2705/304 2707/304 2709/304 2710/304 CONSTRUCTION MANAGEMENT II, ESTIMATING AND COSTING II Oct./Nov. 2017 Time: 3 hours





THE KENYA NATIONAL EXAMINATIONS COUNCIL.

DIPLOMA IN BUILDING TECHNOLOGY DIPLOMA IN CIVIL ENGINEERING DIPLOMA IN ARCHITECTURE

MODULE III

CONSTRUCTION MANAGEMENT II, ESTIMATING AND COSTING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator.

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

Answer FIVE questions choosing THREE questions from section A and TWO questions from section B.

All questions carry equal marks.

Maximum marks for each part of a question are as indicated.

Candidates should answer the questions in English.

This paper consists of 4 printed pages.

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

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Turn over

SECTION A: CONSTRUCTION MANAGEMENT II

Answer TWO questions from this section.

- 1. (a) State three implied responsibilities of each of the following:
 - (i) Lessor;
 - (ii) Lessee. (6 marks)
 - (b) Briefly describe three types of legal mortgages. (6 marks)
 - (c) Explain two defences and two remedies to an action in tort. (8 marks)
- 2. (a) Describe procurement process and its documentation. (14 marks)
 - (b) State three obligations of the employer under the given headings as stipulated in occupational safety and Health Act (OSH):
 - (i) health;
 - (ii) welfare.

(6 marks)

3. (a) Explain five roles of trade unions.

- (10 marks)
- (b) Explain five reasons for proper keeping of accounting records.

(10 marks)

 Table 1 comprises of data collected from a calculation sheet of activities to be under taken by a contractor.

Table 1

Activity Code	Activity No.	Duration (weeks)
A	0-1	12
В	0-2	6
C	0-3	4
D	1-3	8
E	2-4	10
F	2-5	14
G	3-4	6
H	4-5	4
I	4-6	10
J	5-6	4

(a) Draw a network diagram using critical path method and show the critical path.

(15 marks)

(b) Prepare an analysis sheet to show the total floats.

(5 marks)

SECTION B: ESTIMATING AND COSTING II

Answer TWO questions from this section.

 (a) Use the data given in Table 2 to build up a unit rate for 420 x 335 mm Marcha concrete roofing tiles with 75 mm head laps and 33 mm side laps fixed on size 50 x 50 mm battens (per m²).

Data

Skilled labour — Ksh 75
Unskilled labour — Ksh 40
Concrete roofing tiles 420 x 335 mm — Ksh 80 per each
Wire nails per kg — Ksh 120
Cypress timber battens size 50 x 50 mm — Ksh 50 per m²
Cost of materials as delivered on site.

Make reasonable assumptions for information not given.

(b) Using data given to, build up a unit rate for 12 mm diameter mild steel reinforcement bars including all necessary tying wire and laps (per kg). (8 marks)

Data

Skilled labour ---- Ksh 75
Unskilled labour ---- Ksh 40
12 mm mild steel bars per m --- 0.888 kg
Tying wire ----- Ksh 100 per kg.

 Use the data to determine the rate for load and remove surplus excavated material from site (per m²).

(20 marks)

Data

Skilled labour ---- Ksh 75

Unskilled labour ---- Ksh 40

Purchase price of 5m3 capacity lorry ---- Ksh 6,000,000

Economic working life of lorry ---- 5 years

Working hours per annum --- 1,800

Salvage value of lorry ----- Ksh 500,000

Average interest per annum ----- 18% of investment

Licence and insurance per annum --- 5% of purhcase price

Total maintenance and repairs --- 12% per annum.

Diesel consumption --- 45 litres per day @ Ksh 110 per litre

Efficiency of lorry ---- 90%

Hauling distance ---- 5 km

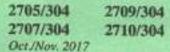
Average empty haul of lorry -- 40 km/hr

Average loaded outward haul -- 30 km/hr

Tipping time --- 3 minutes

Loading of lorry --- manual by 4 No. loaders

Tyres - 3 sets of six tyres @Ksh 150,000 per set during economic life.





 Use the data given to build up a unit rate for sawn formwork to vertical sides of columns (per m²), (20 marks)

Data

Skilled labour ---- Ksh 75
Unskilled labour ---- Ksh 40
Sawn timber per m³ --- Ksh 23,000
Wire nails per kg ---- Ksh 140
Size of column 400 x 250 x 3000 mm high

Build up a unit rate for making and fixing a framed, ledged, braced and battened door size 850 mm x 2100 mm with 100 x 50 mm stiles and top rail, 200 x 50 mm middle rail, 150 x 50 mm bottom rail, 100 x 30 mm braces and 5 x 20 mm T and G battens (per m²). Cost of timber is Ksh 23,000 per m³. (20 marks)

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