



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

((A Constituent College of JKUAT)

(A Centre of Excellence)

**Faculty of Engineering
& Technology in Conjunction with
Kenya Institute of Highways and
Building & Technology (KIHBT)**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**HIGHER DIPLOMA IN CONSTRUCTION
(BUILDING ECONOMICS OPTION)**

EBE 3105: CONSTRUCTION TECHNOLOGY & SERVICES

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Calculator*
- *Drawing Instruments*

This paper consists of **FIVE** questions

Answer any **THREE** questions

All questions carry equal marks
This paper consists of **TWO** printed pages

Question One (20 Marks)

- a) Briefly explain the following basic concepts of building structures:
i) Skeletal structures
ii) Solid structure
iii) Surface structure **(9 marks)**
- b) Explain any **TWO** properties of each of the following materials making the material suitable for construction.
i) Plastics
ii) Steel **(8 marks)**
- c) Briefly explain the importance of a “Certificate of Occupancy” to some intending to occupy a newly completed building. **(3 marks)**

Question Two (20 marks)

- a) Briefly explain the following site works:
i) Site clearance
ii) Site leveling
iii) Setting out **(12 marks)**
- b) Briefly discuss any **TWO** of the following site preliminaries.
i) Provision of temporary services
ii) Access roads
iii) Material storage **(8 marks)**

Question Three (20 marks)

- a) With the aid of sketches, describe any **THREE** land drainage system patterns. **(9 marks)**
- b) With the aid of a sketch, describe a typical outfall at the discharge point of a land drainage system. **(7 marks)**
- c) With the aid of sketches, illustrate the laying of drains in a drainage system. **(4 marks)**

Question Four (20 marks)

- a) (i) State the **THREE** functional requirements for the foundations of building structures. **(6 marks)**
(ii) Outline the factors to be considered when selecting a foundation type for a building structure. **(8 marks)**
- b) Briefly explain the **THREE** main causes of settlement in building structures. **(6 marks)**

Question Five (20 marks)

- a) With the aid of sketches, describe the perimeter trench method of basement excavation. **(6 marks)**
- b) Briefly explain the conditions that would necessitate underpinning. **(8 marks)**

- c) State **THREE** factors to be considered when placing concrete in foundations in a large contract.
(6 marks)