. *(4 marks)*  
(ii) State SIX characteristics that make timber a good construction material. *(6 marks)*
- (b) Explain the difference between thermoplastics and thermosetting polymers. *(5 marks)*
- (c) What is an alloy? Give some examples of alloys in the market. *(5 marks)*

### Question 3 (20 marks)

- (a) In the construction of building and civil engineering projects the use of mechanical plants and machines is inevitable. With the aid of neat sketches describe any FIVE of these machines citing their applications. *(10 marks)*
- (b) Demystify the various health and safety measures taken on site to mitigate against accidents. *(5 marks)*
- (c) Explain the functions of paint in construction work. *(5 marks)*

### Question 4 (20 marks)

- (a) With the aid of a flow diagram outline the manufacturing process of Ordinary Portland Cement (OPC). *(10 marks)*
- (b) Discuss the effects of the following factors in the selection of construction materials: *(10 marks)*
- i) Fire resistance
  - ii) Environmental issue
  - iii) Resilient
  - iv) Thermal mass
  - v) Cost

END