

0304/213

MASONRY TRADE THEORY

Oct./Nov. 2021

Time: $2\frac{1}{2}$ hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

ARTISAN CERTIFICATE IN MASONRY

MASONRY TRADE THEORY

$2\frac{1}{2}$ hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing instruments;

Calculator.

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A and any THREE questions from section B.

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 pages are printed as indicated and that no questions are missing.

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SECTION A (40 marks)

Answer ALL questions in this section.

1. State **two** ways of storing masonry tools. (2 marks)
2. Name **four** items in first aid box. (2 marks)
3. Outline the **two** functions of a profile board. (3 marks)
4. (a) Name **two** classifications of natural stones. (2 marks)
(b) Differentiate between plain concrete and reinforced concrete. (4 marks)
5. List **four** types of brick bonds. (2 marks)
6. (a) Outline **two** functional requirements of a foundation. (3 marks)
(b) Name **four** types of roof covering materials. (2 marks)
7. State **two** functions of each of the following materials used in solid ground floor:
(a) hardcore; (4 marks)
(b) blinding layer. (4 marks)
8. (a) Name **two** types of scaffolds. (1 mark)
(b) Sketch and label an elevation of an uncoursed random rubble-wall. (4 marks)
9. (a) State **two** methods of transferring levels from one point to another. (2 marks)
(b) State **two** methods of bridging an opening of a wall. (2 marks)
10. (a) State **two** reasons for damp proofing a building. (2 marks)
(b) Define the following terms:
(i) fireplace;
(ii) flue. (4 marks)

SECTION B (60 marks)

*Answer **THREE** questions from this section.*

11. (a) Sketch the following tools:
- (i) jointer;
 - (ii) wooden hawk.
- (4 marks)
- (b) Outline the procedure of setting out a rectangular building using a builders square. 7 marks)
- (c) Sketch and label the **three** methods of levelling a slopy site. (9 marks)
12. (a) State **three** purposes of a wall opening. (3 marks)
- (b) State **three** factors considered in selecting the method of excavating trenches. (3 marks)
- (c) Sketch and label a vertical section through a raft foundation. (7 marks)
- (d) Sketch and label a vertical section through a solid ground floor. (7 marks)
13. (a) A wall 1.5 metres long and 0.75 metres high is to be constructed using 390 x 190 x 140 mm concrete blocks. Calculate the number of blocks required allowing for 25% wall area coverage by mortar joints and 10% for block breakages. (12 marks)
- (b) Sketch and label a pictorial view of a return corner wall of stretcher bond and showing the toothing and raking back at both ends. (8 marks)
14. (a) Sketch the following types of coping:
- (i) saddle back;
 - (ii) feather edge.
- (6 marks)
- (b) (i) Describe the following types of drainage systems:
- (I) separate;
 - (II) combined.
- (ii) Name **four** tests carried out in a drainage system. (6 marks)

- (c) Outline the procedure of plastering a newly constructed walls. (8 marks)
15. (a) State **three** safety precaution observed in a masonry workshop. (3 marks)
- (b) Outline **two** methods of fixing a wall plate on a laid concrete floor. (3 marks)
- (c) Outline the procedure of fixing a door frame on a block wall. (7 marks)
- (d) Sketch and label a vertical section through a lintel formwork. (7 marks)

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