THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE

MEASUREMENT, SPECIFICATIONS AND COSTING

END OF SEMESTER I EXAMINATION

SERIES: APRIL/MAY 2010

TIME: 3 HOURS

Instructions to Candidates:

You should have the following for this examination:
- Answer Booklet
- Calculator
- Dimension papers
- A copy of the Standard Method of Measurement of Building Works

This paper consists of **SIX** questions in **THREE** sections **A**, **B** and **C**.

Answer any **THREE** questions choosing **ONE** question from each section.

Question in Section **A** carry 40 marks while those in Section **B** and **C** carry 30 marks each.

Maximum marks for part of question are as shown.

SECTION A: MEASUREMENT

(Compulsory)

Q.1 Take off **all** quantities for the Substructure works shown in drawing No.01. (40 marks)

Q.2 (a) Drawing No.02C shows the plan layout of superstructure walls and a Schedule of finishes for an office block. Take off all the quantities for:- (15 marks)

(i) The superstructure walls up to the roof.
(ii) All the floor, wall and ceiling finishes, including painting and decorating. (15 marks)

(b) Give **FIVE** differences between Building and Civil Engineering Quantities with a brief explanation of each. (10 marks)

SECTION B: SPECIFICATION

(Answer any **ONE** question from this Section)

Q.3 (a) Outline **FOUR** types of specifications in the construction industry. (8 marks)

(b) Write brief specification notes on site clearance under the following headings:

(i) Site clearance
(ii) Top soil excavation
(iii) Site leveling
(iv) Site drainage (12 marks)

Q.4 (a) Write specification notes on Concreting work in column bases under the following headings:

(i) Materials
(ii) Batching and mixing
(iii) Transportation and placing
(iv) Compaction
(v) Curing. (10 marks)

(b) Write specification notes on form work to foundation columns under the following headings:

(i) Material quality
(ii) Preparation
(iii) Surface treatment
(iv) Setting up
(v) Striking (10 marks)

SECTION C: ESTIMATING AND COSTING

(Answer any **ONE** question from this Section)

Use the information in Appendix 'A' for price build-up. Assume any other necessary information.

Q.5 (a) Indicate and briefly explain **FIVE** sources of waste of materials during construction and what steps are necessary to be taken to minimize such waste. (10 marks)

(b) Build up unit rates for the following items:-

Excavate over site to remove vegetable soil average 150mm thick and deposit on site in spoil heaps as directed. [SM] (10 marks)

Q.6 (a) Build up a detailed hourly All – in – labour rate for a skilled tradesman, using the following data. (16 marks)

- Working period 45 hours per week
- Overtime 3 hours per week on Saturday
- Annual leave 24 days per year
- Sick leave 14 days per year
- Basic hourly wage Ksh.50.00 per hour
- Gazetted holidays 11 No. per year
- Medical benefits Ksh.15000.00 per year
- Trade Supervision Ksh.10.00 per hour
- NSSF Contribution 5% of basic pay per month
- Assume 52 working weeks and that the workers will be accommodated on site.

(b) Explain the term Operating costs for an item of plant giving examples of **TWO** of such costs. (4 marks)