



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT
UNIVERSITY EXAMINATION FOR:
BACHELOR OF ARCHITECTURAL STUDIES/BACHELOR OF
ARCHITECTURE

EAR 4204: CONSTRUCTION MATERIALS 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.

QUESTION ONE (30 MARKS-COMPULSORY)

- a) Describe the constituents of mastic asphalt and its application in building construction. (6 marks)
- b) Explain the deteriorating effect of sunlight on wood and the methods of protecting it. (7 marks)
- c) Distinguish between hot rolling and cold rolling of steel. (8 marks)
- d) Explain the properties of ceramics and their application in building construction: (9 marks)

QUESTION TWO (20 MARKS)

- a) Distinguish between the equilibrium moisture content and the fibre saturation point of wood. (5 marks)
- b) Explain the effects of moisture content on the following properties of wood:
 - i. Dimensional stability
 - ii. Compressive strength
 - iii. Durability (15 marks)

QUESTION THREE (20 MARKS)

- a) Describe each of the following methods of finishing aluminium:
 - i. Anodised finish
 - ii. Powder coating finish (8 marks)
- b) Distinguish between the ferrite and austenite phases of steel in terms of:
 - i. Microstructure
 - ii. Carbon solubility (12 marks)

QUESTION FOUR (20 MARKS)

- a) Describe the production process of soda-lime-silica glass. (11 marks)
- b) Explain the properties and application of tempered glass in building construction. (9 marks)

QUESTION FIVE (20 MARKS)

Discuss the challenges in the properties of plastics that may limit their application in building construction. (20 marks)