



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**HIGHER DIPLOMA IN BUILDING & CIVIL ENGINEERING**

BCE 3313: CONSTRUCTION TECHNOLOGY & SERVICES I

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2012**

**TIME: 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 (20 Marks)**

- a) State the **THREE** functional requirement of building foundation. **(6 marks)**
- b) With the aid of a sketch describe the construction of raft foundation. **(8 marks)**
- c) Using sketches, describe the following principle of pile foundation:  
(i) End bearing  
(ii) Friction pile **(6 marks)**

**Question Two (20 marks)**

- a) Explain the information required before dewatering. **(5 marks)**
- b) With the aid of a sketch, describe sump pumping dewatering method. **(8 marks)**
- c) Using sketches describe the following methods of installing well point systems:  
(i) Ring system  
(ii) Progressive **(7 marks)**

**Question Three (20 marks)**

- a) Sketch and label the following details of a stanchion:-  
(i) Slab or bloom base  
(ii) Stanchion cap  
(iii) Stanchion splice  
(iv) Hinged base connection of a steel portal frame. **(14 marks)**
- b) State **THREE** advantages of using:  
(i) Precast concrete frames  
(ii) Insitu concrete frames **(6 marks)**

**Question Four (20 marks)**

- a) Explain the regulations governing submissions and approval of plans by statutory body. **(6 marks)**
- b) Briefly explain the works involved in site clearance **(5 marks)**
- c) Using sketches, explain **THREE** methods of leveling a site. **(9 marks)**

**Question Five (20 marks)**

- a) (i) Briefly explain temporary site works  
(ii) Name **SIX** examples of temporary site works. **(8 marks)**
- b) With the aid of a sketch, describe internal tanking in mastic asphalt **(8 marks)**

c) State **FOUR** advantages of precast concrete portal frame.

**(4 marks)**