1301/312
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1305/312
TECHNICAL DRAWING
June/July 2012
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN CARPENTRY AND JOINERY
CRAFT CERTIFICATE IN MASONRY
CRAFT CERTIFICATE IN PLUMBING

TECHNICAL DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
  Answer booklet
  Drawing instruments
  Drawing paper size A$_2$
Answer any FIVE of the following EIGHT questions.
*All questions carry equal marks.*
Maximum marks for each part of a question are as shown.
All dimensions are in millimeters.

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that all
the pages are printed as indicated and that no questions are missing.

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Turn over

1.   (a)   Using a pair of compass and ruler only, construct a triangle ABC with sides AB = 55mm, AC = 40 mm and angle BAC 75⁰.   (5 marks)

        (b)   Figure 1 shows an elevation of the turning handle of a can opener. Draw this view TWICE FULL SIZE, showing clearly the method of establishing the centres of the arcs.

Fig.1
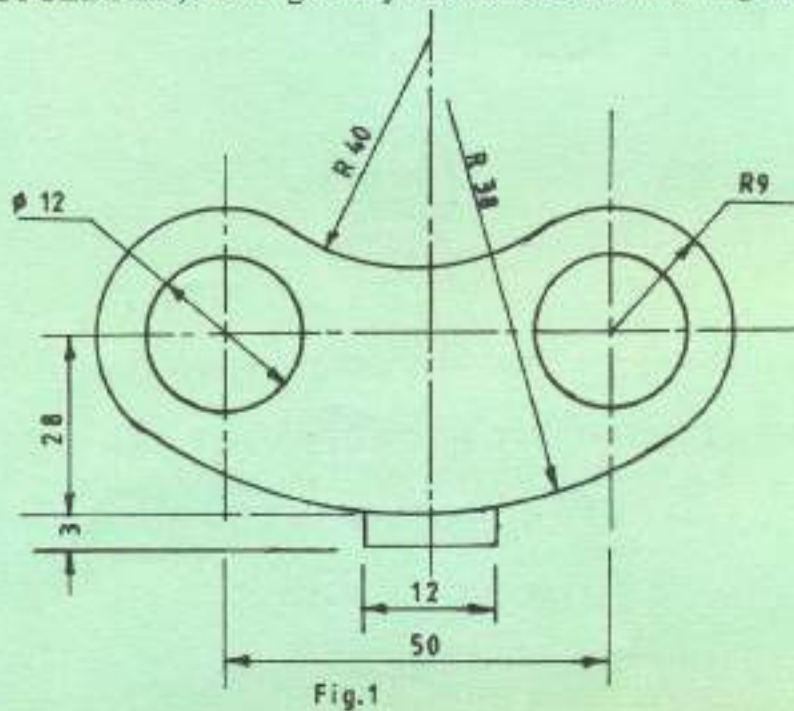
(10 marks)

        (c)   Construct a diagonal scale of 25 mm to represent 1 m which can be used to measure m and 10 mm up to 6 m. Show the dimensions of 4 m, 320 mm and 3m 630 mm on the scale.

                                                                                    (5 marks)

2.   (a)   Make free hand sketches of the following tools:

             (i)   Inside callipers;

             (ii)   Tenon saw;

             (iii)   Hand file;

             (iv)   Firmer chisel.

                                                                                     (8 marks)

(b)   Figure 2 shows three views of an object drawn in first angle projection. Draw the object in isometric making **x** the lowest point.   (12 marks)
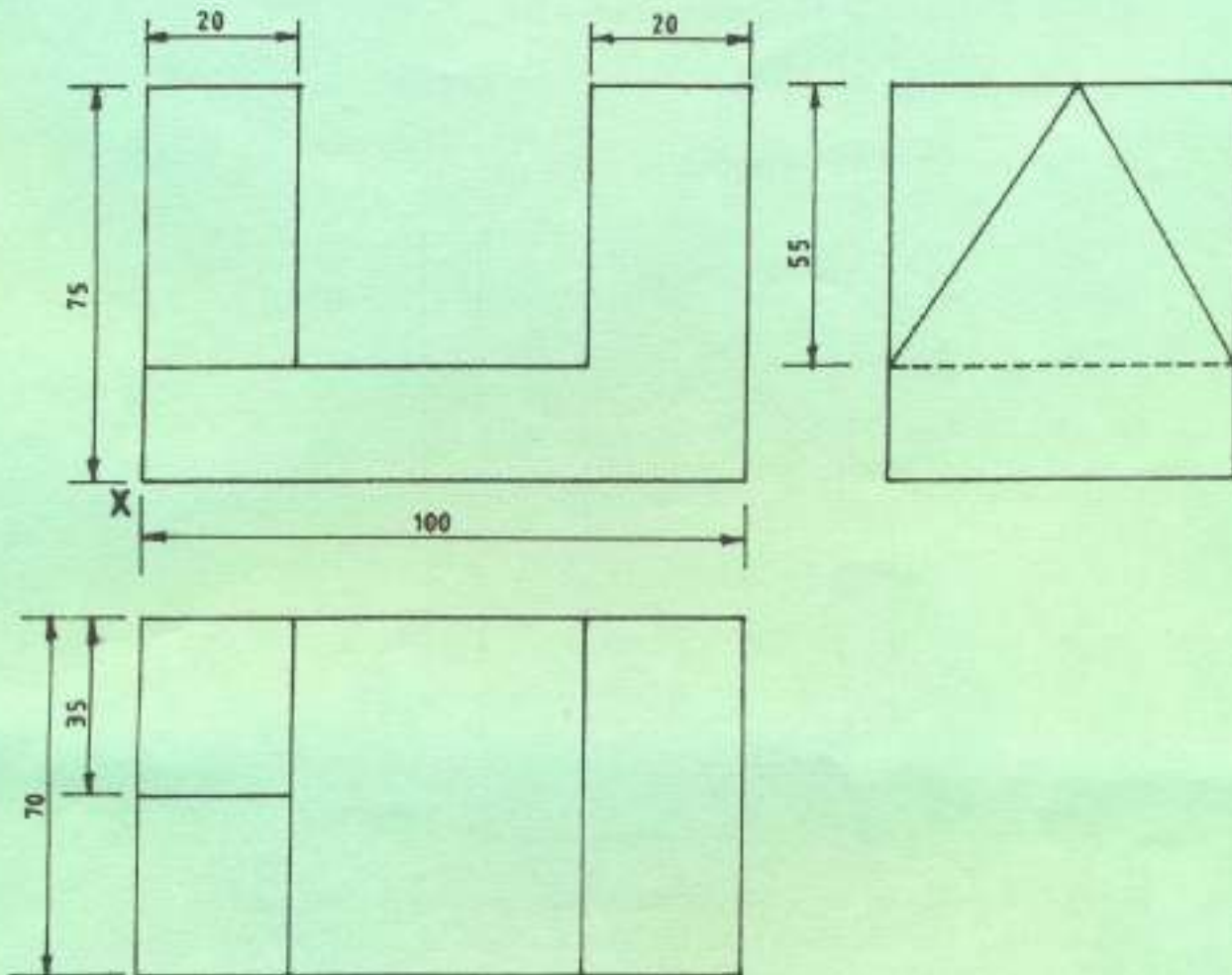

Fig. 2

3.   (a)   Figure 3 shows the front elevation of a truncated hexagonal prism. Using first angle projection, draw the following:

   (i)   Plan;

   (ii)   End elevation in the direction of arrow E.E.;

   (iii)   Development of the prism;
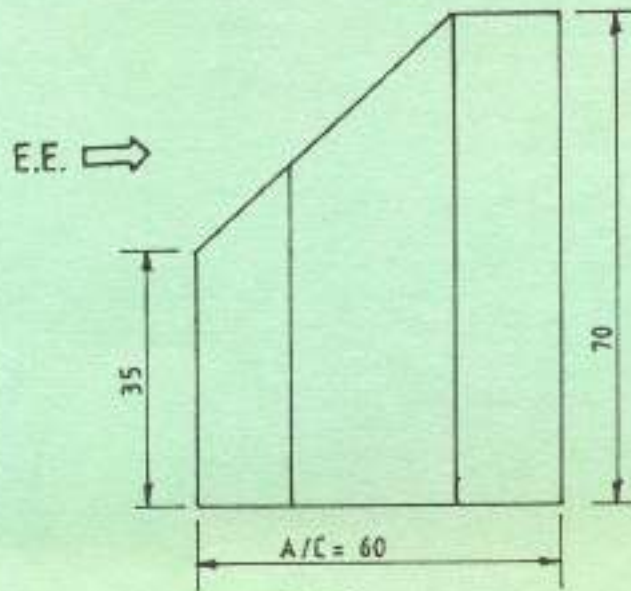
   (iv)   True shape of the cut portion.

(20 marks)

E.E.

35

70

A/C = 60

Fig 3

4.   (a)   Figure 4 shows the layout of a crank mechanism in which A travels along a straight line as the crank OB rotates about point O. Draw the locus of point C for one revolution of crank OB.
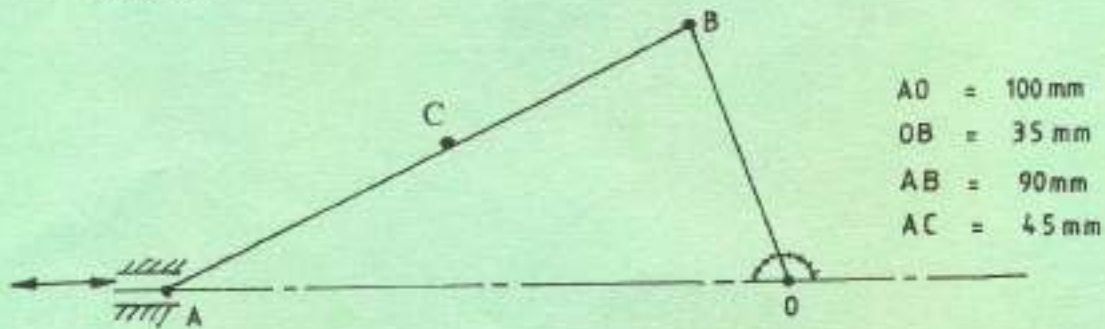

B

C

A   O

AO   =   100 mm
OB   =   35 mm
AB   =   90 mm
AC   =   45 mm

Fig. 4

(12 marks)

(b)   Construct a triangle equal in area to the rectangle shown in figure 5 and inscribe a circle
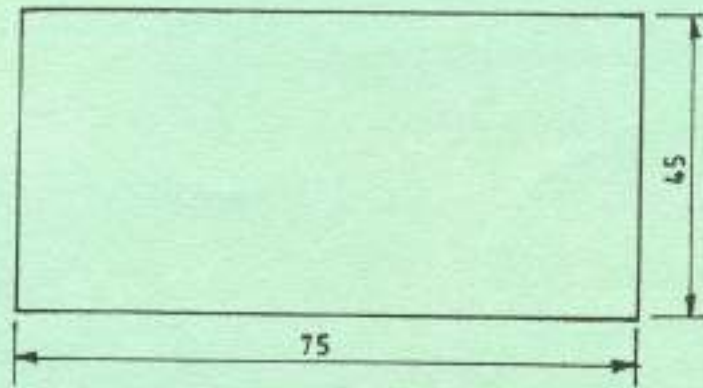on the triangle.

Fig. 5

(8 marks)

5.   Figure 6 shows a hexagonal prism intersecting a square pyramid. Draw the following in first
angle projection.

(i)   Line of interpenetration;

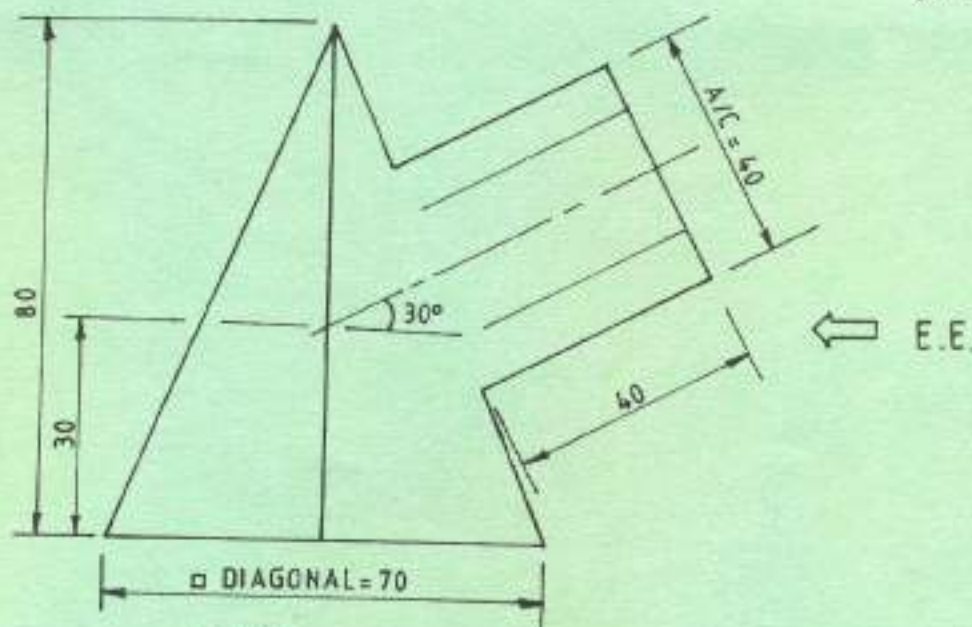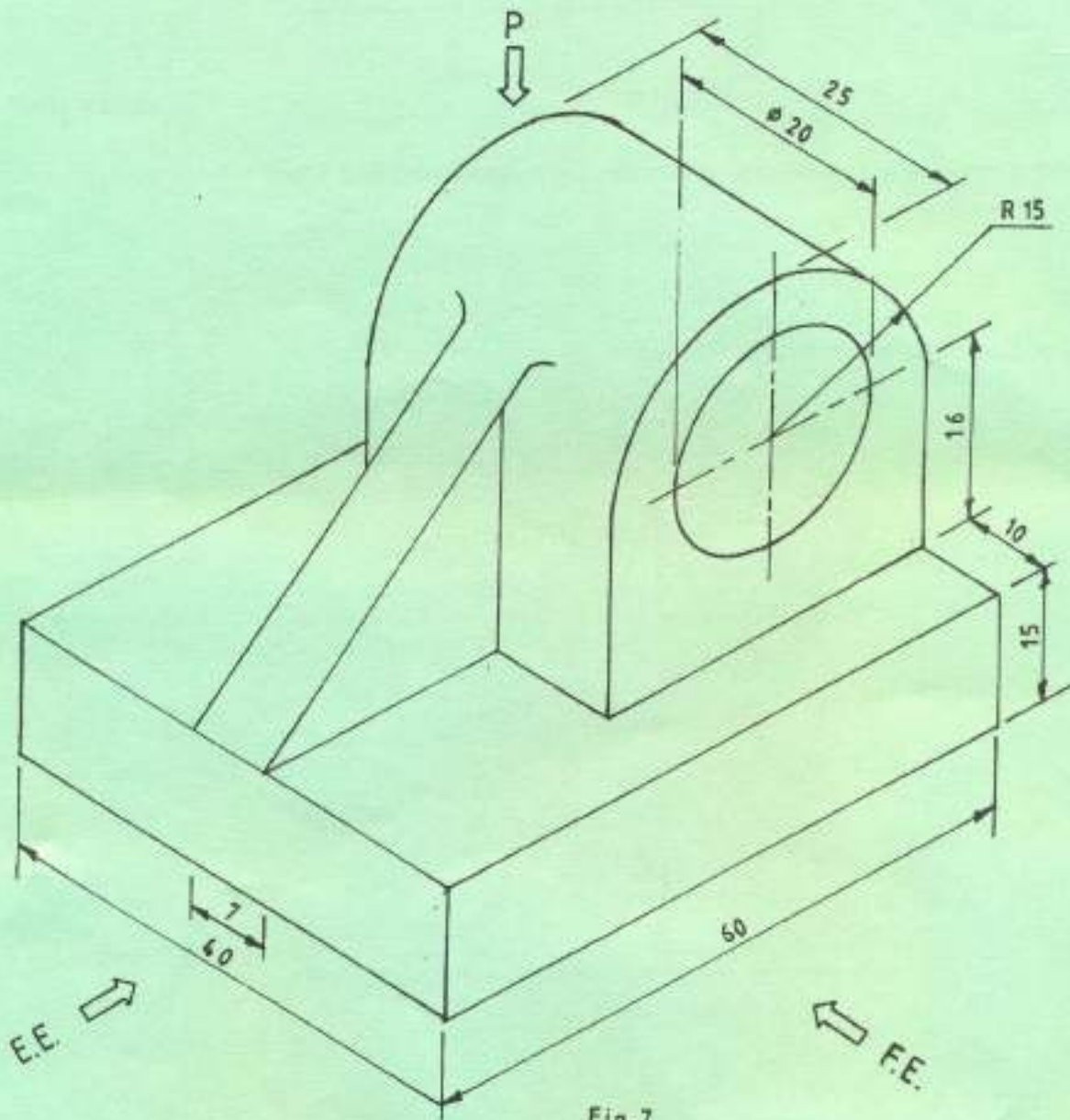(ii)   End of elevation in direction E.E.;

(iii)   Plan.

(20 marks)

Fig. 6

6. Figure 7 shows a machine bearing drawn in isometric. Draw the following using first angle projection twice full scale:-

(i) Front elevation in the direction F.E.;

(ii) End elevation in the direction E.E.;

(iii) Plan.

Indicate six dimensions. (20 marks)

Fig. 7

7. Figure 8 shows the plan of a garage attached to the main house. Using a scale of 1:20 draw section "A-A" from the foundation to the eaves given the following data:

(i) Foundation - strip 600 x 200 mm, 900 mm below ground level.

(ii) Walls - blockwork 225 mm thick.

(iii) Floor - oversite concrete slab 150 mm with cement / sand screed.

(iv) Window - steel casement 750 mm height.

(v) Roof - lean-to towards window pitch 30° and timber frame covered with plain tiles.

(vi) Floor to ceiling height - 2500 mm.
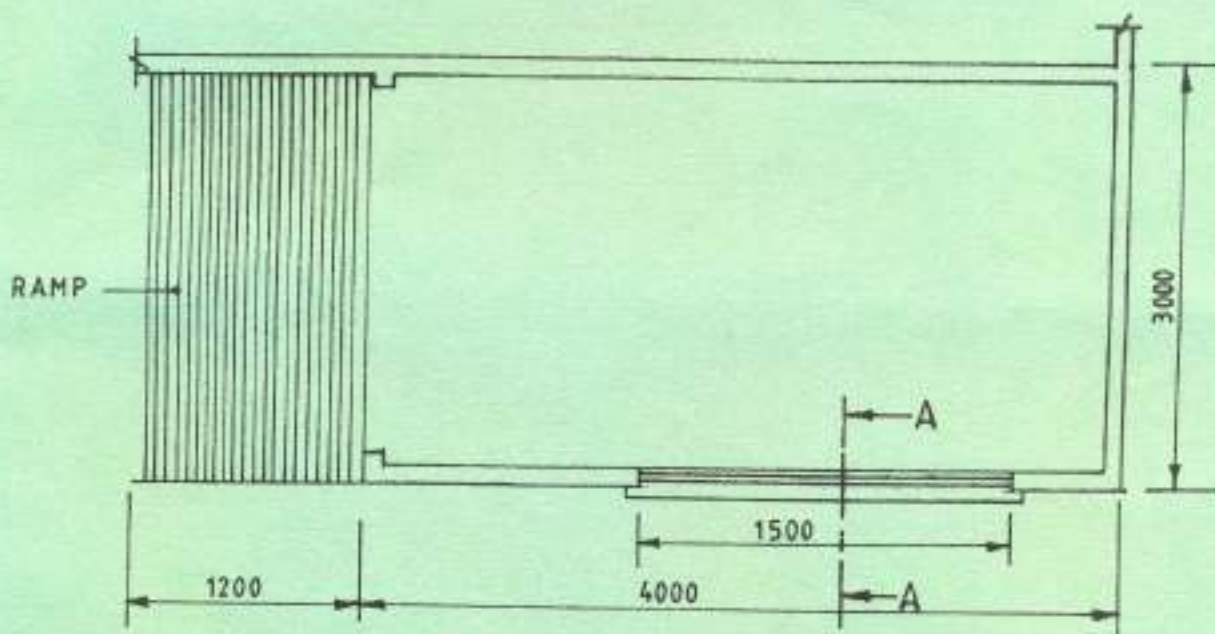Assume any information not given.

(20 marks)

Fig. 8

8. Figure 9 shows two views of a machine block drawn in third angle projection. Draw the block in oblique cabinet projection. (20 marks)
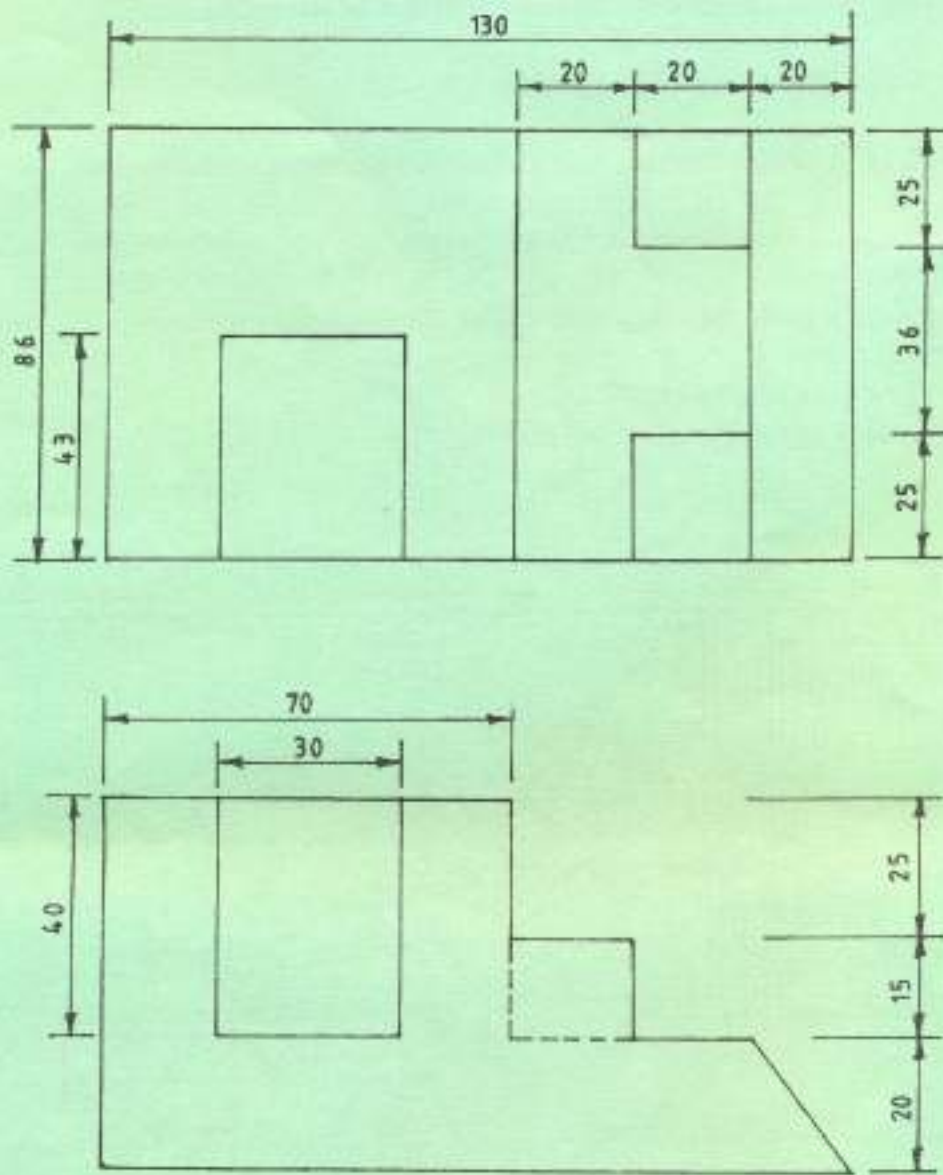

Fig. 9