



1704/204
BUILDING SERVICES, JOINERY
AND CONSTRUCTION MATERIALS II
June/July 2017
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
CRAFT CERTIFICATE IN BUILDING TECHNOLOGY
MODULE II

BUILDING SERVICES, JOINERY AND CONSTRUCTION MATERIALS II
3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing instruments;

Scientific calculator.

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

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

All questions carry equal marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 4 printed pages.

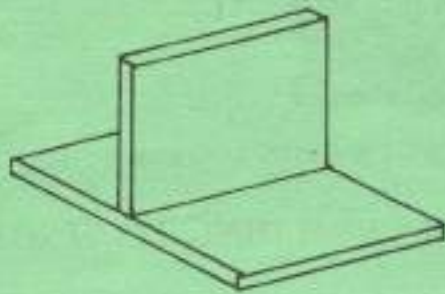
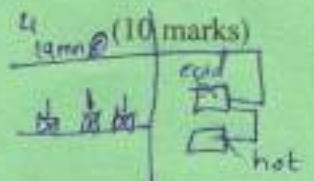
Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: BUILDING SERVICES

Answer **TWO** questions from this section.

✓ 1

- (a) (i) State **six** reasons for design of water supply installations. ✓ 6
 (ii) Sketch and label a direct cold water supply system. ✓
 (b) Two metals are to be joined as shown in **figure 1**.



- arc
- gas

Figure 1

Outline **two** methods of carrying out the task. *arc gas } welding* (4 marks)

(c) With the aid of sketches, explain **two** oxyacetylene flame conditions. (6 marks)

✓ 2

- (a) (i) Define ventilation.
 (ii) State **six** reasons for ventilation. *- hot air - air flow - light - air circulation* (5)

(iii) Explain **two** forms of natural ventilation. *- pv* (1) (11 marks)

(b) (i) State **three** advantages of gas supply to a house. (3) (12 marks)

(ii) Outline **two** precautions observed during gas pipe work installation. (2) (5 marks)

(c) Outline the gas installation test procedure. (4 marks)

✗ 3

- (a) (i) Sketch and name **six** electrical symbols.
 (ii) Outline **two** electrical hand tools. ✓ (7 marks)

(b) (i) Define a manhole. ✓ (1)

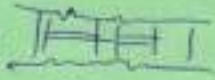
(ii) Sketch and label a section through a manhole 3 m deep. ✓ 5 (7 marks)

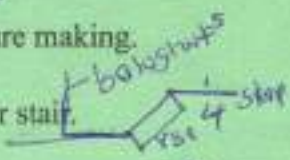
(c) Highlight **four** classes of fire and state an extinguishing agent in each case. ✓ (6 marks)



SECTION B: JOINERY

Answer TWO questions from this section.

4. (a) Outline the procedure of surface preparation to receive varnish. (6 marks)
- (b) Explain two classifications of timber defects. (6 marks)
- (c) (i) With the aid of labelled sketches, show two methods of nogging partitions.  (10)
- (ii) Name two joints that may be used for a partition at each of the following positions. (8 marks)
- (I) between door head and post: *halving & butt joint* 2
- (II) between post and cill. —

5. (a) With the aid of sketches, explain three classifications of joints for joinery works. (6 marks)
- wedging*
- long tenon
- angle joints
- (b) Outline the procedure of preparing timber for furniture making. (6 marks) (14)
- (c) With the aid of a sketch, define four parts of a timber stair.  (8 marks)
6. (a) Sketch and label a framed, ledged braced and battened door. (5 marks) (5)
- (b) Sketch and label an elevation of a storm proof casement window. (5 marks)
- (c) Figure 2 shows a pictorial view of a serving tray with internal dimensions of 450 mm x 550 mm.

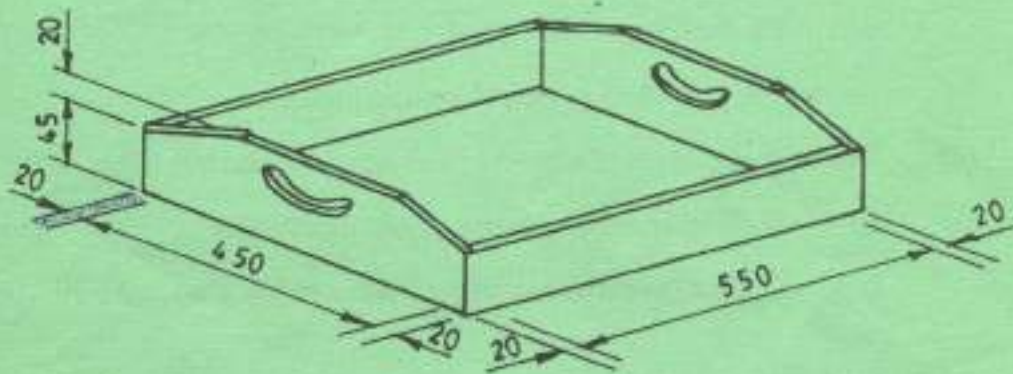


Figure 2



Using the data given in **table 1**, determine the unit cost of the tray.

(10 marks)

Table 1

Size mm	Description	Unit	Cost
75 x 25	Cypress	M	45
50 x 25	Cypress	M	38
4800 x 2400	Plywood	Block	640
50 g	PVA glue	Piece	100
100 g	Clear varnish	Piece	140
2 No.	Glass paper No. 1	Piece	8
100 g	Emyll cloth	1 Kg	160

SECTION C: CONSTRUCTION MATERIALS II

Answer ONE question from this section.

7. (a) (i) State **four** properties of plastics.
- (ii) Outline each of the following methods of manufacturing plastics:
- (I) injection moulding;
- (II) extrusion moulding. (6 marks)
- (b) Explain each of the following methods of manufacturing glass:
- (i) shaping;
- (ii) flat drawing. (4 marks)
- (c) Outline the procedure of manufacturing linoleum. (5 marks)
- (d) Outline **two** classes of adhesives and state **one** example in each case. (5 marks)
8. (a) (i) Distinguish emulsion paint from water paint. ✓
- (ii) Outline the procedure of painting a newly plastered wall using a brush. ✓ (10 marks)
- (b) Explain two forms of bitumen. (4 marks)
- (c) Explain **three** methods of applying a sealant. (6 marks)

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