



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**DIPLOMA IN BUILDING & CIVIL ENGINEERING**

**DIPLOMA IN ARCHITECTURE**

ECV 2101: CIVIL ENGINEERING MATERIAL I

**END OF SEMESTER EXAMINATION**

**SERIES: AUGUST 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 any **THREE** questions  
Maximum marks for each part of a question are as shown  
This paper consists of **TWO** printed pages

**Question One (20 marks)**

- a) Briefly describe the following processes as used in stones:  
i) Digging  
ii) Wedging  
iii) Dressing  
iv) Blasting **(8 marks)**
- b) State **FOUR** uses of stones in Building and Civil Engineering **(2 marks)**
- c) Define a BRICK giving **TWO** advantages and **TWO** disadvantages for their use. **(6 marks)**
- d) Briefly describe how the following types of glass are made.  
i) Wired glass  
ii) Polished plate glass. **(4 marks)**

**Question Two (20 marks)**

With the aid of sketch, describe the drying shrinkage test in clay bricks. **(20 marks)**

**Question Three (20 marks)**

- a) Briefly describe **THREE** methods of protecting steel. **(6 marks)**
- b) Explain the following hest treatment processes.  
i) Hardening  
ii) Tempering  
iii) Annealing  
iv) Normalizing **(8 marks)**
- c) Explain the following engineering properties of materials. **(6 marks)**  
i) Ageing  
ii) Impact strength  
iii) Ductility  
iv) Elasticity  
v) Malleability  
vi) Work hardening

**Question Four (20 marks)**

- a) State **FIVE** properties and **FIVE** uses of wrought iron **(5 marks)**
- b) State **FIVE** processes in which glues set. **(5 marks)**
- c) Explain the difference between pot life and shelf life in adhesives. **(4 marks)**
- d) Briefly describe the “**WET ROT**” in timber giving two methods of its eradication. **(6 marks)**

**Question Five (20 marks)**

Outline the manufacture of glazed stoneware products using flow diagrams.

**(20 marks)**