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2023/2024

SEMESTER 1



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND
TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

FIRST YEAR FIRST SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF TECHNOLOGY IN BUILDING
CONSTRUCTION**

COURSE CODE: BTB 101

COURSE TITLE: BUILDING TECHNOLOGY I

DATE: 13TH DECEMBER 2023

TIME: 3.00-5.00PM

INSTRUCTIONS:

1. This paper contains FOUR questions
2. **Question ONE (1) is Compulsory**
3. **Attempt a total of THREE questions in this booklet.**
4. Marks for each question are indicated in the parenthesis.
5. Examination duration is **2 Hours**

MMUST observes ZERO tolerance to examination cheating

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

Question 1 **COMPULSORY** **(30 marks)**

- a. Discuss any THREE mechanical properties of construction materials (6 Marks)
- b. Discuss any FOUR challenges to the achievement of affordable housing in Kenya today (6 Marks)
- c. Sketch a section through a hollow block and rib type of floor and give reasons why you would recommend this floor type for a building (4 Marks)
- d. Describe the methods used in improving the bearing capacity of soil in construction (5 Marks)
- e. A roof is one of the most important parts of structures. Discuss any FIVE functional requirements of roofs (5 Marks)
- f. Describe any THREE drainage systems used in wastewater disposal (4 Marks)

Question 2 **(20 marks)**

- a. Distinguish between plastering and rendering and further give any THREE requirements of a good plaster (4 Marks)
- b. Define the term bonding and discuss any THREE types of bonding giving suitable illustrations (7 Marks)
- c. Part of the activities of the pre-construction stage include fencing and hoarding of the site. Discuss (4 Marks)
- d. State the functions of doors and further discuss any TWO types of doors suitable for the external of a building (5 Marks)

Question 3 **(20 marks)**

- a. Differentiate between sub-structure and super-structure (3 Marks)
- b. State any SIX functions of a foundation on a building (4 Marks)
- c. State reasons why dewatering should be carried out to foundation trenches (4 Marks)
- d. With the aid of a clearly labeled diagram, describe the most appropriate type of foundation for a construction project of a;
 - i. Two-storey building, on a site which slopes gently in one direction (4 Marks)
 - ii. Three-storey building, on a site which has firm and non-shrinkable sub-soils such as gravel. (5 Marks)

Question 4 **(20 marks)**

- a. Define the term concrete (1 Mark)
- b. Discuss the following types of cement used in the construction industry (8 Marks)
 - i. Portland Pozzolana Cement (PPC)
 - ii. Sulphates Resistant Cement (SRC)
- c. Define curing and give any FOUR methods used for curing concrete (5 Marks)
- d. Compaction of concrete can be done mechanically by use of vibrators. Describe three types of vibrators commonly in use for compaction of concrete (6 Marks)