



# 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 ECONOMICS**

EBC 3134 : CONSTRUCTION TECHNOLOGY & SERVICES II

**END OF SEMESTER EXAMINATION**

SERIES: AUGUST/SEPTEMBER 2011

**TIME: 3 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer booklet*
- *Calculator*
- *Drawing instruments*

This paper consists of **FIVE** questions in **TWO** sections A & B

Answer questions **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are shown

This paper consists of **THREE** printed pages

## SECTION A (COMPULSORY – 30 MARKS)

### Question 1

- a) Explain **FOUR** reasons for carrying out Timbering to sub soils in foundation excavation works (6 marks)
- b) With the aid of line diagrams, describe **THREE** types of Frame layout in Multi-Storey structures (9 marks)
- c) Briefly describe **FIVE** types of materials for walling in multi-story (5 marks)
- d) Briefly describe **FOUR** forms of upper floor construction (6 marks)
- e) State the types of roof covering materials for medium span roofs (4 marks)

## SECTION B (Attempt any TWO questions. Each question from this section carry 20 Marks)

### Question 2

- a) Briefly describe **THREE** types of shoring systems suitable for demolition and excavation works in urban sites (6 marks)
- b) With the aid of a sketch describe a Scaffolding system for construction and maintenance of high rise building (10 marks)
- c) State the safety precautions to be observed in the assembling process of a scaffolding system (4 marks)

### Question 3

- a) Briefly describe the various techniques of jointing structural steel members in Multi-storey structures (5 marks)
- b) With the aid of a sketch, describe a rigid connection of structural steel stanchion connection to a concrete footing (10 marks)
- c) Briefly describe methods of protecting lattice steel structures against elements of weather (5 marks)

### Question 4

- a) Briefly describe the construction of Curtain wall in framed buildings (6 marks)
- b) With the aid of a sketch, describe the construction of pre-cast concrete Composite storey cladding (8 marks)
- c) Briefly describe **THREE** forms of wall insulation in residential buildings (6 marks)

### Question 5

- a) State advantages of lattice frame building construction (4 marks)
- b) With the aid of a sketch, describe Box laminated timber portal frame (10 marks)

c) State reasons for using prefabricated structural members in building construction (6 marks)