



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 13S)**

EBC 2304: BUILDING TECHNOLOGY III

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2014**

**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

All questions carry equal marks

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required.

This paper consists of **THREE** printed pages

### Question One

- a) Define the term foundation. (2 marks)
- b) State THREE types of foundations. (3 marks)
- c) With the aid of a sketch describe a cantilever foundation. (7 marks)
- d) With the aid of a sketches describe the following types of piles.  
(i) Friction pile  
(ii) End bearing pile (8 marks)

### Question Two

- a) Outline THREE circumstances that necessitates the use of piles as foundation. (6 marks)
- b) Define the following terms as used in pile foundation:  
(i) Pile cap  
(ii) Pile chister (4 marks)
- c) Describe the following types of piles:  
(i) Driven piles  
(ii) Bored piles (10 marks)

### Question Three

- a) With the aid of a sketch, describe the separate drainage system. (15 marks)
- b) State THREE disadvantages of separate drainage system and TWO advantages. (5 marks)

### Question Four

- a) Outline THREE reasons for dewatering. (4 ½ marks)
- b) Sketch and label a single flying shore. (7 ½ marks)
- c) Define the following terms as used in staircase:  
(i) Tread  
(ii) Riser  
(iii) Step  
(iv) Going  
(v) String  
(vi) Balustrade (6 marks)
- d) State the object of testing sewer line (2 marks)

**Question Five**

- a) State THREE circumstances when underpinning may be necessary **(6 marks)**
- b) Sketch and label a typical backdrop manhole **(7 marks)**
- c) Briefly describe “the water test” of a sewer line **(7 marks)**