

1704/104
CARPENTRY AND CONSTRUCTION
MATERIALS I
Oct./Nov. 2017
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN BUILDING TECHNOLOGY

MODULE I

CARPENTRY AND CONSTRUCTION MATERIALS I

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator/Mathematical tables;

Drawing instruments.

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 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.


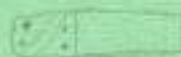
SECTION A: CARPENTRY

Answer **THREE** questions from this section.

1. (a) State **four** personal safety habits pertaining to each of the following:
 - (i) clothing;
 - (ii) workshop safety.

(4 marks)

- (b) Sketch and label each of the following tools and state the use of each:
 - (i) pincers;
 - (ii) tenon saw.

(5 marks)

- (c) Sketch and label a joint in each of the following classifications and state where each may be used:
 - (i) widening;
 - (ii) framing.

(5 marks)

- (d) Outline the process of preparing timber.

(6 marks)

- drying seasoning
- drying maintenance
- covering
- storing according to grade & class

2. (a) (i) Define a roof.

(9 marks)

- (ii) With the aid of a labelled sketch, outline the features of a couple roof.

(5 marks)

- (b) Explain two types of temporary works.

(6 marks)

- (c) (i) Define timber frame construction.

(6 marks)

- (ii) Outline the two types of frame construction.

(6 marks)

3. (a) State **three** precautions observed in respect to power tools:
 - (i) before using, *- check whether correct warnings are okay*
 - (ii) when using, *- adjust and loosened parts*

(6 marks)

- be free from foreign materials
- fold your sleeves if long
- stay behind the rotating point of the tool
- wear goggles if working on dust area

- (b) State **four** parts of power tools that are inspected periodically and outline the likely corrective action for each.

(4 marks)

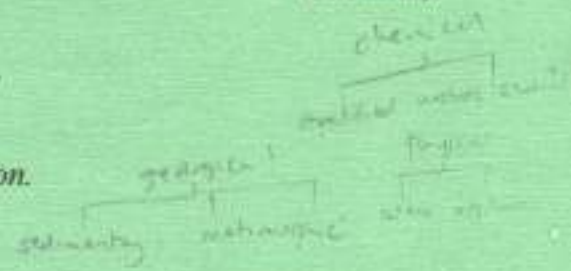
Switched
Rotating parts



- (c) Sketch and label part of a roof to show the arrangement of rain water goods. (6 marks)
- (d) Outline **two** materials used for rainwater goods. (4 marks)
- 4. (a) Describe **three** wood working machines and state **one** use of each. (9 marks)
- (b) Explain **two** timber floor finishes. *oil based, water based* (5 marks)
- (c) Explain **three** factors that may influence quality control of a flooring task. (6 marks)
- 5. (a) (i) Outline the function of a foundation. (6 marks)
- (ii) With the aid of a labelled sketch, explain the solid slab raft foundation. (6 marks)
- (b) Sketch and label a section through a suspended timber floor. (6 marks)
- (c) Sketch and label each of the following: (8 marks)
 - (i) ranch style fence;
 - (ii) gate for ranch style fence.

SECTION B: MATERIALS

Answer **TWO** questions from this section.



- 6. (a) (i) State the geological classification of rocks. *sedimentary*
- (ii) Explain **two** types of rocks and list **two** examples of each type. (6 marks)
- (b) (i) State how bricks are obtained.
- (ii) Outline **four** properties of bricks. *hard durable, easy to paint, low cost* (5 marks)
- (c) With the aid of sketches, outline each of the given methods of converting timber: (5 marks)
 - (i) through and through;
 - (ii) quarter sawing.



- (d) Outline **two** of each of the stated timber defects:
- (i) growth defects;
 - (ii) seasoning defects.
- (4 marks)
7. (a) Outline the concrete making materials. (6 marks)
- (b) Outline the process of concreting a building element (6 marks)
- (c) State:
- (i) **four** properties of wrought iron;
 - (ii) **four** uses of wrought iron.
- (4 marks)
- (d) Differentiate between annealing and tempering. (4 marks)
8. (a) State **five** advantages and **five** disadvantages of using each of the following:
- (i) PPR pipes,
 - (ii) Aluminium.
- (5 marks)
- (b) (i) State the cement:sand proportions for mortar for:
- I. masonry work,
 - II. pointing.
- (ii) Outline **three** properties of mortar. (5 marks)
- (c) (i) Outline the production process of gypsum.
- (ii) Outline **four** properties of gypsum. (5 marks)
- (d) (i) Define the term varnish.
- (ii) State **three** uses of varnish. (5 marks)

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