

1704/103
 BUILDING CONSTRUCTION I
 AND DRAWING
 June/July 2016
 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/Mathematical table;

Drawing instruments.

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

Answer FIVE questions choosing TWO questions from section A, TWO questions from section B and ONE question from either sections.

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 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 CONSTRUCTION I

Answer at least **TWO** questions from this section in the spaces provided.

1. (a) (i) Compare and contrast environmental considerations in relation to building location.

(ii) Explain **four** functions of the elements of the built environment in relation to accommodation. (10 marks)

(b) With a labelled sketch, show the details of the following types of foundation:
 - (i) pad foundation;
 - (ii) wide strip foundation. (10 marks)

2. (a) (i) List **four** functional requirements of a foundation wall. (4 marks)

(ii) With the aid of a sketch, describe **three** rules of wall bonding in reference to lap. (6 marks)

(b) Using suitable sketches show the plan view of first and second courses of a one brick wall in Flemish bond with a return corner. (10 marks)

3. (a) Define the following terms as used in suspended timber floors:
 - (i) common joist;
 - (ii) trimming joist;
 - (iii) trimmer joist. (6 marks)
(b) With the aid of a labelled sketch, describe a suspended timber floor. (10 marks)

(c) List **four** functions of hardcore under a floor slab. (4 marks)

4. (a) State **five** functions of walls. (5 marks)

(b) Explain the following terms as applied to walls:
 - (i) load bearing and non-load bearing;
 - (ii) plastering and rendering;
 - (iii) pointing and jointing. (6 marks)
(c) Sketch a gauged semi-circular brick work arch and label it fully. (9 marks)



Handwritten notes: $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$



SECTION B: DRAWING

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

5. (a) Explain the following drawing instruments stating their uses:

- (i) t-square;
- (ii) set squares;
- (iii) scale rule;
- (iv) a protractor.



(4 marks)

(b) Print the alphabet 6 mm height in gothic upright lettering.

(6 marks)

(c) (i) Construct a hexagon when given 60 mm as the distance across the flats.

(5 marks)

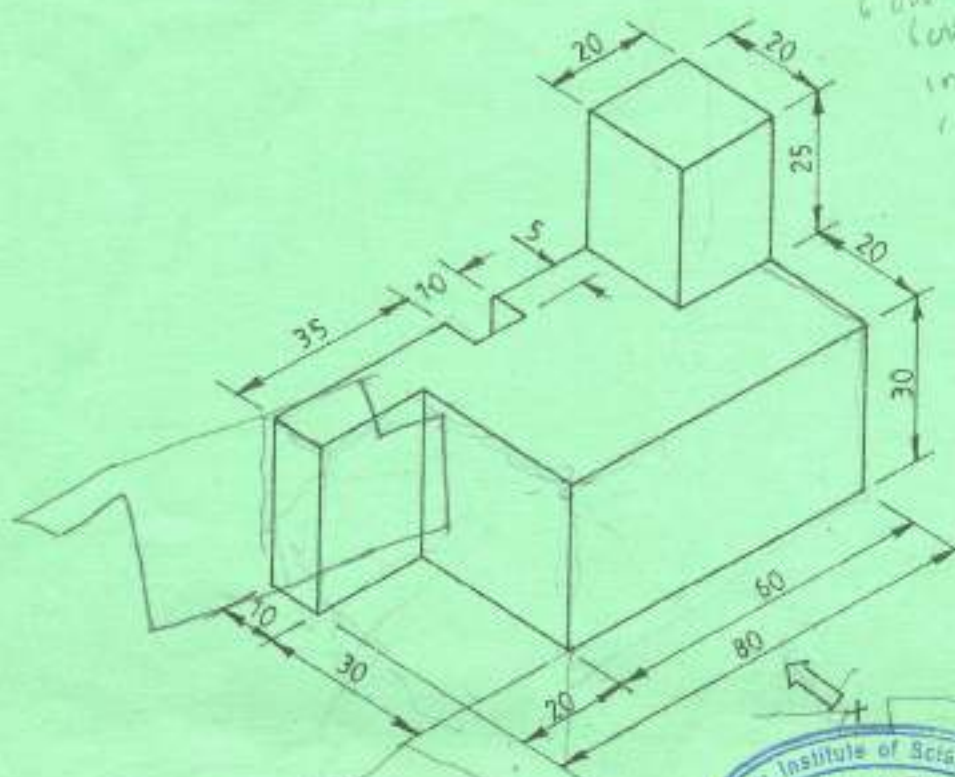
(ii) Construct a plain scale of 2 centimetres equals 1 meter to read up to 6 meters in decimetres.

(5 marks)

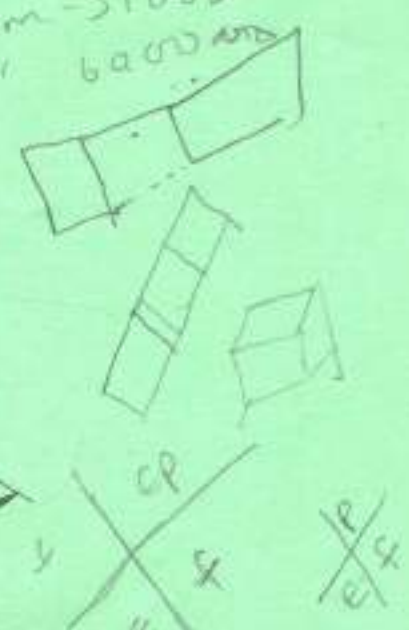
1 m → 10 cm 2 cm 20 cm

6. Figure 1 below shows a block drawn in pictorial projection. Draw the block in third angle projection, taking front elevation from arrow X.

(20 marks)



*1 m → 100 cm
6 cm
60 cm
1 m → 100 cm
60 cm*



7. Using the views shown in figure 2, produce an isometric drawing with point A as the lowest. (20 marks)

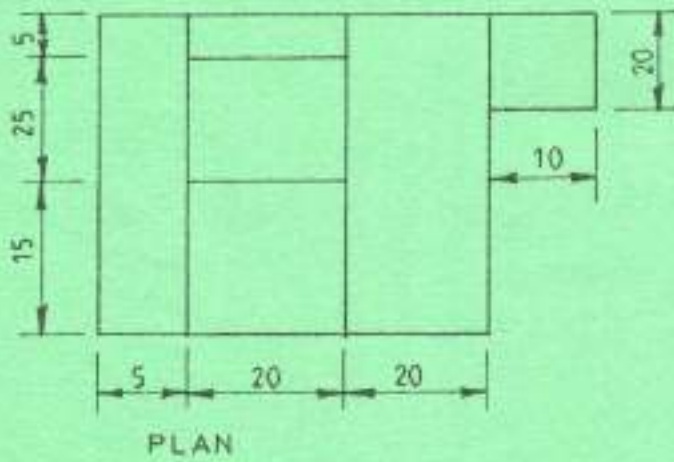
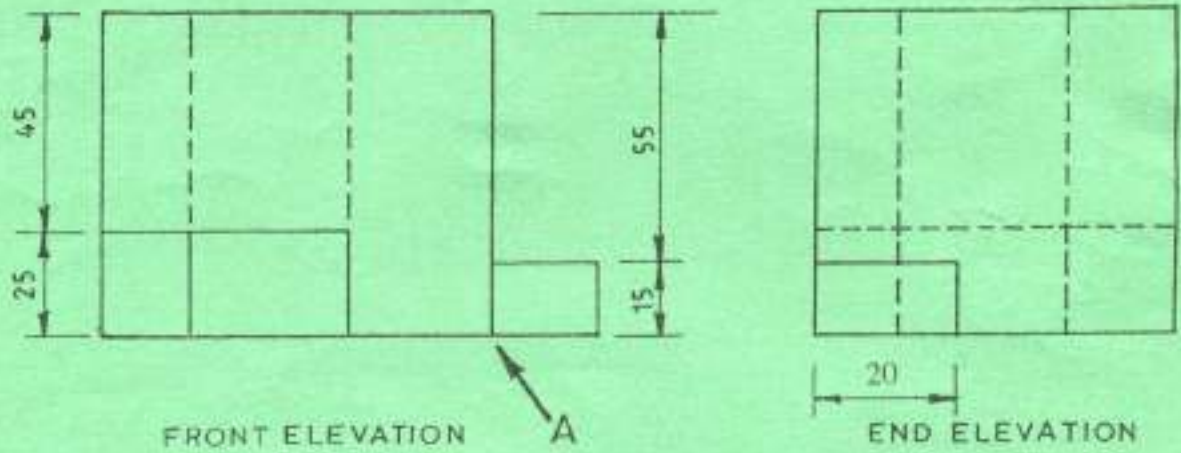
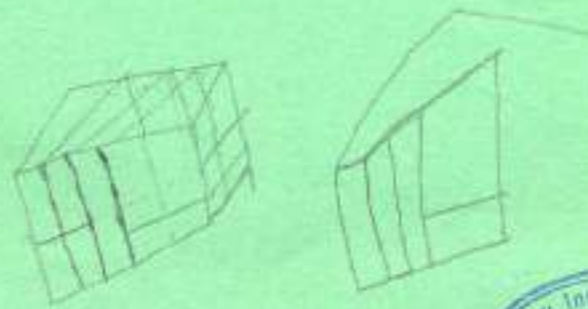


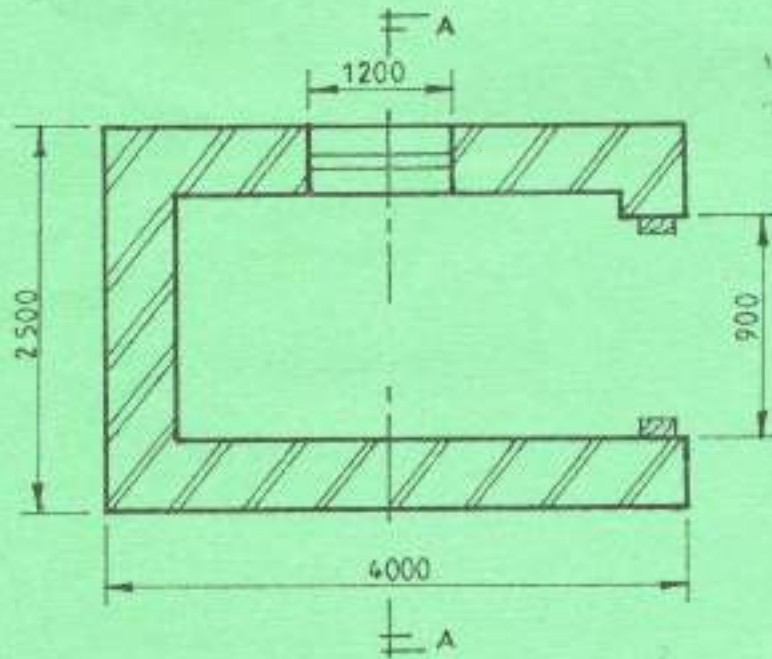
Fig. 2



8. Figure 3 shows a floor plan of a generator room. To a scale of 1:20 draw section A - A from the substructure to the wall plate given the following information:

Strip foundation	450 x 150 mm
Foundation wall	150 mm thick
Hard core layer	200 mm
Blinding layer	25 mm
Floor slab	100 mm
Cement screed	25 mm

Super structure wall 150 mm thick, 2.4 m from floor level to wall-plate. Assume any other information not given. (20 marks)



FLOOR PLAN

Fig. 3



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