



TECHNICAL UNIVERSITY OF MOMBASA

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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

HIGHER DIPLOMA IN BUILDING & ECONOMICS (HDBE)

EBE 3114: CONCRETE & TIMBER TECHNOLOGY II

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: AUGUST 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) State **FIVE** points in cement weighting machines where regular attention should be undertaken. **(10 marks)**
- b) Explain **FIVE** main causes of variation between concrete cubes from different batches. **(10 marks)**

Question Two

- a) Explain **FIVE** factors that influence the crushing strength of concrete. **(10 marks)**
- b) State **SIX** causes of heat in concrete **(6 marks)**
- c) State **TWO** properties considered in selection of materials for each of the following:
(i) Framed structure
(ii) Roads **(4 marks)**

Question Three

- a) Outline the procedure for carrying out V-B consistometer test **(8 marks)**
- b) State the **SIX** requirements of a good concrete road joint **(6 marks)**
- c) State **SIX** common causes of failure in concrete floor surfacing. **(6 marks)**

Question Four

- a) State the **FIVE** factors which lead to cracking in hardened concrete **(10 marks)**
- b) State **FIVE** points to be considered in the preparation and placing of concrete at construction joints. **(10 marks)**

Question Five

- a) Briefly describe the non-tilting drum mixers **(6 marks)**
- b) State the **SEVEN** general requirements for formwork. **(7 marks)**
- c) Using suitable annotated sketches show **TWO** formwork designs for beams and slabs. **(7 marks)**