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TECHNICAL DRAWING

June/July 2017

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 papers size A2;

Drawing instruments.

Answer FIVE of the following EIGHT questions.

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 10 printed pages.

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

1. (a) An Archimedian spiral has the nearest point "A" 20 mm from the centre and the furthest point "B" 80 mm from the centre. Draw the spiral. (10 marks)



(b) Figure 1 shows the plan of a right cylinder 60 mm diameter construct a left hand helix of a spring wound around it starting from point "B" if the lead is 70 mm. (10 marks)

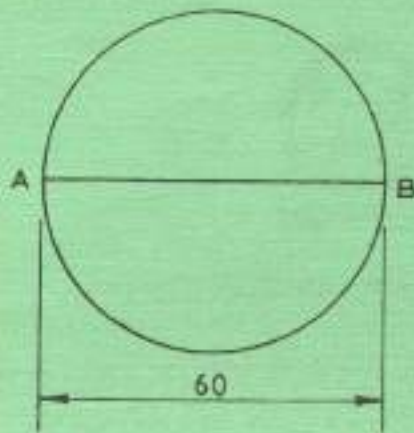
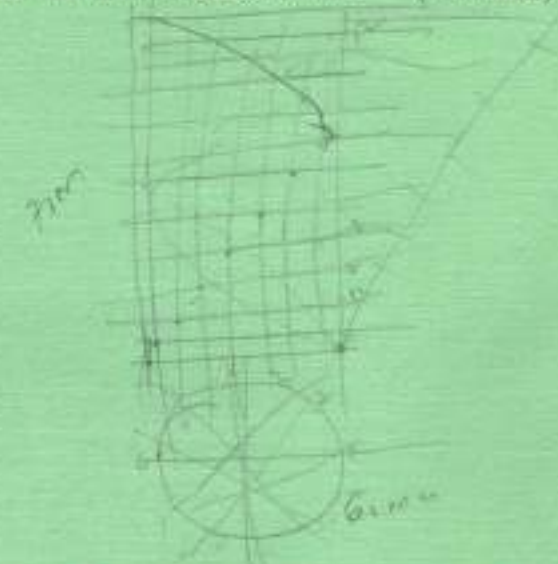


Figure 1



2. (a) Figure 2 shows a reciprocating water pump system. Draw the locus of point C when crank BO makes one revolution while point A oscillates along PO. (10 marks)

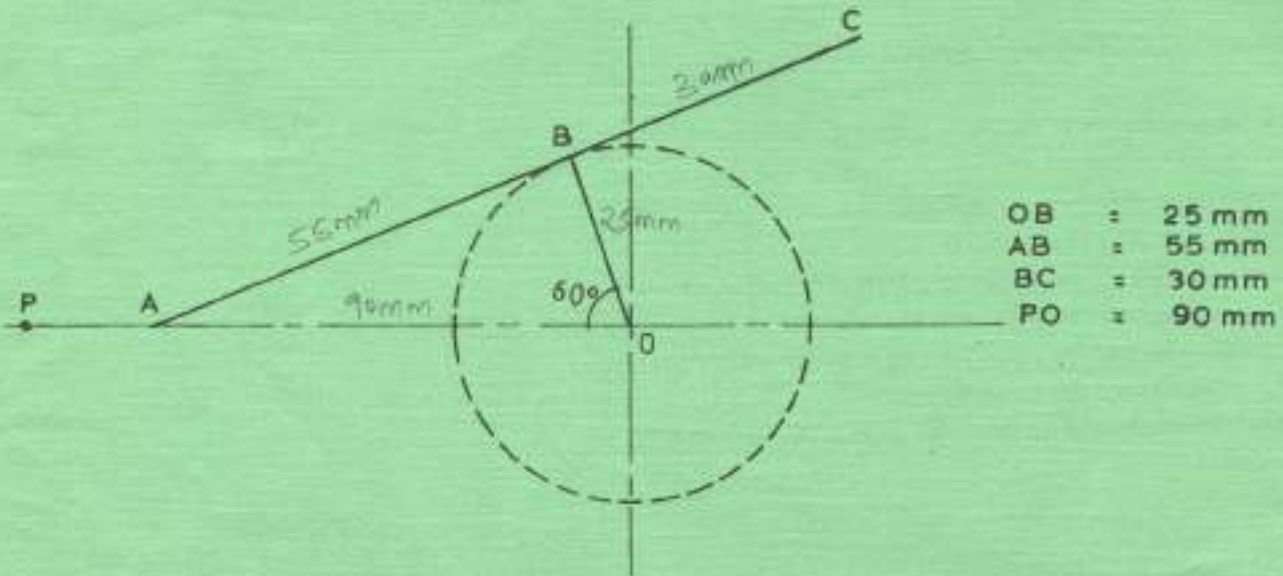


Figure 2

(b) Figure 3 shows orthographic views of a block in third angle. Make a freehand sketch of the block in isometric with "A" as the lowest point. (10 marks)

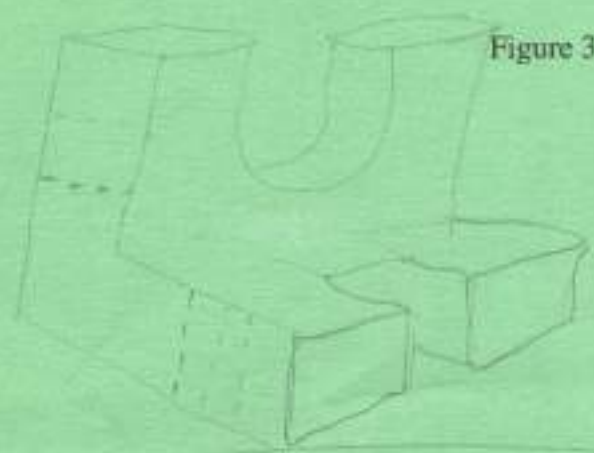
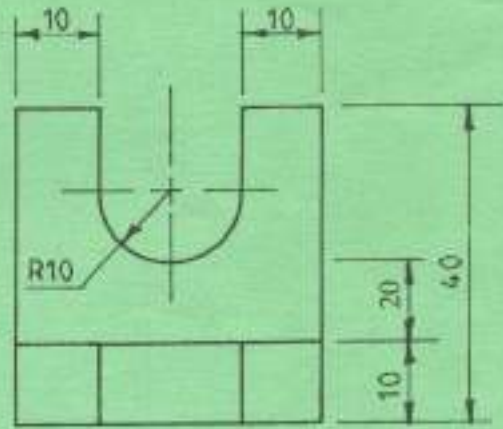
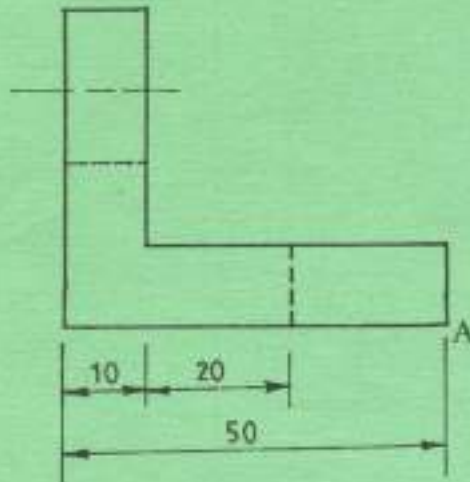
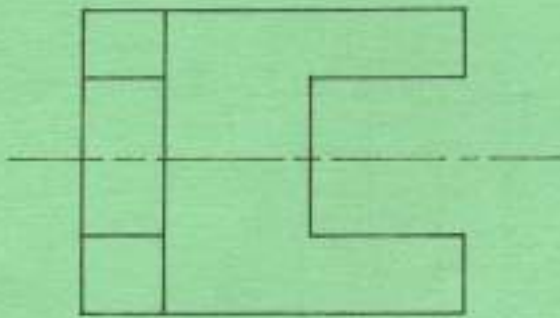


Figure 3

Figure 5 shows the elevation of a truncated hexagonal pyramid 32 mm base and a vertical height of 70 mm. Draw the following in 1st angle projection:

- (a) front elevation;
- (b) the plan;
- (c) end elevation from direction a;
- (d) auxiliary view.

(20 marks)

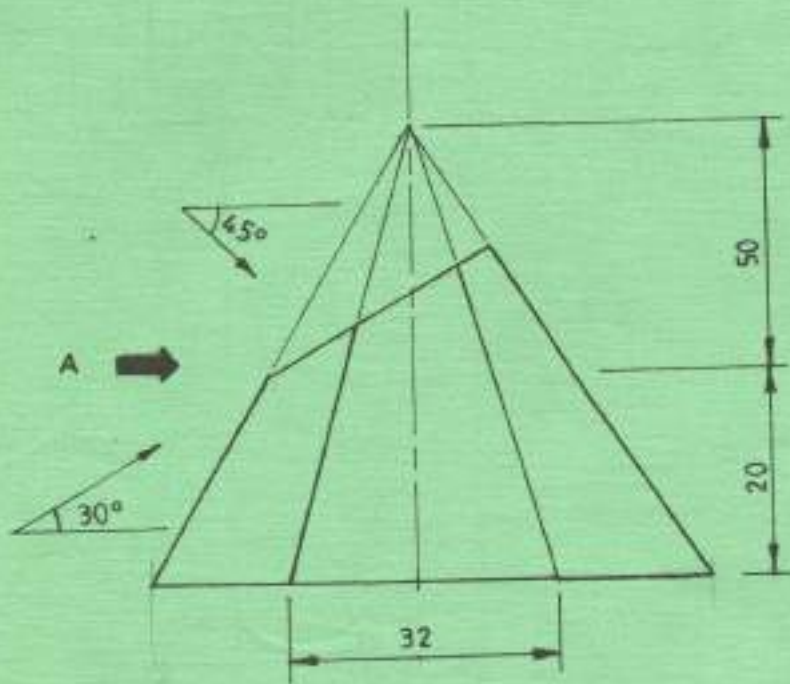
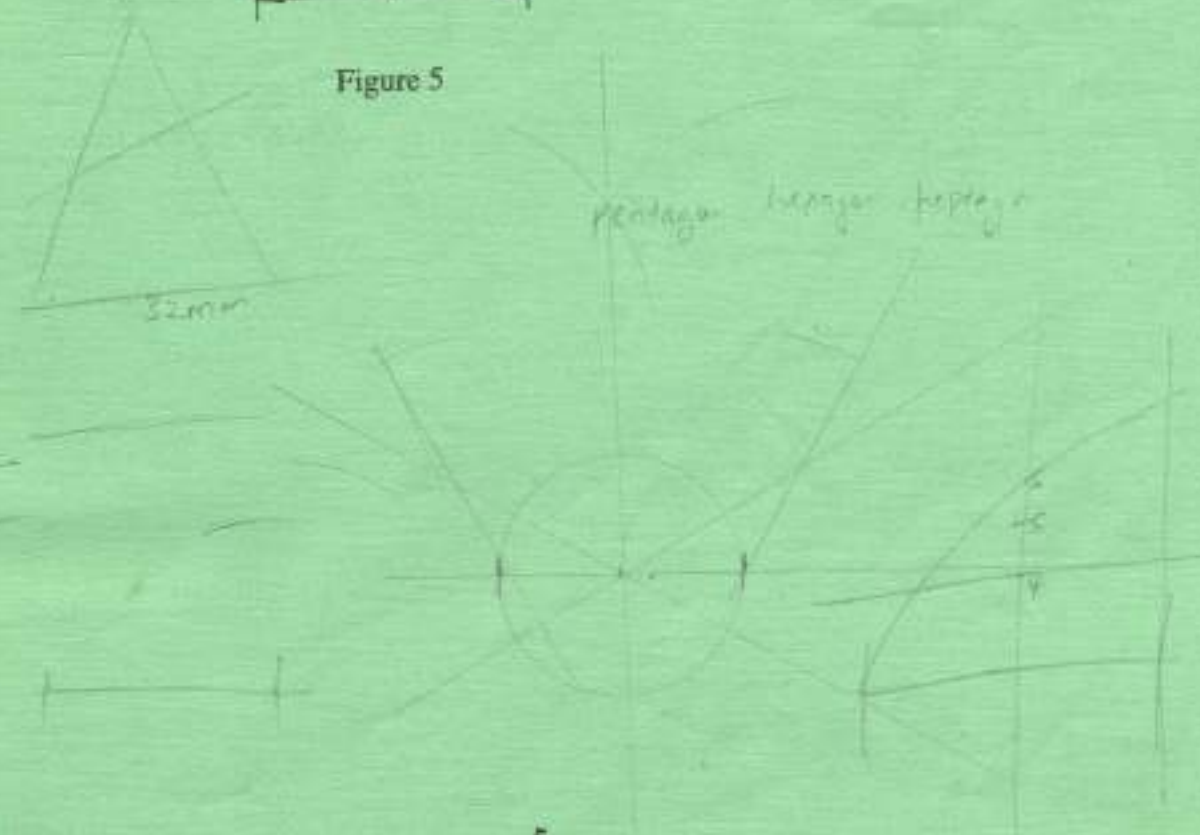
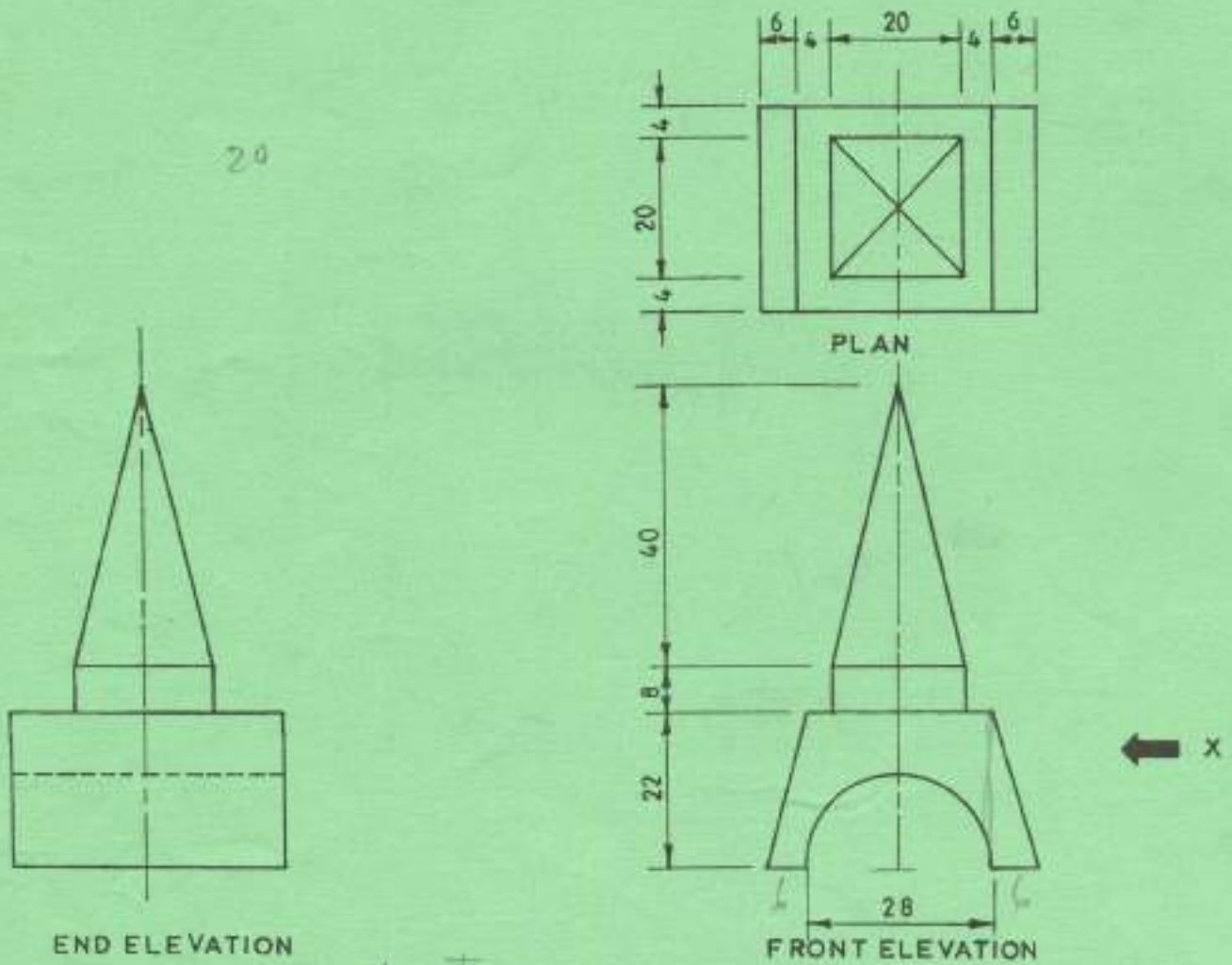


Figure 5



5.

Figure 6 shows three views of a solid drawn in third angle projection. Draw an isometric view of the block. (20 marks)



20

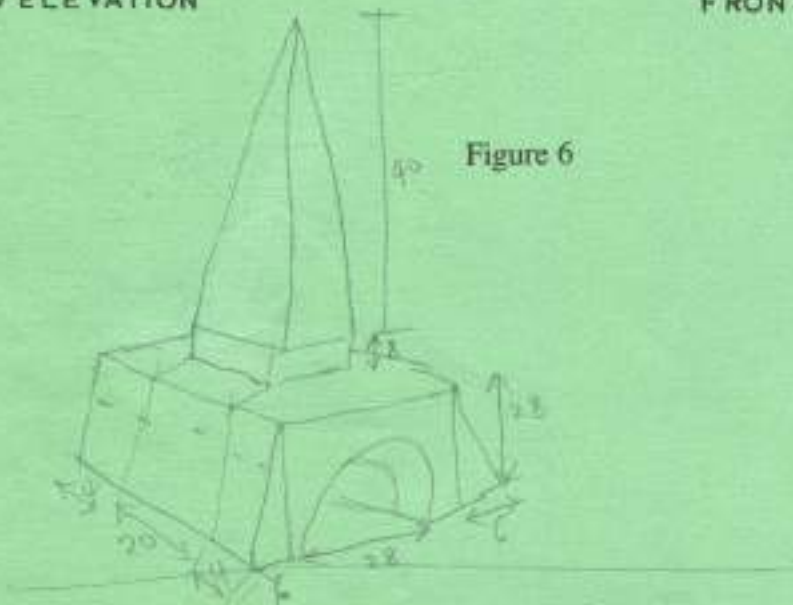
END ELEVATION

PLAN

FRONT ELEVATION

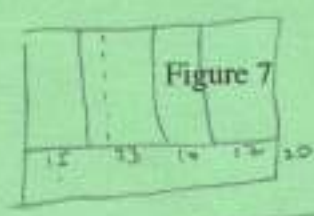
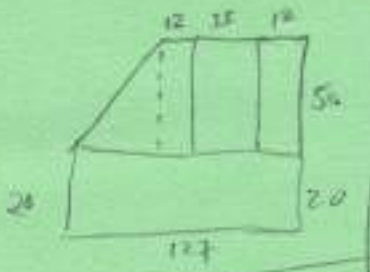
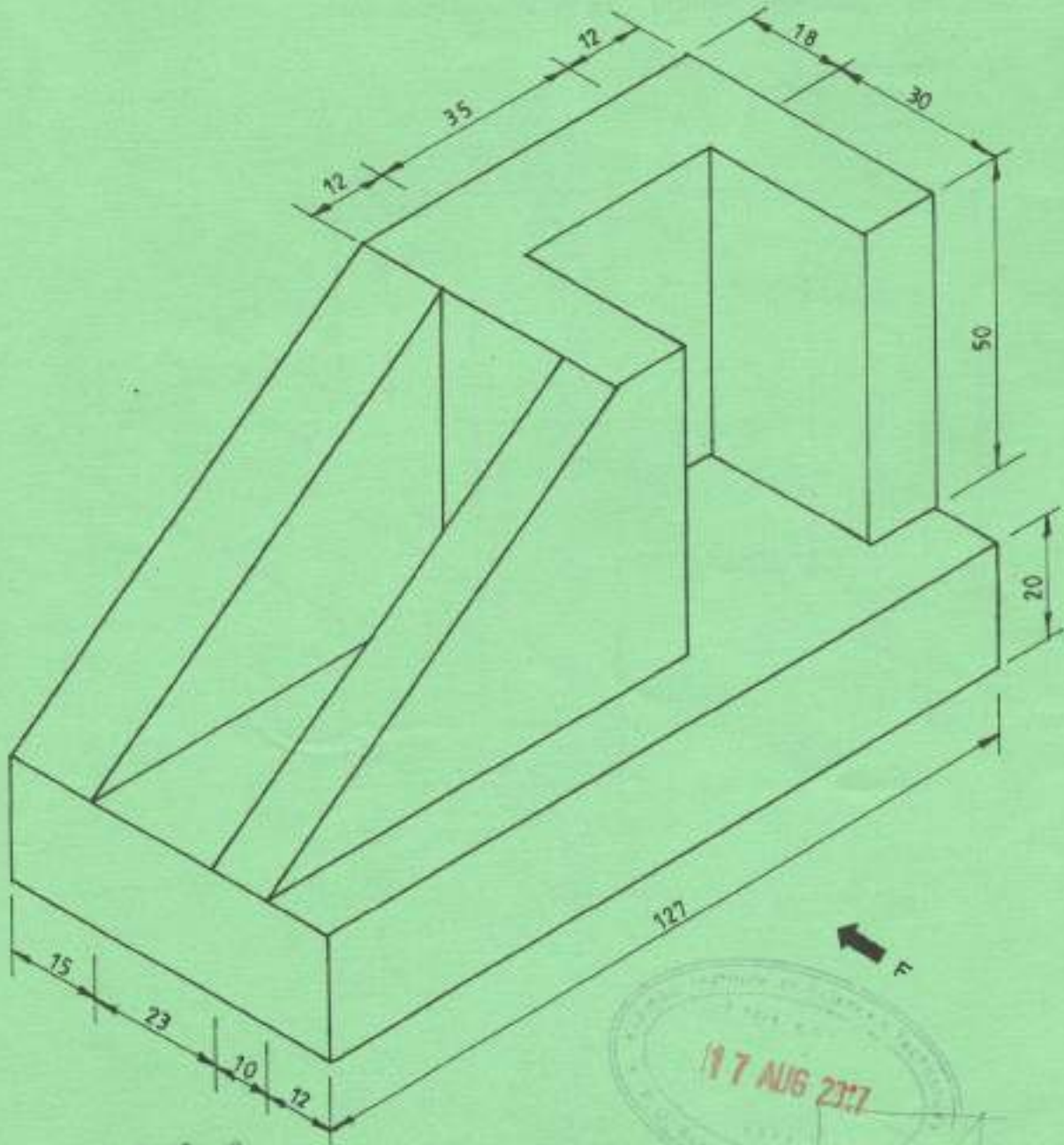
← X

Figure 6



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6. Figure 7 shows a block in isometric projection. Draw the block in 1st angle orthographic projection taking "F" as the front elevation. Insert all the dimensions. (20 marks)



15
23
38
10
48
12
60

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7

Turn over

7.

Figure 8 shows an incomplete elevation of three interpenetrating cylinders which have a common line of symmetry in plan. Draw:

- (a) a complete elevation and show the lines of intersection; (10 marks)
- (b) the plan. (10 marks)

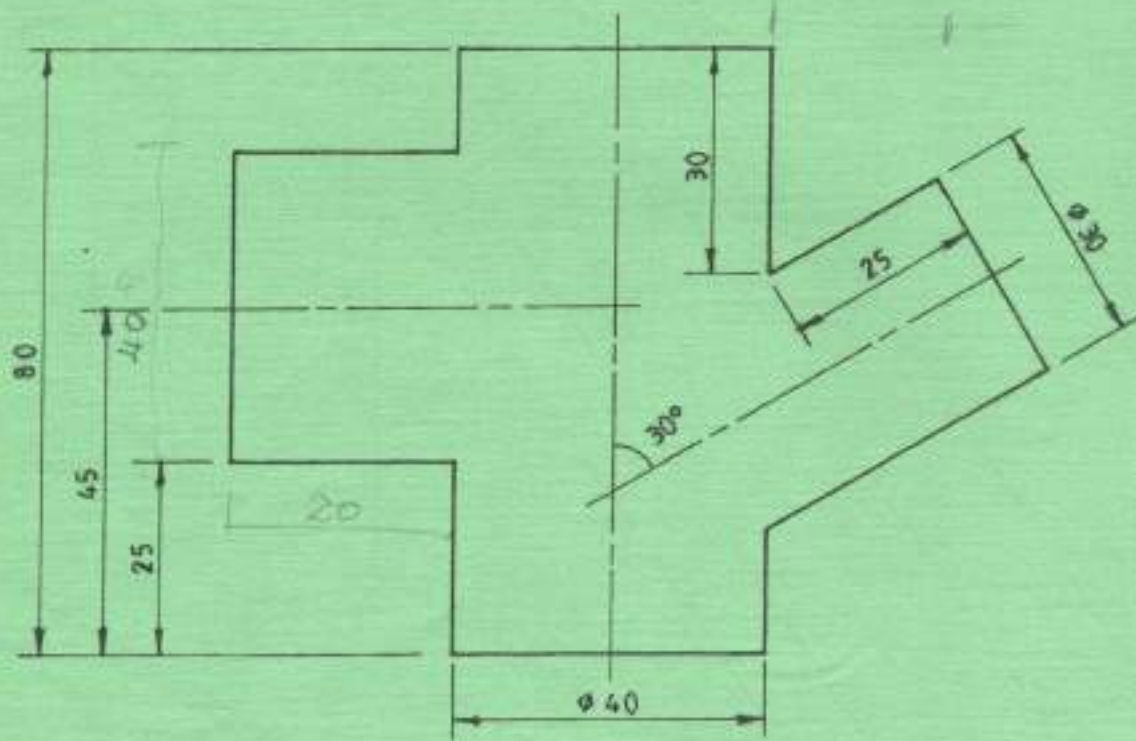


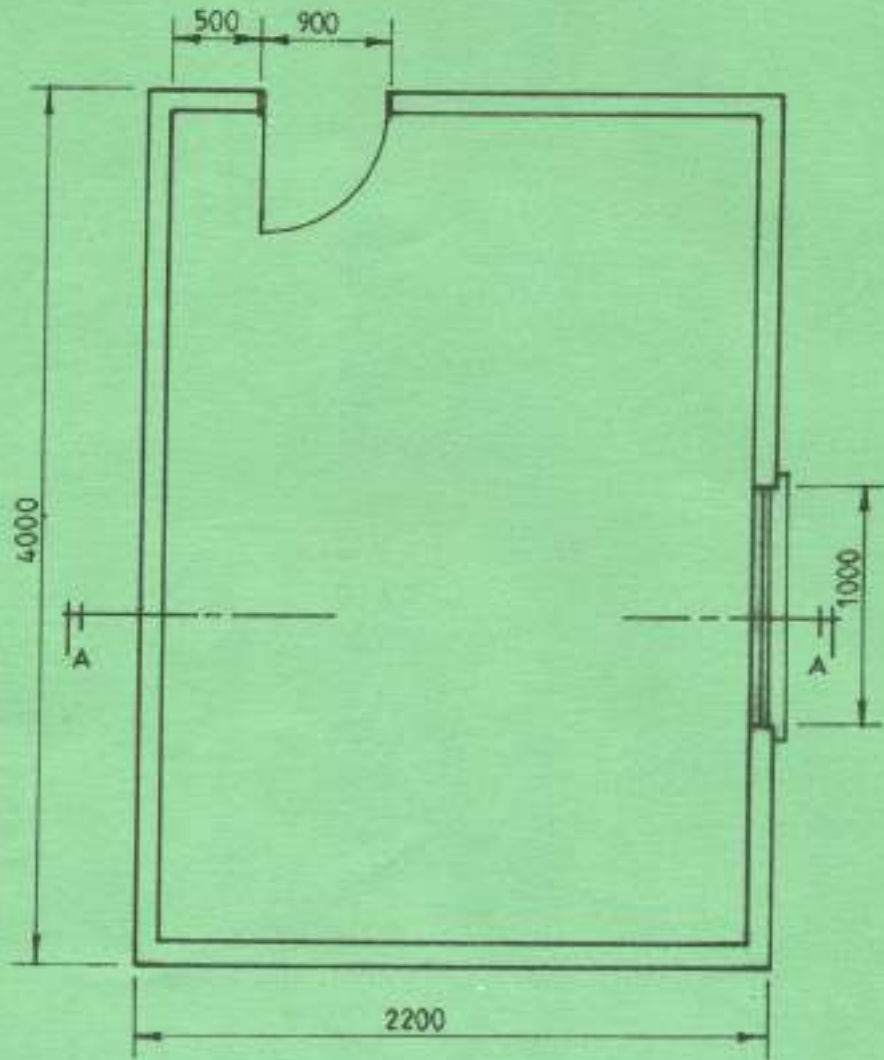
Figure 8

8. **Figure 9** shows the floor plan of a proposed school canteen which is to have a pitched roof. Using a scale of 1:20 draw section A-A from the foundation to the roof given the following specifications:

Strip foundation	600 x 200
Foundation wall	225
Blinding layer	50
Oversite concrete	100
Hard core	200
Superstructure block wall	150
Window width	1000 x 1240
Floor screed	25
Ring beam	150 x 225
Floor to ceiling height	2700
Wall plate	100 x 50
Rafters	100 x 50
Purlin	50 x 50
Tie beam	100 x 50
Fascia board	150 x 120
GCI sheets	30 gauge
Label the roof members	

(20 marks)





(NOT TO SCALE)

Figure 9

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