

1704/104  
CARPENTRY AND CONSTRUCTION  
MATERIALS I  
June/July 2016  
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 as shown.*

*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 any **THREE** questions from this section.

1. (a) State at least **four** steps to follow if a person suffers an electric shock in the site workshop. (4 marks)  
 (b) (i) Prepare a sample of a typical cutting list. (4 marks)  
 (ii) State **four** angle joints used in cabinet making. (8 marks)  
 (iii) Sketch a mitre joint. (8 marks)  
 (c) Sketch a section through a raised timber ground floor and label at least four parts. (8 marks)

2. (a) Sketch the following hand tools:  
 (i) tenon saw;  
 (ii) G-clamp. (4 marks)
- (b) Sketch the following fastening devices:  
 (i) counter-sunk head screw;  
 (ii) round head screw;  
 (iii) hexagonal bolt. (6 marks)
- (c) (i) Outline **four** functional requirements of timber formwork. (10 marks)  
 (ii) Sketch a section through a putlog scaffold and label at least four parts. (10 marks)

3. (a) Sketch and label a section through:  
 (i) a timber flat roof;  
 (ii) a lean-to roof. (9 marks)
- (b) (i) List any **four** materials used in fencing. (6 marks)  
 (ii) State **four** factors to consider when selecting materials for gates.

strength  
 durability  
 fire resistance  
 purpose of gate



- (c) (i) List **two** types of materials used in rainwater goods. (5 marks)  
 (ii) Differentiate between brazing and soft soldering.

- ~~4.~~ (a) (i) List **four** types of rainwater goods. (5 marks)  
 (ii) State **three** purposes of applying finish to timber.

- (b) (i) List **four** types of finishes on timber floors. (10 marks)  
 (ii) Outline any **four** factors to consider when selecting a timber floor finish.

- (c) Differentiate between gloss and emulsion as used in painting. (5 marks)

5. (a) (i) List any **four** portable power tools. (10 marks)  
 (ii) Outline **four** maintenance requirements of portable power tools.

- (b) List any **eight** wood working machines. (4 marks)

- (c) State the use of the following on a circular saw: (6 marks)  
 (i) the adjustable crown guard;  
 (ii) the riving knife;  
 (iii) the fence;  
 (iv) the handwheel;  
 (v) the on/off switch;  
 (vi) push stick.

**SECTION B: MATERIALS**

Answer any **TWO** questions from this section.

6. (a) Differentiate between a hardwood and a soft wood. (4 marks)  
 (b) Using a sketch outline the natural process of seasoning timber. (8 marks)



Hard  
 in the regular A A  
 eugenous



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Turn over



- (c) List any:
- (i) **four** types of clay products; *Yodong clay house*
  - (ii) **six** mechanical properties of clay products. *Enamels*
- (8 marks)

7. (a) (i) Name any **four** types of cement.
- (ii) Stat any **three** tests done on cement.
- (5 marks)

- (b) (i) Define the term alloy.
- (ii) State **five** uses of brass.
- (7 marks)

- (b) (i) State any **two** properties of stainless steel.
- (ii) Describe the following heat treatment of carbon steels:
- (I) hardening
  - (II) tempering
- (8 marks)

8. (a) (i) List any **two** metamorphic rocks used in building.
- (ii) Outline any **two** defects in building stones. *Efflorescence, Cracking, Discoloration*
- (4 marks)

- (b) Describe the following terms as used in concrete works:
- (i) graded aggregate;
  - (ii) bulking of sand;
  - (iii) slump test;
  - (iv) compaction.
- (8 marks)

- (c) (i) Define the term plastering.
- (ii) State the advantages of granite finish over wet finishes on concrete floors.
- (8 marks)

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