



**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**

**DIPLOMA IN CIVIL ENGINEERING**

EBC 2219: BUILDING TECHNOLOGY III

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: OCTOBER 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) Sketch the following:  
i) Dogleg stair  
ii) Stair well  
iii) Stair case  
iv) Spine wall **(10 marks)**
- b) Design the size of risers and treads of a stair whose overall height is 3m and horizontal distance is 4m. Assume any other information required. **(10 marks)**

**Question Two (20 Marks)**

- a) State **FIVE** principles of a good drainage. **(5 marks)**
- b) Differentiate the following :  
i) Separate drainage system from combined drainage system  
ii) Manhole from drop hole  
iii) Sewer from sewage **(7 marks)**
- c) With the aid of a sketch, outline the working of a septic tank. **(8 marks)**

**Question Three (20 Marks)**

- a) Sketch the following types of foundations:  
i) Wide strip foundation  
ii) Pad foundation **(10 marks)**
- b) With the aid of sketches, explain the importance of pile foundation in construction. **(10 marks)**

**Question Four (20 marks)**

- a) With the aid of sketches describe any **TWO** types of dewatering methods. **(10 marks)**
- b) State **FIVE** factors to consider when designing a sewer line. **(5 marks)**
- c) With the aid of sketches, explain the procedure of setting out a column base for a framed structure. **(5 marks)**

**Question Five (20 marks)**

- a) Name and outline the uses of the **THREE** types of shoring. **(8 marks)**
- b) State **SIX** factors to consider when designing a sewer line. **(6 marks)**
- c) Explain how underpinning is done. **(6 marks)**