

2306/305  
BUILDING ECONOMICS, CONSTRUCTION  
LAW, ESTIMATING AND COSTING  
Oct./Nov. 2016  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN QUANTITY SURVEYING

BUILDING ECONOMICS, CONSTRUCTION LAW,  
ESTIMATING AND COSTING

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Answer booklet;*

*Scientific Calculator.*

*This paper consists of EIGHT questions in THREE sections, A, B and C.*

*Answer FIVE questions choosing TWO questions from section A, ONE question from section B and TWO from section C.*

*All questions carry equal marks.*

*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: BUILDING ECONOMICS**

Answer **TWO** questions from this section

1. (a) Define the following terms:

- (i) Economics; - *an science of a ~~business~~ that provides information of sales*
- (ii) Building economics. - *science of* (5 marks)

(b) Differentiate between the following as applied in building economics:

- (i) price; - *this is amount given to a product for the buyers to buy*
- (ii) cost. *total amount of a product from the manufacturer to the sellers.* (5 marks)

*- Time consuming  
- No alterations are needed  
- Expensive.*

(c) State and describe **five** disadvantages of storey height method of estimation for building works. (10 marks)

*Storey height method - done measurement in each compartment. Takes a long time.*

2. (a) Define the term elasticity. (3 marks)

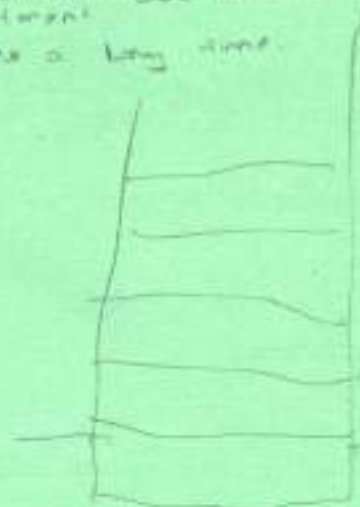
(b) State **four** factors that influence elasticity. (4 marks)

(c) Explain the following types of inflation:

- (i) Demand Pull inflation;
- (ii) Cost Push inflation. (6 marks)

(d) State **four** causes of cost push inflation. (3 marks)

(e) Draw a regressive supply curve of income versus number of hours worked and explain the behaviour of the graph. (4 marks)



3. State and describe **five** methods of valuing landed property. (20 marks)

- Cost - according to building cost.*
- Reinstatement - compared with other building*
- Comparative - repayment of loans*
- Repair & Rebuild - to provide profit*
- Unit method - a house*
- Whose by the initial building cost is used*
- Construction or bidding by making good the defects arising*
- Comparison of price of buildings*
- building is constructed & then P provided after 12-15 years*



## SECTION B: CONSTRUCTION LAW

Answer ONE question from this section

4. (a) Define the following:
- (i) Constitutional law; *- law required by law*
  - (ii) Criminal law; *- a public wrong by an indiv. owed to the country*
  - (iii) Civil law. *- a private law done by an individual to another* (6 marks)
- (b) (i) In relation to the law of contract, explain the following essentials of a valid contract:
- (I) Duress; *- under an influence*
  - (II) Undue influence. *-*
- (ii) Explain the nature of tort of trespass of land. (8 marks)
- (c) Describe the following torts:
- (i) Personal liability; *- depends on something*
  - (ii) Vicarious liability. (6 marks)
5. (a) Describe the following leases of land:
- (i) Free hold tenure; *- the state is fixed but uncertain.*
  - (ii) Lease hold tenure. (6 marks)
- (b) Describe the following types of lease hold tenure:
- (i) Fixed leases;
  - (ii) Periodic tenancies. (6 marks)
- (c) State two rights and two liabilities of a lessor. (4 marks)
- (d) Explain the nature of mortgaged property. (4 marks)

SECTION C: ESTIMATING AND COSTING

Answer **TWO** questions from this section

(Use the information given in **appendix 1** to answer questions in this section).

6. (a) Explain how the following affect the overall cost of a project giving **four** examples in each case:
- (i) storey or overall height; (7 marks)
  - (ii) circulation areas. (3 marks)
- (b) List **six** reasons why the tender sums from various bidders differ substantially for the same project. (10 marks)
- (c) Calculate the unit rate for planting and strutting per linear metre. Make reasonable assumptions where necessary. (6 marks)
7. (a) Describe the cubic method of estimation of a building giving **two** merits and **two** demerits of this method. (4 marks)
- (b) Define the term unit rate, stating **four** contents of unit rate. (10 marks)
- (c) Calculate the unit rate for roofing tiles using information in appendix 1. Make reasonable assumptions where necessary. (20 marks)
8. Calculate the unit rate of 1 m<sup>2</sup> brick wall laid in jointed in cement sand mortar (1:3) using the information given in appendix 1. Make reasonable assumptions where necessary. (20 marks)

Handwritten calculations for question 8:

$$\text{No. of tiles} = \frac{1}{0.25 \times 0.25} = 16$$

$$1000 - 12,000$$

$$1 \times 18 \text{ k}$$

$$(0.50 \times 220 \times 150)$$

$$= 9,256 \text{ bricks}$$


0.25 +

↓

0.067025

1

20



50 x 25 mm

Assume no of studs

$$\frac{9500}{1000} = 9.5$$

9500 = 9.5

9.5 x 0.15

Size of bolts

$$= \frac{475}{475} = 1$$

4

- cubic method.

- calculation of the areas in cubic metres.



Appendix 1

Cost of timber per m <sup>3</sup>	Ksh 9,500/=
Size of polling boards 71.25	150 x 50 mm ✓
Size of struts 47.5k	100 x 50 mm ✓
Cost of nails	Ksh 50 per kg
Skilled labour per hour 20k	Ksh 42.50/=
Unskilled labour per hour 15k	Ksh 25.50/=
Working hours	8 hours per day ✓
Size of tiles 1298.70k	420 x 330 mm ✓
Size of battens 11875k	50 x 0.25 mm ✓
Cost of 1000 pieces of tiles	Ksh 18,000/=
Size of brick 2011.325	215 x 102.5 x 65 mm
Cost of cement per 50 kg delivered	Ksh 440/=
Cost of sand per tonne delivered	Ksh 1,050/=
Density of cement	1440 kg/m <sup>3</sup>
Density of sand	1050 kg/m <sup>3</sup>
Price of new mixer ✓	Ksh 360,000/=
Resale value ✓	Ksh 40,000/=
Life span	4 years
Interest on capital	15% per annum
Insurance per annum	Ksh 5,000/=
General repairs and maintenance	Ksh 52,000/= per annum
Fuel 9 litres per hour @	Ksh 41.20
Volume of mixer bucket	0.25 m <sup>3</sup>
Cycle time of mixer	6 minutes 40 seconds

1298.70k + 4775  
 Size of struts  
 $\frac{10,000}{1000} = 10$  (11 no.)



Make any other reasonable assumptions where necessary.

5m<sup>2</sup> Cost of nails = 50  
 3" inches nails = 50k/kg  
 4 x 50 = 200k  
 1kg = 50 nails  
 Struts - 100 x 50  
 47.5k

3 x 2 Skilled labour = 42.50  
 3 x 6 Unskilled labour = 25.50

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(150 x 50 mm) No. Struts = 1