

2705/204
2707/204
MEASUREMENT OF BUILDING AND
CIVIL ENGINEERING WORKS,
ESTIMATING AND COSTING I
Oct./Nov. 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN CIVIL ENGINEERING

MODULE II

MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS,
ESTIMATING AND COSTING I

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Dimension paper;

Scientific calculator;

A copy of Standard Methods of Measurement and Associated Civil Works for Eastern Africa (SMM);

A copy of Civil Engineering Standard Method of Measurement (CESMM);

Answer booklet.

This paper consists of SIX questions in TWO sections; A and B.

Answer FOUR questions choosing TWO questions from each section.

Questions in section A carry 30 marks each while those in section B carry 20 marks each.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 5 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

Answer any TWO questions from this section.

1. Take off all quantities for the underground tank shown in drawing No. 01.
(Use S.M.M for building works and associated civil works). (30 marks)
2. Take off all quantities for the retaining wall shown in drawing No. 02.
(Use C.E.S.M.M) (30 marks)
3.
 - (a) Explain the key roles of a quantity surveyor. (8 marks)
 - (b) Outline four purposes of bills of quantities. (8 marks)
 - (c) Illustrate how the following quantities are booked in a dimension paper.
 - (i) 5 columns of sizes 2.5 m high x 400 mm x 250 mm reinforced concrete (1:2:4).
 - (ii) Excavation of 4 equal trenches length 10.5 m, 80 mm wide and 1050 mm deep.
 - (iii) Heavy duty cast iron manhole covers and frames, 5 number sizes 600 x 400 mm.
 - (iv) 150 mm x 25 mm hardwood skirting length 25.5 m fixed to wall. (10 marks)
 - (d) Explain two formats in which bill of quantities can be presented. (4 marks)

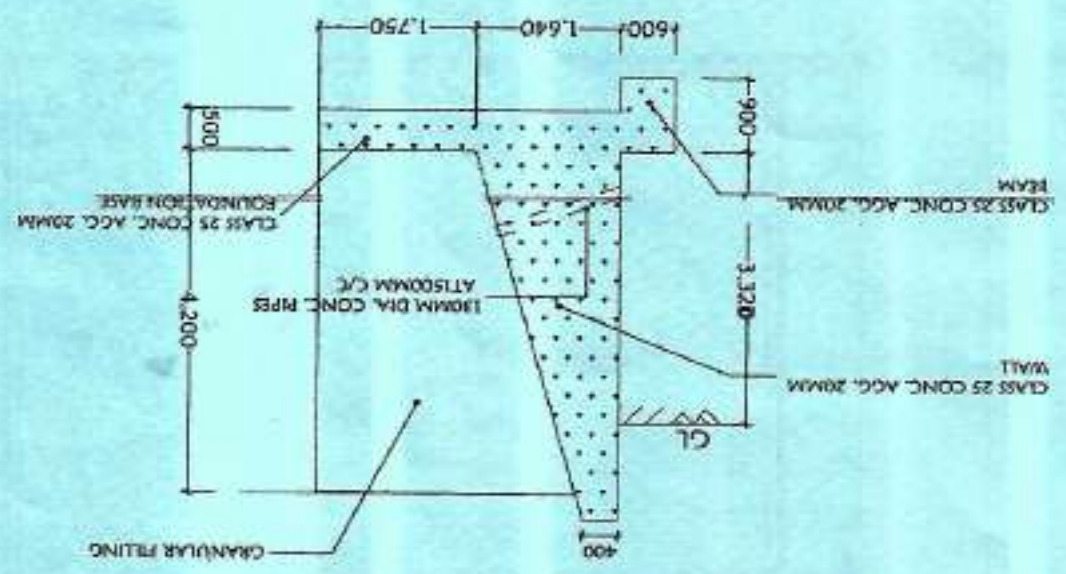
DRAWING NO. 02

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SECTION A4-A4



SECTION B: ESTIMATING AND COSTING I

Answer TWO questions from this section.

4. (a) List any **four** sources of cost information. (4 marks)
- (b) Describe the following as used in costing:
- (i) provisional sums;
 - (ii) prime cost sums;
 - (iii) contingencies sums. (6 marks)
- (c) With the aid of sketches, explain the storey enclosure method of approximate estimating. (10 marks)
5. (a) Differentiate the following contracts giving **two** merits and **two** demerits in each:
- (i) cost plus percentage fee contract; (8 marks)
 - (ii) cost plus fixed fee contract. (8 marks)
- (b) Explain the term 'day works' as used in costing. (4 marks)
- (c) Outline **four** components of a unit rate. (8 marks)
6. (a) List down **five** contract documents encountered in a construction project. (5 marks)
- (b) Describe the term Net Pricing and Gross Pricing as used in estimating. (5 marks)
- (c) Differentiate the following terms:
- (i) contract without quantities;
 - (ii) contract with quantities. (10 marks)

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