

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.

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)
4. **Table I** comprises of data collected from a calculation sheet of activities to be under taken by a contractor.

Table I

Activity Code	Activity No.	Duration (weeks)
A	0-1	12
B	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.

5. (a) Use the data given in Table 2 to build up a unit rate for 420 x 335 mm Mareba concrete roofing tiles with 75 mm head laps and 33 mm side laps fixed on size 50 x 50 mm battens (per m²). (12 marks)

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.

6. Use the data to determine the rate for load and remove surplus excavated material from site (per m³). (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 purchase 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.



7. Use the data given to build up a unit rate for sawn formwork to vertical sides of columns (per m^2). (20 marks)

Data

Skilled labour ----- Ksh 75

Unskilled labour ----- Ksh 40

Sawn timber per m^3 ---- Ksh 23,000

Wire nails per kg ----- Ksh 140

Size of column 400 x 250 x 3000 mm high

8. 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 m^2). Cost of timber is Ksh 23,000 per m^3 . (20 marks)

THIS IS THE LAST PRINTED PAGE.