

2705/204

2707/204

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

June/July 2020

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN BUILDING CONSTRUCTION
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);

An answer booklet.

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

Answer FOUR questions, choosing TWO questions from each section.

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: MEASUREMENTS OF BUILDING AND CIVIL ENGINEERING WORKS

Answer *TWO* questions from this section.

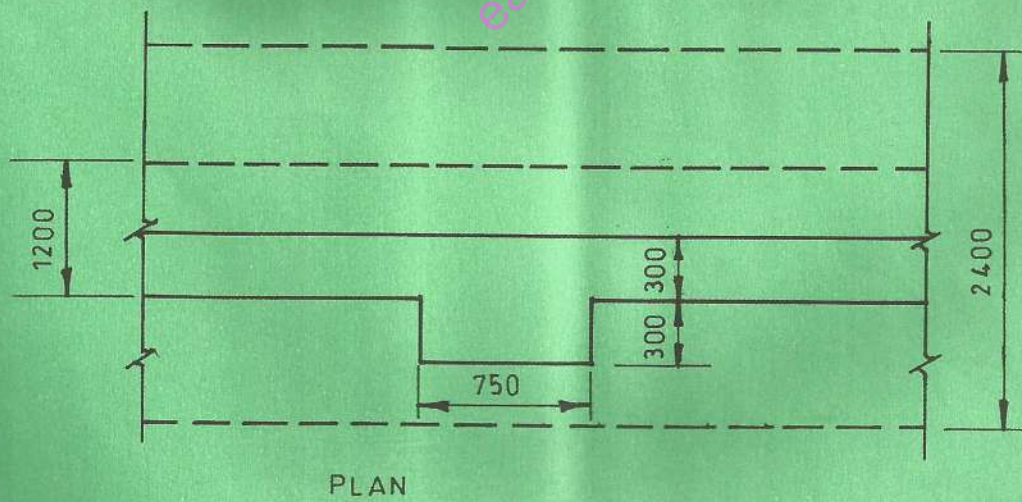
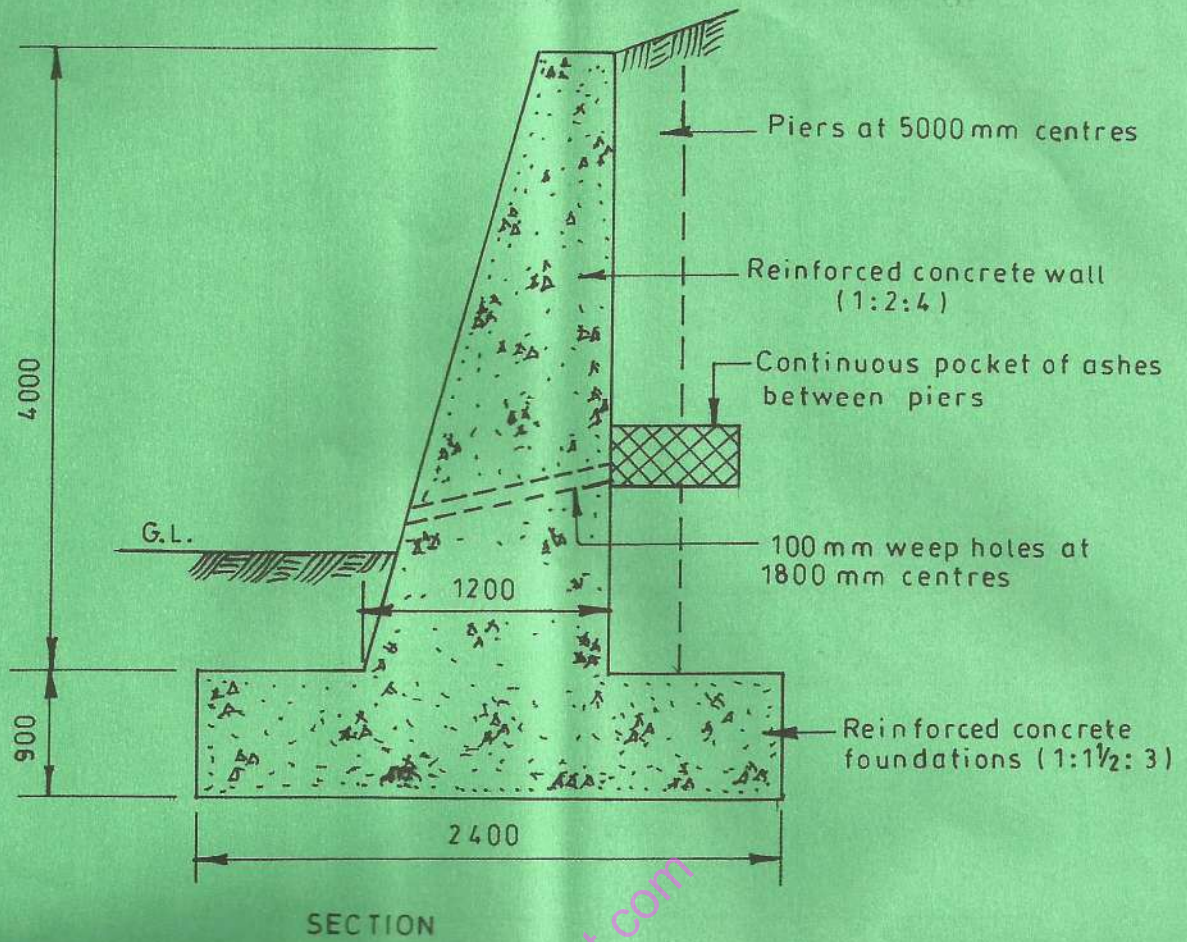
1. Take off all quantities for the retaining wall shown on drawing No. 01. (Use CESMM)
(30 marks)

 2. (a) Explain the following terms as used in measurements:
 - (i) preambles
 - (ii) extra over items
 - (iii) prime cost items
 - (iv) provisional sums(8 marks)

 - (b) Explain the following as used in tendering:
 - (i) specification
 - (ii) bill quantities
 - (iii) form of tender.(8 marks)

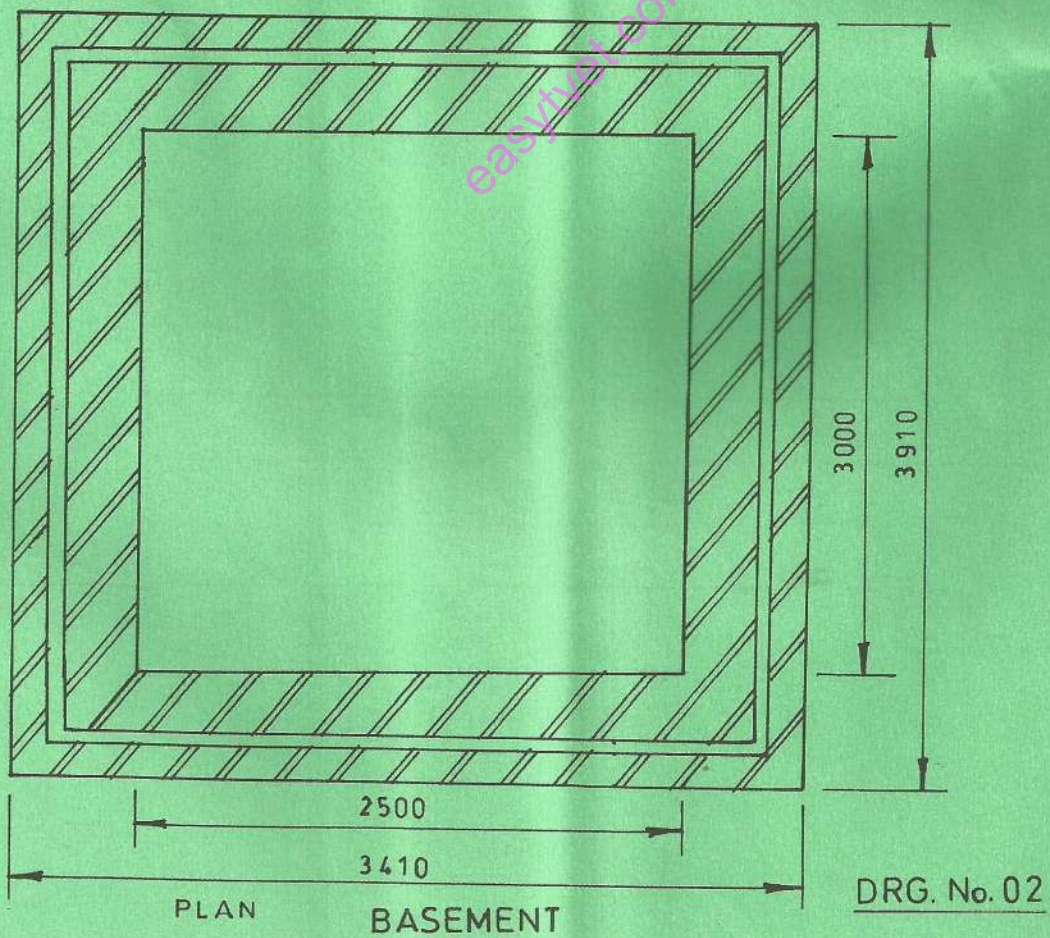
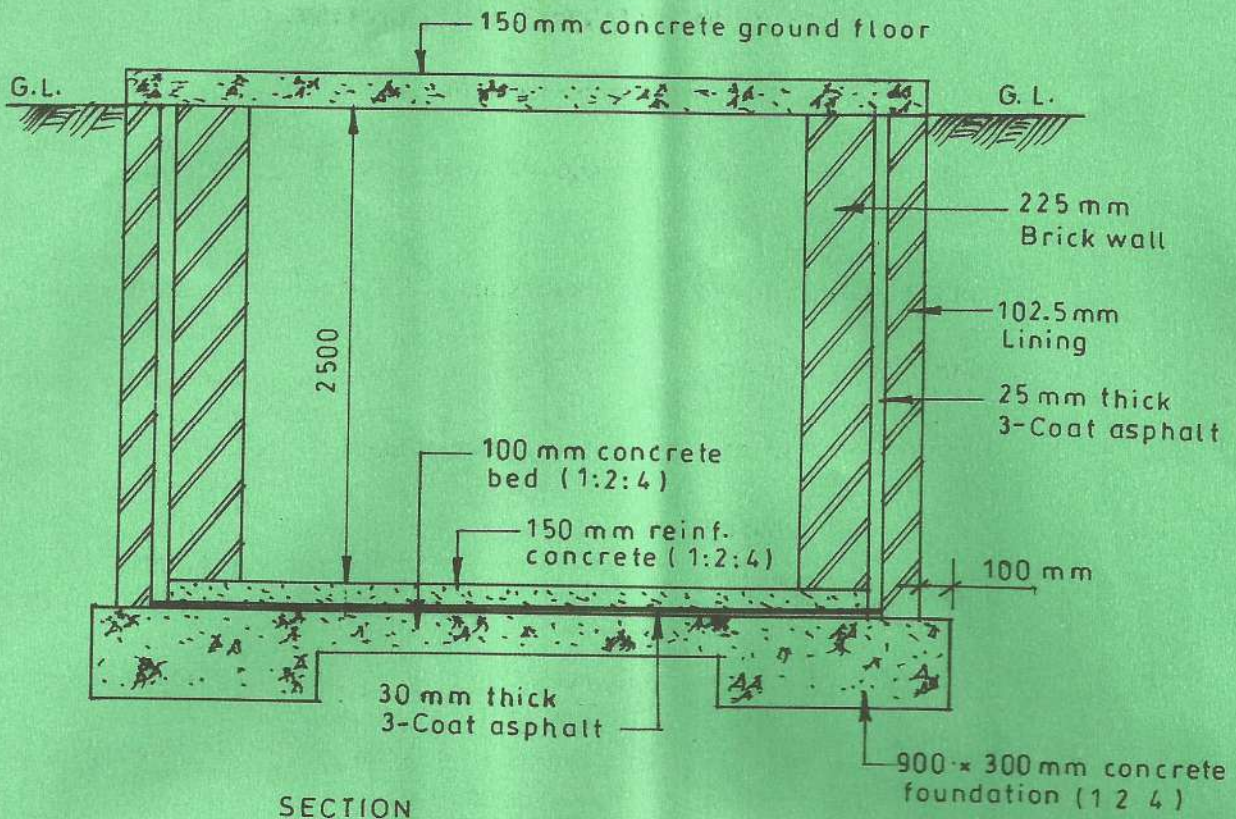
 - (c) Distinguish between elemental bill and trade bill. (4 marks)

 - (d) Explain the following contracts used in Building and Civil Engineering:
 - (i) bill of quantities contract;
 - (ii) lumpsum contracts;
 - (iii) schedule contracts;
 - (iv) target contracts.(10 marks)
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3. Take off all quantities for the sub-structure works shown in drawing No. 02. (Use SMM)
(30 marks)



RETAINING WALL

DRG. No. 01



2705/204
 2707/204
 June/July 2020

SECTION B: ESTIMATING AND COSTING I

Answer *TWO* questions from this section.

4. (a) (i) Explain the importance of tender documents to a contractor. (4 marks)
(ii) List **four** tender documents. (4 marks)
- (b) Differentiate between estimate and tender sum. (4 marks)
- (c) State **four** roles of a Quantity surveyor at pre-tender stage (4 marks)
- (d) Outline **four** sources of cost information to an estimator. (8 marks)
5. (a) (i) Explain the cubic method of approximation. (6 marks)
(ii) With aid of sketches show how the cubic method is applied on flat roofs and pitched roofs. (6 marks)
- (b) (i) Describe the functional unit method of approximate estimating, stating **two** places where it is suitably used. (10 marks)
(ii) Using functional unit estimate the cost of constructing a 60 desk capacity classroom, given that a 40 desk capacity would cost Ksh 400,000. (10 marks)
- (c) Outline **four** components of a unit rate. (4 marks)
6. (a) A variation order has been made on a construction project. Explain four ways of costing such works. (12 marks)
- (b) (i) Explain the purpose of interim payment certificates on a contract. (8 marks)
(ii) Outline **four** conditions to observe before including materials on site on interim valuation. (8 marks)

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