2705/304 2707/304 2709/304 2710/304 CONSTRUCTION MANAGEMENT II, ESTIMATING AND COSTING II June/July 2019 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.

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

Candidates should answer the questions in English.

This paper consists of 6 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

Answer THREE questions from this section.

- (a) Define the following terms as used in work measurement:
 - (i) break point;
 - (ii) effective time;
 - (iii) check time;
 - (iv) idle time.

and strong (4 marks)

- (b) Explain three ways of reducing material wastage in construction. (6 marks)
- (c) Explain five sources of the Kenyan law, indian contribution (10 marks)
- 2. (a) State two advantages and two disadvantages of each of the following payment systems:
 - (i) day work;
 - (ii) piece work.

(8 marks)

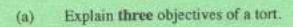
- (b) Outline four functions of trade unions. (6 marks)
- (c) Explain three books of accounts. (6 marks)
- 3. Table 1 shows a construction activity data.
 - (a) Draw an arrow network diagram and show the critical path.
 - (b) Using analysis table, determine the earliest and latest start and finish time for the activities.
 - (c) Calculate the total floats and free floats.

(20 marks)



Table 1

ACTIVITY	PREDECESSOR	tm	to	t,
A		3	2	4
В	A	6	5	7
C	A	4	3	5
D	A	10	8	12
E	C	8	7	9
F	В	6	5	7
G	D	6	8	7
Н	В	7	6	8
1	E,F	5	4	6
J	H	11	7	9
K	I,G	4	3	5
L	D	2	4	6
М	L	6	4	6 8
N	L	4	2	6
0	J,K	8	6	19
P	J,K	6	7	П
Q	N,O	4	6	8



(6 marks)

- (b) Define the following terms as used in law:
 - (i) libel;
 - (ii) mortgage;
 - (iii) arbitration;
 - (iv) defamation.



(c) Explain the three remedies for conversion as used in law of tort.

(6 marks)

SECTION B: ESTIMATING AND COSTING II

Answer TWO questions from this section.

6. (a) State six factors that affect the operation cost of a mechanical plant. (6 marks)

(b) Build up a unit rate for B.R.C mesh A 98 including laps, bends, tying wires and spacer blocks using the following data.

Data

BRC mesh A 98 Kshs 18,00 per 50 m x 2 m roll

Tying wires Kshs 90 per kg
Spacer blocks Kshs 3 each
Skilled labour Kshs 100 per hour

Unskilled labour Kshs 50 per hour

Assume any other relevant information.

(14 marks)

 (a) Build up a unit rate for the following item; 265 x 165 x 15 mm plain clay tile on 50 x 25 mm sawn cypress batten with 65 mm end laps nailed at every fourth course with 32 mm long galvanised mild steel nails using the following data;

Data

Cost of timber Kshs 1000 per m³ Cost of nails Kshs 120 per kg

Cost of one plain clay tile Kshs 20
Skilled labour Kshs 100
Unskilled labour Kshs 50

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Assume any other relevant information.

(14 marks)

(b) Build up a unit rate for three coats of plastic emulsion paint on an internal plastered surface using the following data.

Data

Cost of primer Kshs 1000 per 4L tin covering 10 m² per litre

Cost of undercoat Kshs 1250 per 4L tin covering 12 m² per litre

Cost of finish coat Kshs 1450 per 4L tin covering 14 m² per litre

Painter Kshs 100 per hour

Assume any other information not given.

(6 marks)

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8.

Using the following data, build up a unit rate for lean concrete 1:3:6 - 20 mm aggregate in foundation (m3).

Data

Capacity of the mixer Life span of the mixer

Purchase value Salvage value

Total interest in capital p.a.

Lubrication oil

Maintenance and insurance

Diesel fuel Efficiency

Cement Sand Ballast

Cycle time

Skilled labour Unskilled labour - 200 litres

- 5 years

- Kshs 1,600,000

- Kshs 500,000

- 40% of price of mixer

- Kshs 10 per hour

- 70% of annual depression

- 4 litres per hour at Shs 95 per hour

- 80%

 Kshs. 800 per 50 kg bag, density 1440 kg/m³ - Kshs. 1200 per tonne, density 1600 kg/m3

- Kshs. 1400 per tonne, density 1700 kg/m3

- 4 minutes

- Kshs. 100 per hour

- Kshs. 50 per hour

- 2000 hrs Working hours in a year

Assume any other information not given.

(20 marks)

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1: 3 . 6 - doundation (mt) consider - material + labour + Plant + Press 1 of Depreviation = purchase - solvage

16 00000 - Japon + No

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410 x1600000 = SH per

tubricalism of a ship per hour Diesel Nels 4 librer per hour as 95 44 x 380 per hour

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