



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING

EBC 2303: BUILDING & CIVIL ENGINEERING WORKS - SPECIFICATIONS

END OF SEMESTER EXAMINATION

SERIES: APRIL 2014

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer booklet
- Drawing Instruments
- Calculator

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions

All questions carry equal marks
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One

- a) State the role of the Quantity Surveyor in specification writing in the following stages of construction.
- (i) Inception stage
 - (ii) Conception stage
 - (iii) Design stage
 - (iv) Construction stage
- (4 marks)**
- b) Briefly describe the FIVE main types of specifications in Civil Engineering Construction.
- (10 marks)**
- c) Briefly describe the following features in specification writing:
- (i) Main heading
 - (ii) Clause heading
 - (iii) Description
- (6 marks)**

Question Two

- a) The Mombasa-Nairobi Highway is to be expanded to a Dual carriageway. Write specification notes for the survey work under the following headings:
- (i) Preliminary survey
 - (ii) Selection of alignment
 - (iii) Actual survey
 - (iv) Geotechnical survey
 - (v) Earthworks
- (10 marks)**
- b) Write specification notes for construction works of a Modern Railway line from Mombasa to Nairobi under the following headings:
- (i) Preliminary works
 - (ii) Topographical layout
 - (iii) Earthworks
 - (iv) Compaction of formation
 - (v) Surface drainage
- (10 marks)**

Question Three

A deep back drop manhole is to be constructed due to change of elevation along a sewer line. Write specification notes for the works under the following headings: **(20 marks)**

- (i) Excavation of pit
- (ii) Timber works
- (iii) Concrete bottom slab
- (iv) Masonry walling
- (v) Benching
- (vi) Plastering
- (vii) Step irons
- (viii) Formwork to cover slap

- (ix) Concrete to cover slab
- (x) Manhole cover

Question Four

- a) Steel water pipes are to be laid to enhance the supply of water from Mzima Springs to Momabsa County. Write specification notes for the works under the following headings:
- (i) Transportation of steel pipes
 - (ii) Earth works
 - (iii) Laying of pipes
 - (iv) Jointing of pipes
 - (v) Back filling
- (10 marks)**
- b) Open storm water drainage system is to be construction along a proposed highway to a nearby water way. Under appropriate headings write specifications notes for support to sides of excavations.
- (10 marks)**

Question Five

- a) Write specification notes for construction of a Tarmac Road to connect two nearby towns under the following headings:
- (i) Formation preparation
 - (ii) Sub Base laying
 - (iii) Base course laying
 - (iv) Stabilized layer
 - (v) Primer application
 - (vi) Bitumen surfacing.
- (12 marks)**
- b) Write specification notes for laying an insitu fibre reinforced culvert across a new tarmac road for storm water drainage.
- (8 marks)**