



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 12M)
DIPLOMA IN ARCHITECTURE (DARC 12M)

EBC 2212 BUILDING TECHNOLOGY III & SERVICES

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2013

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
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One

- a) Explain the need for soil investigation before constructing framed structures. (8 marks)
- b) With the aid of sketches, describe pile foundation. (8 marks)
- c) Differentiate raft foundation from steel grillage foundation. (4 marks)

Question Two

- a) With the aid of a sketch, outline the construction of a monolithic concrete stair with a spine wall. (10 marks)
- b) With the aid of sketches, describe the construction of soakway. (6 marks)
- c) Outline the side effects of discharging untreated sewage to a water body. (4 marks)

Question Three

- a) With the aid of sketches, describe the construction of drainage works (10 marks)
- b) With the aid of sketches, describe the **THREE** drainage systems (10 marks)

Question Four

- a) Describe the following methods of testing drainage system:
 - (i) Water test
 - (ii) Mirror test
 - (iii) Smoke test
 - (iv) Ball test (10 marks)
- b) Describe the following methods of underpinning:
 - (i) Foundations
 - (ii) Wall (10 marks)

Question Five

- a) Describe the following dewatering methods.
 - (i) Permanent exclusion
 - (ii) Temporary exclusion (8 marks)
- b) Describe the following types of shoring:
 - (i) Flying shore
 - (ii) Dead shore (8 marks)
- c) With the aid of sketches, describe cantilever foundation (4 marks)