



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

*Faculty of Engineering and Technology in Conjunction with Kenya Institute of Highways and Building & Technology (KIHBT)*

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**HIGHER DIPLOMA IN BUILDING AND CIVIL ENG**

EBC 3105: CONSTRUCTION TECHNOLOGY I

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: FEBRUARY/MARCH 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 **THREE** printed pages

## **SECTION I (30 MARKS)**

### **Question 1**

- a) Explain **ONE** duty of any **THREE** of the following members of the building team in the building process:
- (i) Client
  - (ii) Engineers
  - (iii) Quantity surveyor
  - (iv) Contractor
- (6 marks)
- b) Briefly explain the precautions to be taken in the various stages of the building process so as to achieve quality assurance goals. (8 marks)
- c) With the aid of labeled sketches, illustrate **THREE** basic types of timber roofs (6 marks)

## **SECTION II (Answer any TWO questions – 40 marks)**

### **Question 2**

- a) Outline **FIVE** factors involved in a site investigation exercise (10 marks)
- b) With the aid of sketches, describe the procedure for setting out simple rectangular building using a dumpy level (10 marks)

### **Question 3**

- a) Outline the application of the following types of finishes:
- (i) Plastering
  - (ii) Terrazzo
- (5 marks)
- b) Briefly describe the **FOUR** forms of wall construction (6 marks)
- c) With the aid of a sketch, describe construction of a cavity wall (9 marks)

### **Question 4**

- a) Briefly describe any **THREE** of the following features of a wall opening
- (i) Arch
  - (ii) Lintel
  - (iii) Sill
  - (iv) Threshold
- (6 marks)
- b) (i) State **FIVE** factors that govern the choice of a wall finish (5 marks)  
(ii) With the aid of a sketch, illustrate the construction of a solid ground floor (3 marks)
- c) Briefly explain any **THREE** performance requirements of a window (6 marks)

### Question 5

- a) A single-storey domestic building is to be constructed on a site with loose soil. With the aid of well-annotated sketches, illustrate:-
- (i) One type of foundation suitable to the type of soil
  - (ii) Timbering to a shallow foundation trench suitable to the type of soil (10 marks)
- b) A straight flight stair connects the ground floor to the first floor of a building with a total rise of 2.698m. Using a recommended tread of 225mm and the relationship **2 Riser + Tread = 605**, determine
- (i) The size of the riser
  - (ii) The number of the treads (4 marks)
- c) Describe any **ONE** of the following types of scaffoldings:
- (i) Put log scaffolding
  - (ii) Independent scaffolding (6 marks)