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1704/103
BUILDING CONSTRUCTION I
AND DRAWING
Oct./Nov. 2018
Time: 3 hours



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

BUILDING CONSTRUCTION I AND DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

- Answer booklet;*
- Scientific calculator;*
- Drawing equipment;*
- A₃ size drawing paper.*

This paper consists of EIGHT questions in TWO sections: A and B.

Answer a total of FIVE questions; taking at least TWO questions from each section.

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 6 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 CONSTRUCTION I

Answer at least **TWO** questions from this section.

1. (a) (i) State **four** factors involved in the planning of building environment.

(ii) Describe **two** features of a building environment considered in planning. (10 marks)
- (b) (i) With the aid of a labelled sketch, show a strip foundation.

(ii) Explain **two** Kenya Building Code Requirements for foundation. (10 marks)
2. (a) Sketch and label alternate plans of courses for each of the following bonding:

(i) $1\frac{1}{2}$ brick wall in English bond.

(ii) 1 brick wall in Flemish bond. (10 marks)
- (b) State **four** types of loads transmitted onto foundation walls. (4 marks)
- (c) Explain **three** methods of strengthening a brick wall. (6 marks)
3. (a) Outline **four** treatments applied below ground floor to control moisture penetration into the building. (6 marks)
- (b) Sketch and label a raised timber ground floor. (5 marks)
- (c) State **six** requirements of a form work to fresh concrete. (3 marks)
- (d) With the aid of labelled sketches, show the bridging of wall opening using each of the following:

(i) reinforced concrete lintel;

(ii) concealed lintel. (6 marks)
4. (a) Explain each of the following types of walls:

(i) load bearing;

(ii) enclosing;

(iii) dividing;

(iv) pierced. (6 marks)
- (b) List **six** tools used for setting out. (14 marks)

SECTION B: DRAWING

Answer at least TWO questions from this section.

5. (a) (i) List **four** equipment used in technical drawing. (4 marks)
- (ii) State **four** precautions taken in safe keeping of drawing equipment. (4 marks)
- (b) Construct a diagonal scale of 1:50 to read up to 10 metres to an accuracy of 0.01 metres. Indicate the following readings: (10 marks)
- (i) 8.75 m;
- (ii) 6.48 m.
- (c) Using the universal method, construct a regular pentagon with the length of one side equal to 30 mm. (6 marks)



6. Figure 1 shows an isometric drawing of a block.

To a scale of 1:50, draw the following in first angle projection:

- (i) plan;
- (ii) front elevation from the direction X;
- (iii) side elevation.

(20 marks)

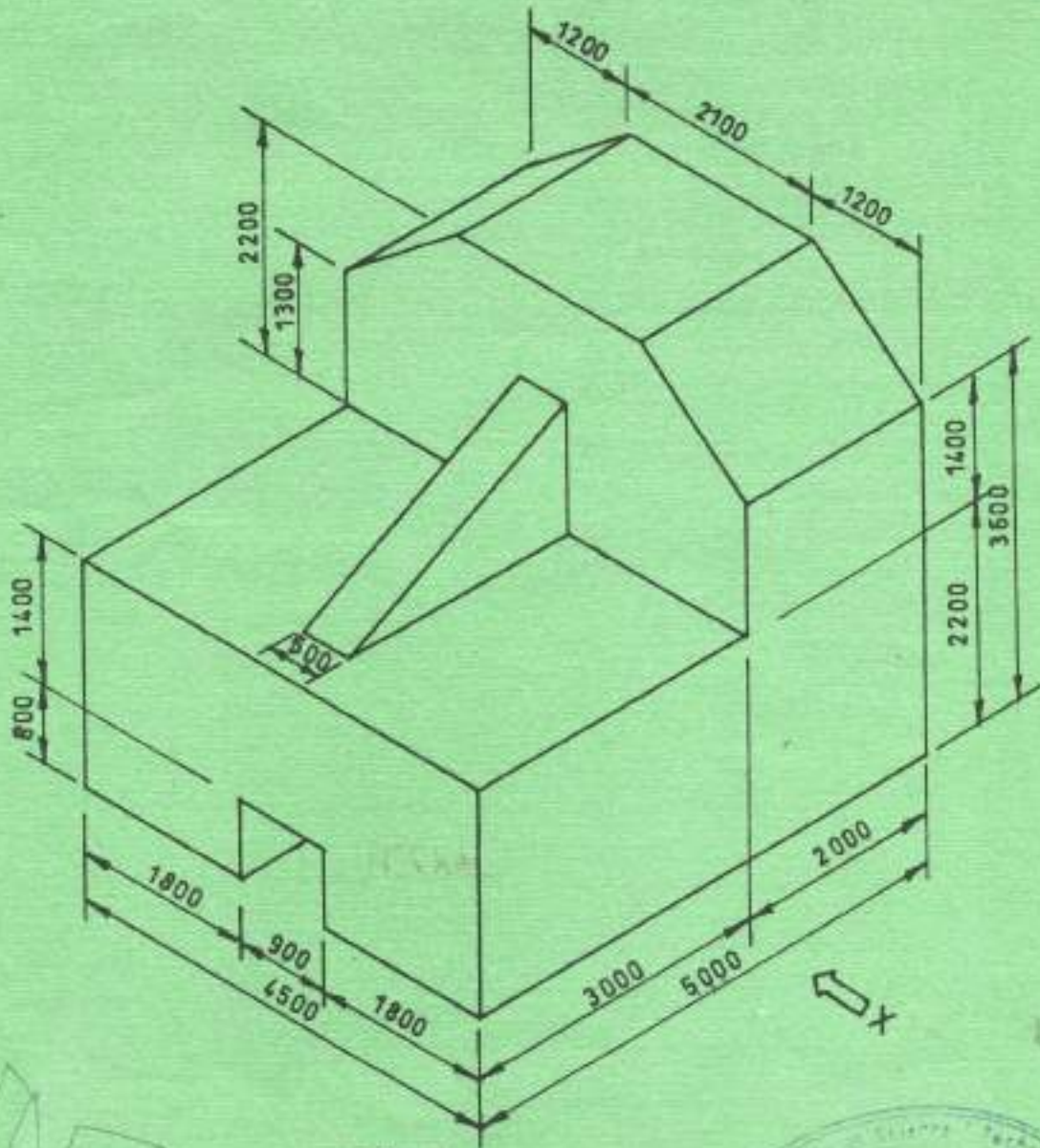
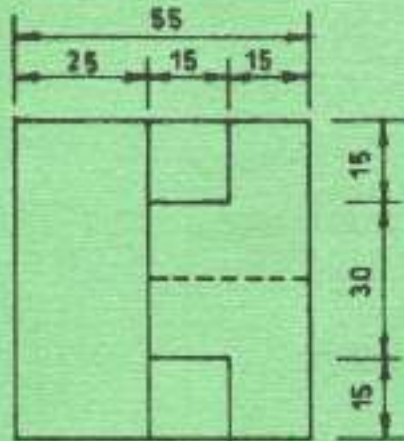


Fig.1



7. Figure 2 shows three views of machine block in third angle projection. Draw an isometric projection of the block making corner "X" as the lowest point, include ten dimensions.

(20 marks)



Time
Subject
Drawn by
Signed

Scale
Class
Date

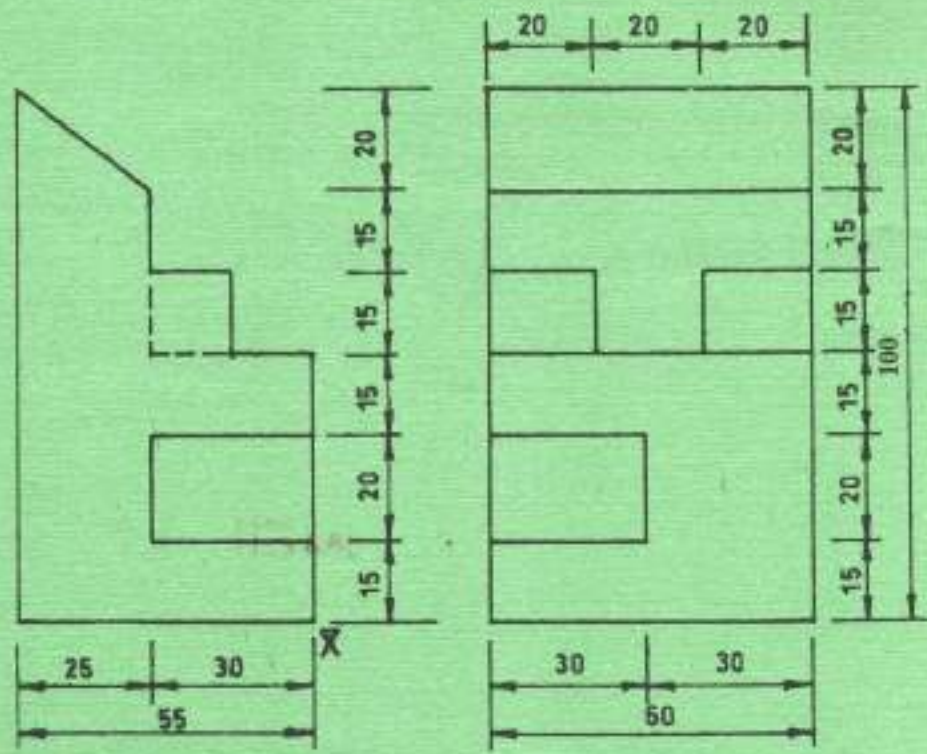


Fig. 2



8. To a scale of 1:20, draw the following:

- (i) ridge detail;
- (ii) eaves detail.

Use the following specifications.

Timber rafters	100 mm x 50 mm
Timber datums	25 x 20 mm @ 100 mm c/c
Timber ceiling joists	100 mm x 50 mm
Wall plate	75 mm x 50 mm
Ridge board	150 mm x 32 mm
Timber fascia board	200 mm x 25 mm
Roof covering	265 mm x 165 mm Plain tiles
Pitch	30°

Assume any other necessary information not given.

(20 marks)

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