



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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

THIRD YEAR FIRST SEMESTER EXAMINATIONS

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

COURSE CODE: BTB 313

**COURSE TITLE: CONSTRUCTION AND ENGINEERING
MATERIALS I**

DATE: THURSDAY 16TH JANUARY 2020 TIME: 3.00 – 5.00 PM

INSTRUCTIONS:

1. This paper contains **FIVE** questions
2. Answer any **FOUR** Questions
3. Marks for each question are indicated in the parenthesis.
4. No unauthorized materials are allowed in the examination room
5. Examination duration is **2 Hours**

MMUST observes **ZERO** tolerance to examination cheating

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

Question One

- a) With aid of a clear sketch, outline four methods of sawing timber from logs. (4 marks)
- b) Compare and contrast the Air Seasoning and Kiln Seasoning methods of timber. (13.5 marks)

Question Two

- a) Discuss the following timber defects:
- 1) Rind galls
 - 2) Wandering hearts
 - 3) Excrescences
 - 4) Wind cracks
 - 5) Druxiness (10 marks)
- b) Discuss the different methods of preserving timber. (3 marks)
- c) Discuss the various types of preservative treatments of timber. (4.5 marks)

Question Three

- a) Describe the production of Aluminium. (8 marks)
- b) Discuss briefly the following types of polymers.
- 1) Thermosetting plastics
 - 2) Thermoplastics
 - 3) Elastomers (4.5 marks)
- c) Describe the 5 methods foamed or 'Expanded' plastic polymer. (5 marks)

Question Four

- a) State the purpose of Tension Test of Steel and Aluminium. (7 marks)
- b) Describe the Tension Test of Steel and Aluminium procedure (6 marks)
- c) Explain the following heat treatment of steel:
- a. Annealing,
 - b. Tempering. (4.5 marks)

Question Five

- a) Define Heat treatment of metals. (3 marks)
- b) State and explain reasons for metal heat treatment (6 marks)
- c) Sketch and describe Tensile Test that is used to measure the mechanic properties of metals. (4 marks)
- d) List and describe steel alloys. (4.5 marks)