



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

***Faculty of Engineering & Technology***

**DEPARTMENT OF CIVIL AND BUILDING ENGINEERING**

**DIPLOMA IN CIVIL ENGINEERING WITH CAD  
DIPLOMA IN BUILDING AND CIVIL ENGINEERING**

**EB 2130 : CIVIL ENGINEERING MATERIALS I**

**SEMESTER EXAMINATIONS**

**APRIL/MAY 2010 SERIES**

**TIME: 2 HOURS**

**Instructions to Candidates:**

This paper consists of **FIVE** questions.

Answer Question **ONE** and any other **TWO** Questions

### **Question ONE**

- (a). (i). State **THREE** advantages and **TWO** disadvantages of timber as a Construction material. **(2½ Marks)**
- (ii). List **THREE** main types of preservative in timber. **(1½ Marks)**
- (b). Describe **THREE** defects that are common in stones. **(6 Marks)**
- (c). Explain the following properties of stone:
- (i). Porosity and absorption of water.
- (ii). Appearance and colour **(6 Marks)**
- (d). (i). State **SIX** uses of clay products. **(3 Marks)**
- (ii). Describe **TWO** types of glazing on clay products. **(8 Marks)**
- (e). State **SIX** uses of cast iron. **(3 Marks)**

### **Question TWO (20 Marks)**

- (a). Describe the following timber products and their uses:
- (i). Plywood
- (ii). Blockboard
- (iii). Batten boards **(6 Marks)**
- (b). Describe the following methods of applying preservatives:
- (i). Steeping
- (ii). Deeping
- (iii). Hot and cold treatment **(9 Marks)**
- (c). Explain biodegradation defects in timber. **(5 Marks)**

### **Question THREE (20 Marks)**

- (a). State the **THREE** main classifications of stones giving **THREE** classifications in each case. **(6 Marks)**
- (b). Describe blasting method of quarrying. **(5 Marks)**
- (c). List **FOUR** uses of stones. **(2 Marks)**

- (d). Briefly describe how the following tests on stones are conducted:
- (i). Crushing strength
  - (ii). Water absorption test
- (7 Marks)**

**Question FOUR (20 Marks)**

- (a). State **SIX** uses of metals. **(3 Marks)**
- (b). Define the following terms with respect to metals:
- (i). Ductility
  - (ii). Brittleness
  - (iii). Malleability
- (6 Marks)**
- (c). Describe the following forming (shaping) processes of metals:
- (i). Rolling
  - (ii). Forging
  - (iii). Extrusion
- (6 Marks)**
- (d). Outline **FIVE** advantages of clay bricks over building stones. **(5 Marks)**

**Question FIVE (20 Marks)**

- (a). State **SIX** properties of clay products. **(3 Marks)**
- (b). Describe the following clay products:
- (i). Clay roofing tiles
  - (ii). Vitrified clay pipes
- (6 Marks)**
- (c). Explain how to determine the moisture content of a piece of timber. **(3 Marks)**
- (d). Explain brushing and spraying method of applying preservation in timber. **(4 Marks)**
- (e). Describe shot or sand blasting method of protection for non-ferrous metals. **(4 Marks)**