



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBC 10B)
DIPLOMA IN ARCHITECTURE (DA 10B)

EBC 2333: CIVIL WORKS SPECIFICATION

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY 2013

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

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 **THREE** printed pages

Question One

- a) State the importance of specifications in the following stages of design:
- (i) Inception stage
 - (ii) Conception stage
 - (iii) Design stage
 - (iv) Construction stage
- (8 marks)**
- b) Briefly describe the **FOUR** main contract documents in Civil Engineering Construction Works.
- (12 marks)**

Question Two

- a) Concrete storm water drainage pipes are to be laid in a proposed Highway project. Write brief notes for the works under the following headings:
- (i) Loading and unloading of pipes
 - (ii) Laying of pipes
 - (iii) Build in of pipes
 - (iv) Concrete surround to pipeline
 - (v) Backfilling of Trenches
- (10 marks)**
- b) Trenches are to be dug for storm water drainage system along the sides of a new highway. Under appropriate heading, write specification notes for supporting support the sides of excavations.
- (10 marks)**

Question Three

Manholes are to be constructed along the path of a proposed sewer line at predetermined positions. Write specification notes for the works under the following headings.

- (i) Excavation of pits
 - (ii) Concrete bottom slab
 - (iii) Walling
 - (iv) Plastering to walling
 - (v) Benching
 - (vi) Step irons
 - (vii) Cover slab
 - (viii) Manhole cover
- (20 marks)**

Question Four

- a) A survey is to be carried out to establish the route of a proposed pipeline under the following headings:
- (i) Preliminary survey
 - (ii) Selection of alignment
 - (iii) Actual survey
 - (iv) Soil investigations
 - (v) Earth works
- (10 marks)**

- b) A railway track is to be constructed from the proposed Lamu Port to the mainland of East and Central Africa. Write specification notes on the railway track formation under the following headings:
- (i) Site preparation
 - (ii) Excavation works
 - (iii) Surface drainage
 - (iv) Formation stabilization
 - (v) Grading of formation
- (10 marks)**

Question Five

- a) Write general specification notes on road works in flexible pavements under the following headings:
- (i) Formation Preparation
 - (ii) Sub Base
 - (iii) Base Course
 - (iv) Stabilized Layer
 - (v) Bitumen Surface
- (10 marks)**
- b) Write general specification notes on steel works in concrete road pavement under the following headings:
- (i) Quality of steel
 - (ii) Preparation
 - (iii) Workmanship
 - (iv) Laying in position
- (10 marks)**