



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

((A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

CONSTRUCTION TECHNICIAN PART I

EBC 1101: CONSTRUCTION MATERIALS I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

This paper consists of **FIVE** questions
Answer question any **THREE** questions
Maximum marks for each part of a question are clearly shown
This paper consists of **THREE** printed pages

Question One (20 marks)

- a) (i) Briefly describe the commercial classification of timber.
- (ii) Give **TWO** examples of timber in each class in a(i) **(8 marks)**
- b) State **FOUR** objectives of seasoning timber. **(4 marks)**
- c) Illustrate the following timber defects:
- i) Waney edge
 - ii) Twisting
 - iii) Cupping
 - iv) Spring **(8 marks)**

Question Two (20 marks)

- a) With the aid of a sketch, show how the method of conversion affects the shrinkage of timber boards and planks that are radially sawn and tangentially sawn. **(6 marks)**
- b) Briefly describe the artificial seasoning of timber in a kiln. **(8 marks)**
- c) State **SIX** requirements of a good timber preservative. **(6 marks)**

Question Three (20 marks)

- a) (i) Briefly describe the chemical classification of rocks.
- (ii) Give **TWO** examples of each class in a(i) **(9 marks)**
- b) Outline **FOUR** characteristics of good building stones. **(8 marks)**
- c) Explain what you understand by the terms “preservation of stone” **(3 marks)**

Question Four (20 marks)

- a) Outline **FIVE** agencies that cause deterioration of stones. **(10 marks)**
- b) Briefly explain the procedure of determining the percentage water absorption by weight of a stone sample. **(6 marks)**
- c) Classify the following stones geologically:
- i) Gneiss
 - ii) Basalt
 - iii) Schist
 - iv) Limestone **(4 marks)**

Question Five (20 marks)

- a) State **TWO**:
- i) Advantages of Air Seasoning
 - ii) Disadvantages of Air Seasoning
 - iii) Advantages of Kiln Seasoning
 - iv) Disadvantages of Kiln Seasoning
- (8 marks)**
- b) Briefly describe the wedging method of quarrying stones. **(6 marks)**
- c)
- d) Sketch a horizontal cross-section of a tree trunk and label all the parts. **(6 marks)**