1301/312
1304/312
1305/312
TECHNICAL DRAWING
June/July 2018
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:

Drawing paper size A_2;
Drawing instruments.

*Answer **FIVE** questions of the following **EIGHT** questions.*
*Answers **ALL** questions in the answer booklet provided.*
All questions carry equal marks.
Maximum marks for each part of a question are indicated.
All dimensions are in millimeters.
Candidates should answer the questions in English.

This paper consists of 9 printed pages.

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

Turn over

SECTION A (40 marks)

1. (a) With the aid of sketches, show the convention for each of the following:

(i) break in rod;
(ii) break in pipe;
(iii) third angle projection.

(3 marks)

(b) Construct a parabolic arch whose width and height are 75 mm and 65 mm respectively.

(5 marks)

(c) **Figure 1** shows a truncated hexagonal pyramid drawn in first angle projection. Using the scale of 1:1 draw the following:

(i) plan;
(ii) end elevation in direction E.E.

(12 marks)

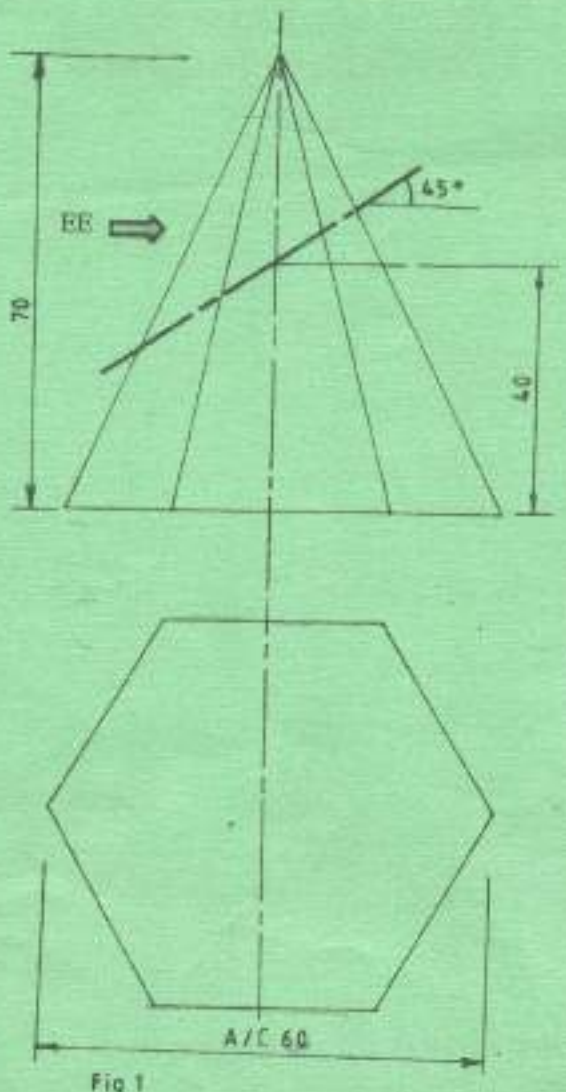

Fig 1

2. (a) Construct a diagonal scale twice full size to measure to an accuracy of 0.1 mm up to 60 mm. Show the following readings:

(i) 38.6 mm;
(ii) 51.5 mm.

(8 marks)

(b) Make free hand sketches of the following tools:

(i) star screw driver;
(ii) claw hammer;
(iii) mortise chisel;
(iv) rasp file.

(8 marks)

(c) Construct a rectangle given the diagonal as 70 mm and length of one side as 40 mm.

(4 marks)

3. **Figure 2** shows an isometric drawing of a machine block. Using third angle projection, draw the following views full size:

(i) front elevation in direction F.E;
(ii) end elevation in direction EE.
(iii) plan.

Include all the hidden details and ten dimensions. (20 marks)

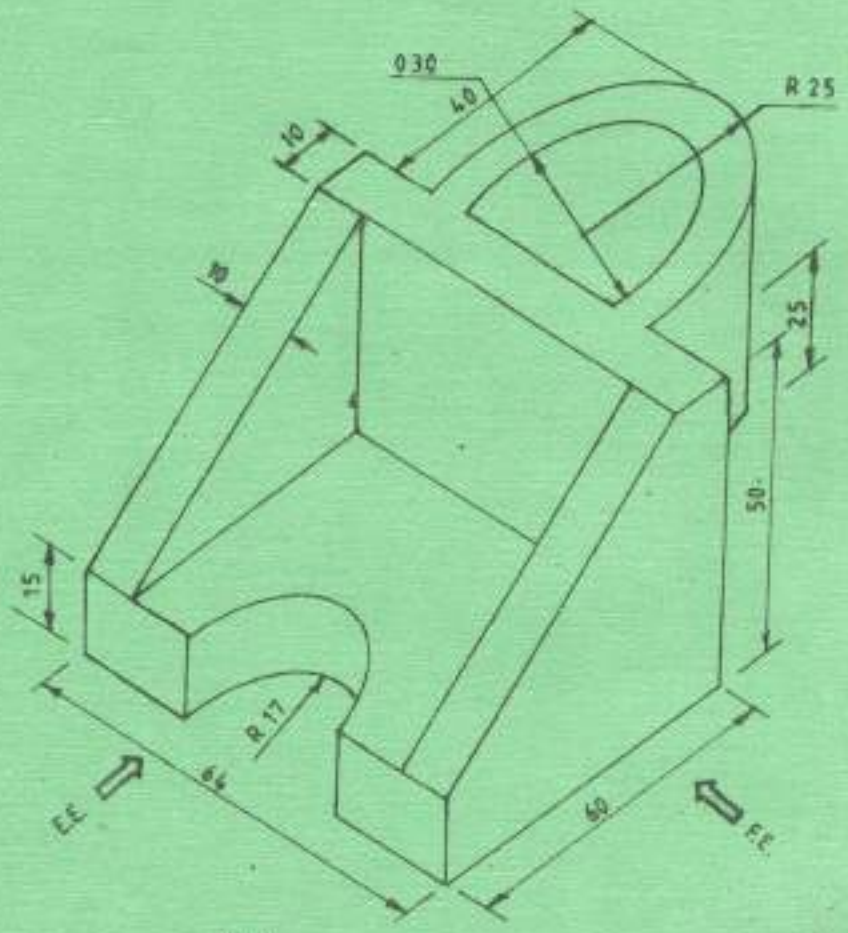

Fig. 2

4. **Figure 3** shows the front elevation of a cylinder intersecting a cone. Copy the given view and draw the following:

(i) plan;
(ii) line of intersection;
(iii) development of cylinder A.

(20 marks)

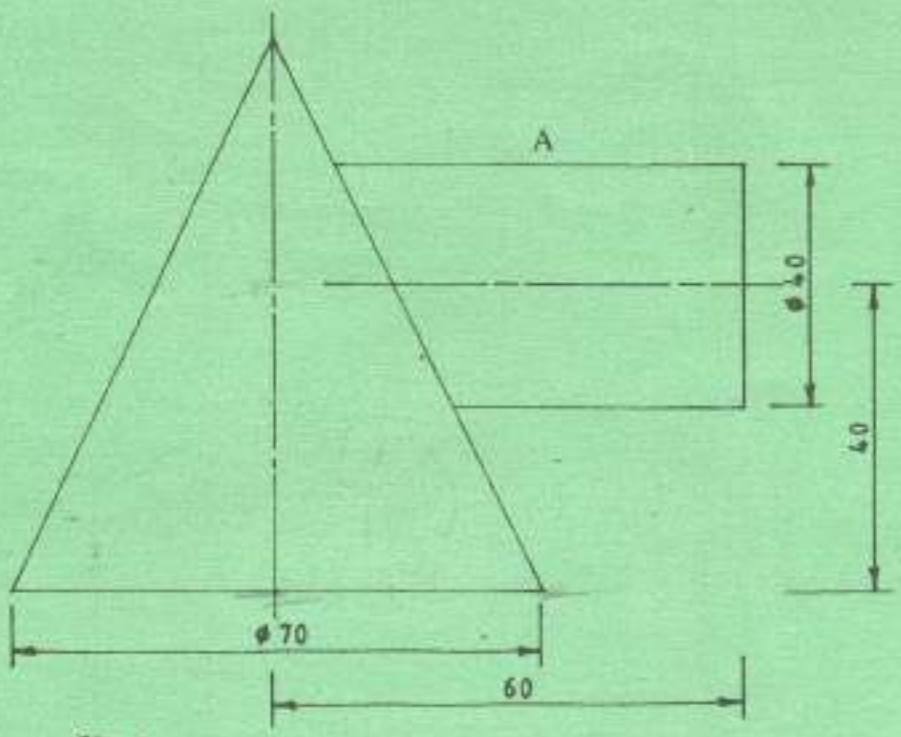

Fig. 3

5. **Figure 4** shows two views of a shaped block drawn in first angle projection. Draw full size the oblique projection of the block and include dimensions. (20 marks)

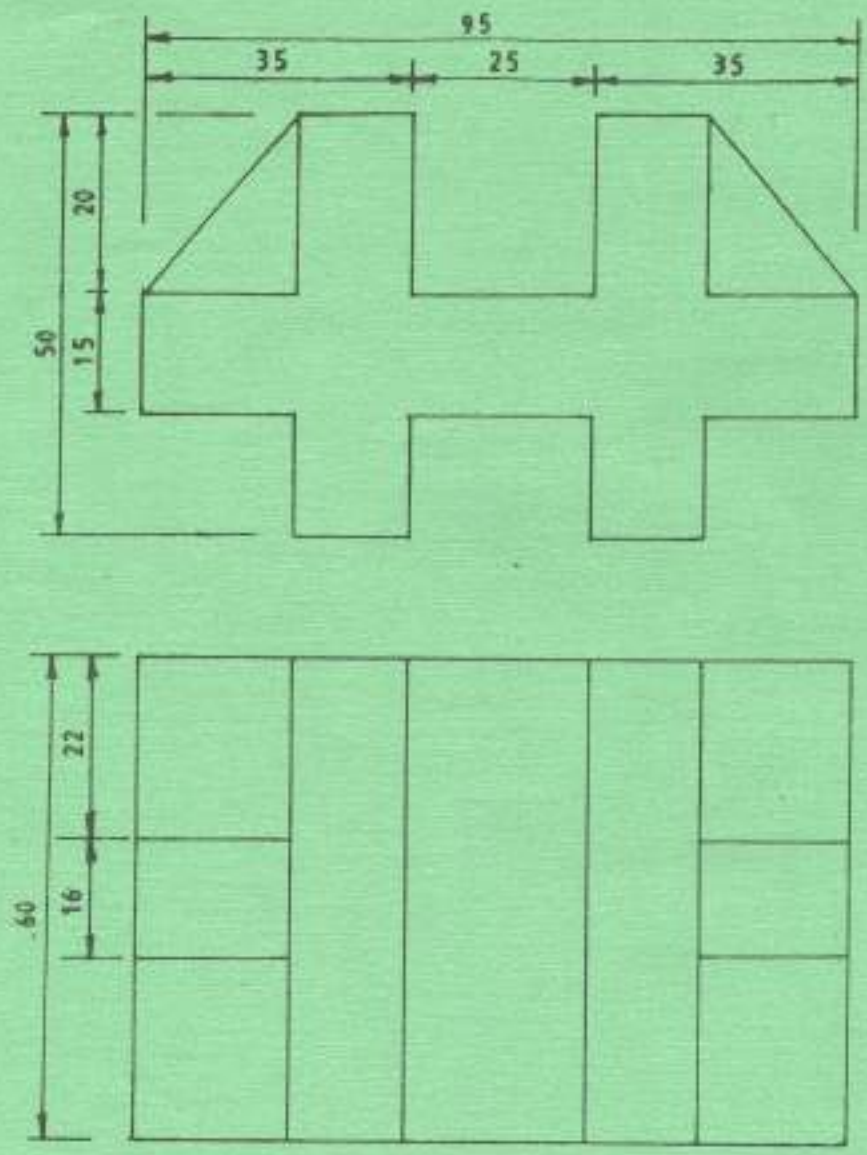

Fig 4

6. (a) **Figure 5** shows an elevation of a gate pillar. draw an isometric view of the pillar making corner X the lowest point.

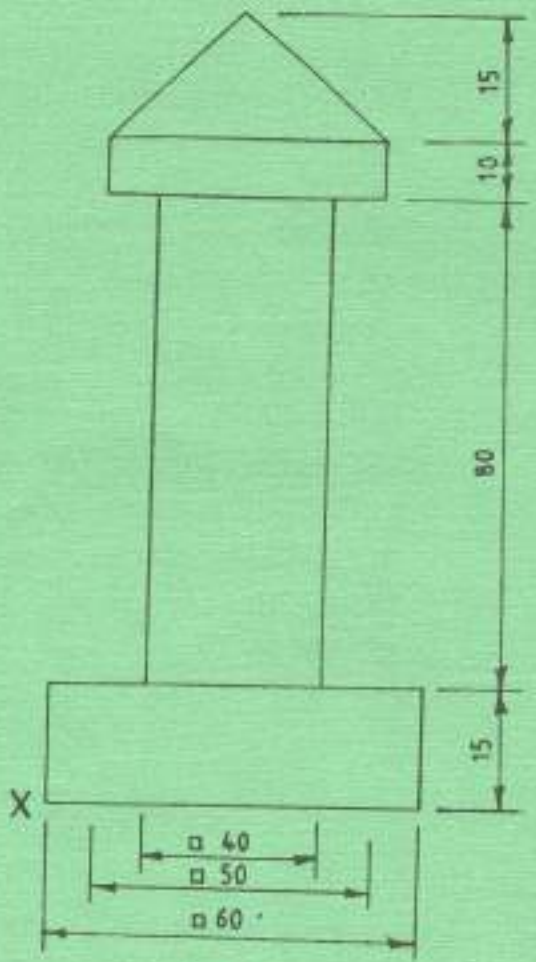

Fig. 5

(15 marks

(b) Draw a circle to touch three points XYZ whose distances are: XY = 45, YZ = 50, XZ = 65.

(5 marks)

7. **Figure 6** shows the outline of a reinforced concrete deck for a water tank. Using a scale of 1:20 draw section A-A. Use the information given. (20 marks)

Information given:

(i)	Pad foundation size:	600 x 600 x 250 mm 900 mm below ground level
(ii)	Foundation walls:	200 mm thick stone work
(iii)	Floor:	150 mm oversite concrete on 200 mm hardcore.
(iv)	Concrete columns:	200 x 200 mm
(v)	Beams:	200 x 300 mm concrete
(vi)	Slab:	150 mm thick concrete
(vii)	Pipe outlet:	100 mm ϕ gms
(viii)	Floor to beam soffit height:	2800 mm
(ix)	Parapet:	150 mm thick concrete, 600 mm high
(x)	Coping:	250 x 50 mm average P.C.C twice weathered
(xi)	Screed:	20 mm thick laid at cross falls
(xii)	Mastic asphalt:	20 mm thick
(xiii)	Angle fillet:	40 x 40 mm

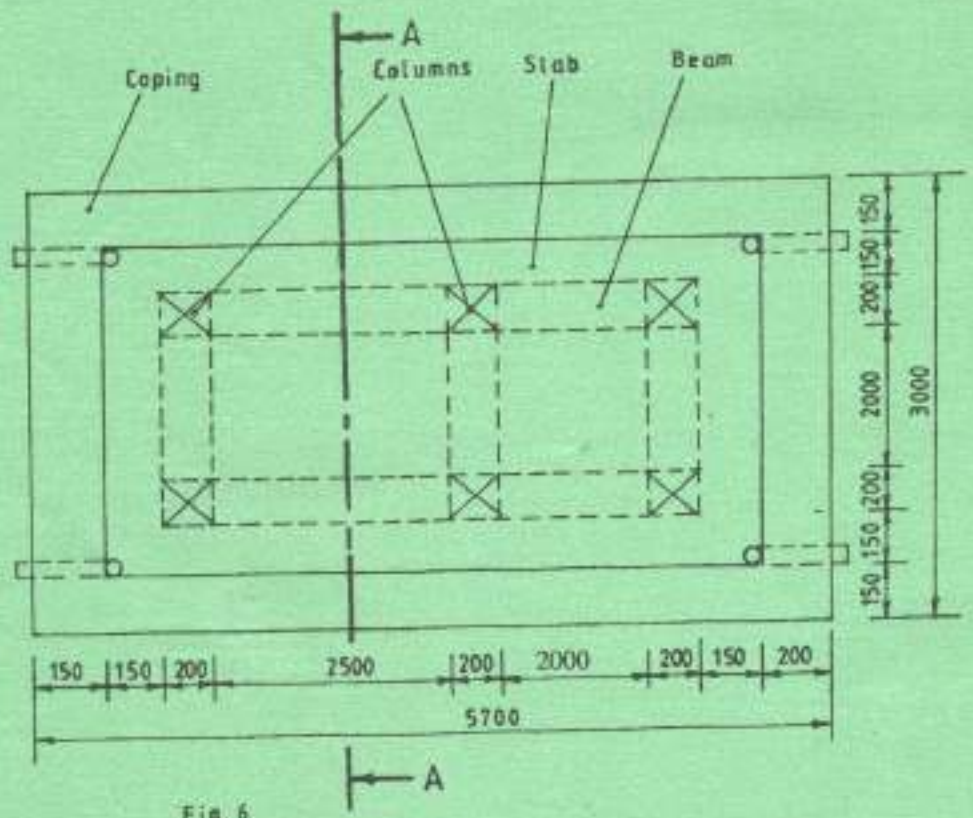

Fig. 6

8. **Figure 7** shows three views of a flat roof hut in first angle projection. Copy the given layout fall size and draw a two point perspective view of the hut using a scale of 1:50.

(20 marks)

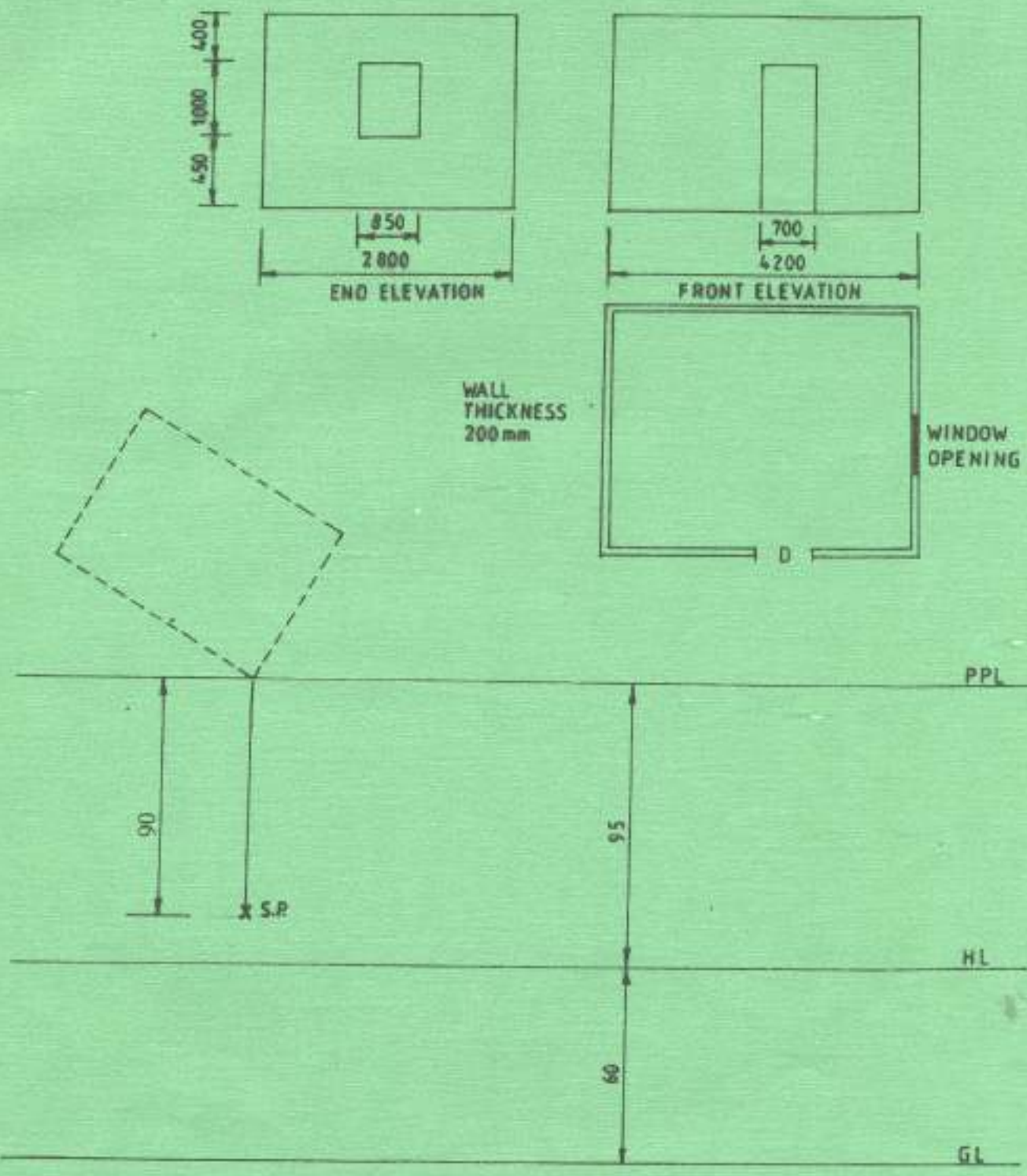

Fig. 7

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