



TECHNICAL UNIVERSITY OF MOMBASA  
**Faculty of Engineering &  
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
CERTIFICATE IN BUILDING & CIVIL ENGINEERING

ECV 1102: CIVIL ENGINEERING MATERIALS II

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2015**

**TIME ALLOWED: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required

This paper consists of **TWO** printed pages

### **Question One**

- a) Briefly explain any **FOUR** tests carried out on bitumen **(10 marks)**
- b) Discuss any **FIVE** uses of glass in the construction industry **(10 marks)**

### **Question Two**

- a) State **FIVE** advantages of using glass in the building construction **(5 marks)**
- b) Discuss any **FIVE** properties of glass that make it useful in civil engineering works **(10 marks)**
- c) State **FIVE** various civil engineering uses of bituminous products. **(5 marks)**

### **Question Three**

- a) Explain the functions of varnishes under the following aspects:  
(i) Protection  
(ii) Decoration  
(iii) Preservation  
(iv) Hygiene **(10 marks)**
- b) List any **TWO** tests that are usually carried out on glass **(4 marks)**
- c) Define the following giving **TWO** examples on each:  
(i) Thermoplastics  
(ii) Thermosetting plastics **(6 marks)**

### **Question Four**

- a) Briefly explain the following painting defects and their remedies:  
(i) Chalking  
(ii) Blistering  
(iii) Flaking  
(iv) Peeling  
(v) Brittiness **(10 marks)**
- b) Briefly describe any **FIVE** properties of mortars that make it useful for civil engineering works **(10 marks)**

### **Question Five**

- a) Discuss the following processes of glass manufacture:  
(i) Blowing  
(ii) Annealing  
(iii) Drawing  
(iv) Rolling  
(v) Pressing **(10 marks)**

b) Discuss FIVE properties of bituminous materials

**(10 marks)**