



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 **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

(Answer any **TWO** questions from this section.)

- Q.1 (a) Take off **all** quantities for the Substructure works for Fish Pond shown in drawing No.01. (30 marks)
- (b) Give **FIVE** purposes of a Bill of Quantities with brief explanations of each. (10 marks)
- Q.2 (a) Explain the **FOUR** stages of bill preparation using the Traditional method. (12 marks)
- (b) Define **SIX** roles of the Quantity Surveyor in a Construction Project, two at each of the following stages; During design, During construction and after completion. (18 marks)
- (c) With suitable illustrations, explain how the following are used in the Traditional method of Bill of Quantities preparation.
- Grouping of dimensions
 - Grouping of descriptions
 - Dotting-on
 - Ditto.

SECTION B: SPECIFICATIONS

(Answer any **ONE** question from this section.)

- Q.3 (a) Write specification notes on pit excavation for column bases under the following headings:
- (i) Subsoil excavation
 - (ii) Plunking and Strutting
 - (iii) Carting away
 - (iv) Dewatering
- (12 marks)
- (b) Write specification notes on construction of solid stone block walling under the following headings:
- (i) Materials for walling
 - (ii) Mixing of Mortar
 - (iii) Bonding
 - (iv) Curing
- (8 marks)
- Q.4 (a) Write specification note on fixing of a hardwood door under the following headings:
- (i) First fixing
 - (ii) Second fixing

- (iii) Iron Mongery
(iv) Surface finish (10 marks)
- (b) Write specification notes on application of plaster to wall surfaces. (8 marks)

SECTION C: ESTIMATING AND COSTING

(Answer any **TWO** questions from this Section)

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

- Q.5 (a) Differentiate between Overheads and Profit as used in the build up of unit rates. (8 marks)
- (b) State **SIX** items that contribute to the Overheads costs of a Construction firm. (12 marks)
- Q.6 (a) Build up the hourly rate of owning and operating a 200 liter capacity concrete mixer using the following information:-
- | | | |
|-------------------------------------|----------------------------|------------|
| • Purchase of new mixer | Kshs.1,600,000.00 | |
| • Salvage value after six (6) years | Kshs.185,000.00 | |
| • Cost of transport per year | Kshs.40,000.00 | |
| • Interest and Insurance per year | 30% of annual depreciation | |
| • Maintenance and repairs per year | 20% of annual depreciation | |
| • Annual working time | 2000 hours | |
| • Fuel per 8 hour working day | Kshs.2,400,006. | (16 marks) |
- (b) If the concrete mixer in question 2(a) above has a time cycle of 5 minutes, calculate its output. (4 marks)