



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING

EBC 2210: BUILDING TECHNOLOGY III

END OF SEMESTER EXAMINATION

SERIES: APRIL 2015

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

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) Describe the following types of piles:
(i) Friction piles
(ii) End bearing piles **(8 marks)**
- b) Describe the following types of piles:
(i) Driven piles
(ii) Bored piles **(10 marks)**
- c) Define the term foundation **(2 marks)**

Question Two

- a) Define the following terms as used in staircase **(6 marks)**
(i) Tread
(ii) Baluster
(iii) String
(iv) Riser
(v) Landing
(vi) Flight
- b) Design a stair given the lift or total rise as 2.760m and travel or total going as 3.000m **(6 marks)**
- c) Explain the requirements of a good staircase for the following components:
(i) Location
(ii) Length of flight
(iii) Stair width
(iv) Pitch of stairs **(8 marks)**

Question Three

- a) Describe the following types of drainage system:
(i) Combined system
(ii) Separate system
(iii) Partially separate system **(12 marks)**
- b) State FOUR qualities of good drainage pipe work **(4 marks)**
- c) State FOUR sewer materials **(4 marks)**

Question Four

- a) Describe TWO methods of testing sewer line **(6 marks)**
- b) Sketch and label a typical manhole **(7 marks)**

c) Outline THREE purposes of dewatering construction sites **(3 marks)**

d) Explain sump pumping in ground water control **(4 marks)**

Question Five

a) Design a septic tank for 120 users. Assume a flow of sewer of 100l/h/d and a detention period of 24 hours. Assume any other necessary information **(8 marks)**

b) State THREE circumstances when underpinning may be necessary **(6 marks)**

c) Outline THREE circumstances that necessitates the use of piles as foundation **(6 marks)**