



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

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

EBC 2107: BUILDING TECHNOLOGY I

**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 question **ONE** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

### Question One

- a) Explain the key duties of each of the following members of the building team in the building process.
- (i) Client
  - (ii) Structural engineer
  - (iii) Quantity surveyor
  - (iv) Contractor
  - (v) Architect
- (10 marks)**
- b) With the aid of a diagram, illustrate the hierarchical organization of the building team in the building process **(5 marks)**
- c) Briefly explain the evolution of the built environment **(5 marks)**

### Question Two

- a) Briefly explain the precautions to be taken in the various stages of the building process so as to achieve the quality assurance goals. **(6 marks)**
- b) (i) State the **TWO** main aims of a site exploration exercise **(4 marks)**  
(ii) State **THREE** activities involved in a site exploration exercise **(6 marks)**
- c) State the **FOUR** items which should be detailed in a soil investigation report **(4 marks)**

### Question Three

- a) (i) Briefly describe the following methods of sub-soil examination:  
- trial pH  
- bore hole **(6 marks)**  
(ii) State the primary function of a building foundation **(2 marks)**  
(iii) Describe **THREE** classes of sub soils according to the building code classification giving **TWO** Characteristics of each. **(6 marks)**
- b) State **THREE** functional requirements for foundations of buildings. **(6 marks)**

### Question Four

- a) With the aid of sketches describe the following types of foundations:  
(i) Ordinary strip foundation  
(ii) Surface Raft foundation  
(iii) Surface Raft foundation  
(iv) Wide strip foundation **(15 marks)**
- b) A mass concrete square column base is subjecting a load of 387.7kN to a soil that has a bearing capacity of 265kN/m<sup>2</sup>. Determine the dimensions of the base. **(5 marks)**

### Question Five

- a) (i) A bungalow is to be constructed on a site with loose. With the aid of a sketch, illustrate a suitable method of timbering to the foundation trenches. **(5 marks)**
- (ii) With the aid of a sketch, describe the solid ground floor **(5 marks)**
- b) State any **TWO** functional requirements for walls **(4 marks)**
- c) With the aid of sketches, illustrate the following types of timber pitched roofs:
- (i) Lean to roof
- (ii) Couple roof
- (iii) Collar roof **(6 marks)**