



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING
DIPLOMA IN CIVIL CONSTRUCTION
CERTIFICATE IN ARCHITECTURE
(DBC, DCC, CA 09A)

CIVIL ENGINEERING MATERIALS I

END OF SEMESTER EXAMINATIONS

APRIL/MAY 2010 SERIES

TIME: 2 HOURS

Instructions to Candidates

You should have the following for the examinations:

Answer Booklet

This paper consists of **FIVE** Questions.

Question **ONE** is **COMPULSORY**.

Answer **ANY** other **TWO** Questions.

Maximum marks for each part of a question are as shown.

Question ONE

- (a). Briefly describe the following terminologies as used in metallurgy:
- (i). Ductility
 - (ii). Brittleness
 - (iii). Malleability
 - (iv). Toughness
 - (v). Fatigue
 - (vi). Creep
 - (vii). Ageing
 - (viii). Heat treatment
- (8 Marks)**
- (b). With the aid of a sketch, describe the natural process of seasoning timber.
- (10 Marks)**
- (c). Briefly describe the following timber defects:
- (i). Radial shake
 - (ii). Wane
 - (iii). Twist
- (6 Marks)**
- (d). Describe the FULL CELL method of the pressure preservation of timber.
- (6 Marks)**

Question TWO

- (a). Outline **FOUR** advantages of clay bricks as a construction material.
- (4 Marks)**
- (b). Briefly describe **TWO** types of igneous stones.
- (2 Marks)**
- (c). Outline **THREE** properties of Aluminium.
- (3 Marks)**
- (d). Describe the structure of following products of timber using sketch:
- (i). Batten board
 - (ii). Block board
 - (iii). Lamin board
 - (iv). Strip board
- (12 Marks)**
- (e). Briefly describe the difference between endogeneous and exogeneous trees.
- (3 Marks)**

Question THREE

- (a). Briefly describe the behavior of clay bricks under:
- (i). Chemical resistance
 - (ii). Fire resistance
 - (iii). Thermal movement
- (3 Marks)**
- (b). Outline **FIVE** uses of cast iron in construction. **(5 Marks)**
- (c). Outline the manufacture cast iron. **(4 Marks)**

Question FOUR

Using well a noted sketch, describe the PERMEABILITY test in stones. **(20 Marks)**

Question FIVE

- (a). Briefly describe **FIVE** processes that glues (adhesives) set. **(5 Marks)**
- (b). Distinguish between pot life and shelf life with respect to adhesives. **(4 Marks)**
- (c). With the aid of a sketch, describe exogenous trunk. **(8 Marks)**
- (d). Briefly describe chemical seasoning in timber. **(3 Marks)**