

1704/204
BUILDING SERVICES, JOINERY
AND CONSTRUCTION MATERIALS II
June/July 2021
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;

Scientific calculator

Drawing instruments;

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 as indicated.

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 SERVICES

Answer **TWO** questions from this section.

1. (a) Differentiate between copper and steel pipe in gas supply. (4 marks)
- (b) Explain each of the following gas supply system:
- (i) acetylene;
 - (ii) liquid petroleum gas;
 - (iii) bio gas. (6 marks)
- (c) With the aid of a labelled sketch, describe an indirect cold water supply. (10 marks)
2. (a) State **four** advantages of trunking wiring system. (4 marks)
- (b) Explain the role of each of the following Acts in electrical safety:
- (i) Factory Act;
 - (ii) Workers indemnity benefit Act;
 - (iii) Occupational safety and health Act. (OSHA) (6 marks)
- (c) (i) Sketch and label an air conditioning layout for a typical college hall.
- (ii) State **four** reasons for installing air conditioning system in (c) (i) above. (10 marks)
3. (a) Explain each of the following methods of welding:
- (i) arc welding;
 - (ii) soldering;
 - (iii) gas welding. (6 marks)
- (b) Explain **three** rain water goods. (6 marks)

- (c) (i) Explain **three** methods of fire fighting.
(ii) Explain the term 'fire drill'.

(8 marks)

SECTION B: JOINERY

Answer **TWO** questions from this section.

4. (a) Explain **two** methods of applying paint on a surface. (4 marks)
(b) Outline the procedure of setting out a wooden staircase. (8 marks)
(c) With the aid of a labelled cross-section sketch, outline the procedure of fixing an architrave. (8 marks)
5. (a) Explain **three** methods of preventing timber from deteriorating. (6 marks)
(b) Explain each of the following type of door fittings:
(i) hinges;
(ii) plates;
(iii) kicker. (6 marks)
(c) With the aid of a labelled elevational sketch, explain a glazed partition. (8 marks)
6. (a) State **four** requirements of a partition. (4 marks)
(b) Sketch each of the following joints in joinery works: (6 marks)
(i) rebated, tongued and grooved;
(ii) matched and beaded.

- (c) **Figure 1** shows the pictorial sketch of a match boarded door. Estimate the cost of making the door using the following data:

Cost of battens 150 x 25 mm	Kshs. 90 per metre
Cost of braces	Kshs. 200 each.
Cost of ledgers	Kshs. 80 per litre
Carpenter	Ksh. 125 per hour
Assistant carpenter	Ksh. 75 per hour
Vanish	Ksh. 200 per litre
Cost of planing	Kshs. 400/m ²
4 litres of vanish required	
Profits and overheads	30%
Sand paper	Kshs. 20 per piece
Time taken to make the door	12 hours

Make any other necessary assumption.

(10 marks)

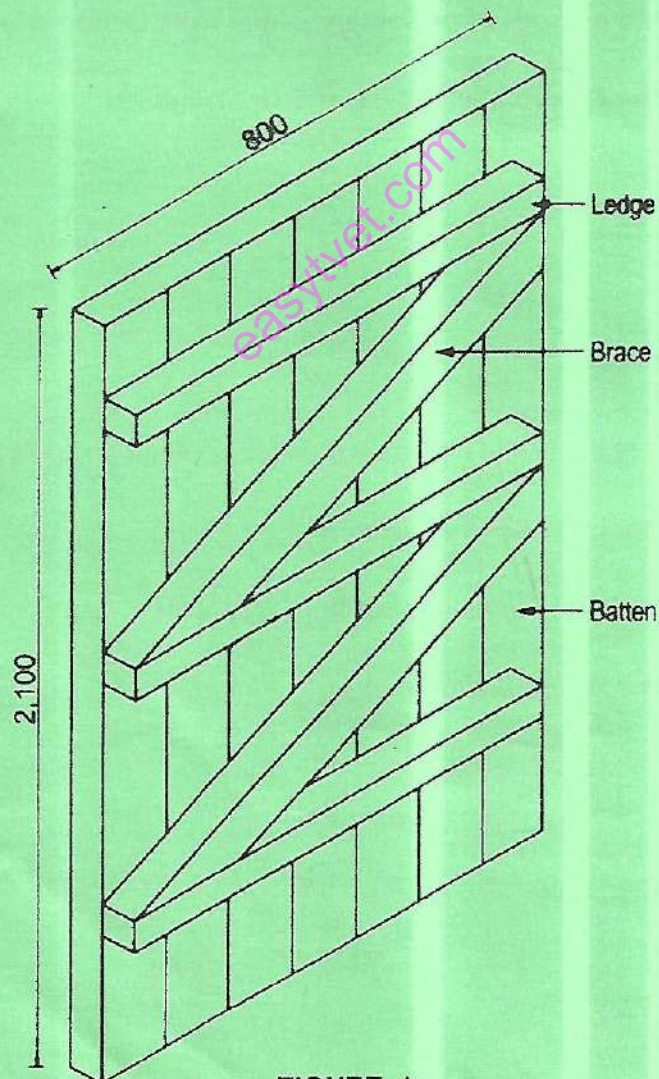


FIGURE 1

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SECTION C: CONSTRUCTION MATERIALS II

Answer ONE questions from this section.

7. (a) Differentiate between natural and synthetic fibres material. (4 marks)
- (b) Explain the gun as method of applying sealants. (2 marks)
- (c) Differentiate between thermoplastic and thermosetting plastics. (4 marks)
- (d) With the aid of a labelled sketch, outline the procedure of fixing a glass pane to a wooden window using patty. (10 marks)
8. (a) Explain **three** types of types of bituminous material. (6 marks)
- (b) (i) Outline the procedure of painting a new steel surface.
- (ii) Explain **two** defects on a painted surface. (8 marks)
- (c) Explain **three** properties of plastic as a construction material. (6 marks)

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