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TECHNICAL DRAWING

June/ July 2014

Time: 3 hours

Candidate's Signature: Date: 22<sup>nd</sup>

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***Write your name and index number in the spaces provided above.**Sign and write the date of the examination in the spaces provided above.**You should have the following for this examination:**· Drawing instruments;**A3 sheet.**Answer any FIVE of the following EIGHT questions in the spaces provided in this paper where applicable.**All questions carry equal marks.**Maximum marks for each part of a question are as shown.**Do NOT remove any page from this booklet.**Candidates should answer the questions in English.***For Examiner's Use Only**

Question	1	2	3	4	5	6	7	8	TOTAL SCORE
Candidate's Score									

**This paper consists of 12 printed pages.****Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

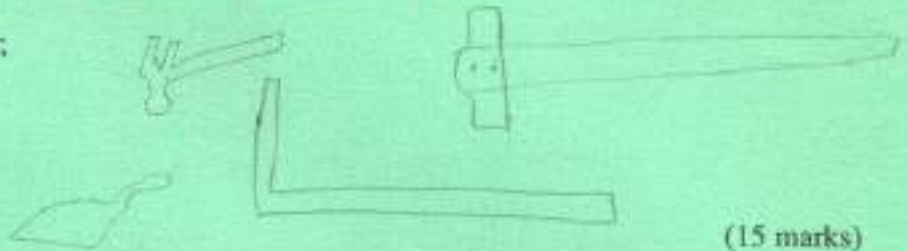
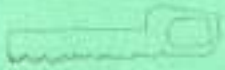
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1. (a) (i) Print vertical letters A - J in the upper case,  
 (ii) Print vertical numbers 1 - 0.

(5 marks)

(b) Make freehand sketches of any **three** of the following tools:

- (i) claw hammer;  
 (ii) try-square;  
 (iii) tee-square;  
 (iv) hacksaw;  
 (v) trowel.



(15 marks)

2. (a) Divide a line 135 mm into a ratio of 3:4:5, hence use the lengths thus obtained to draw a triangle. (5 marks)

- (b) Figure 1 shows the outline for constructing a conical helix. The cone has a diameter of 50 mm and a height of 60 mm. Draw a right hand conical helix given that the lead = 35 mm. (15 marks)

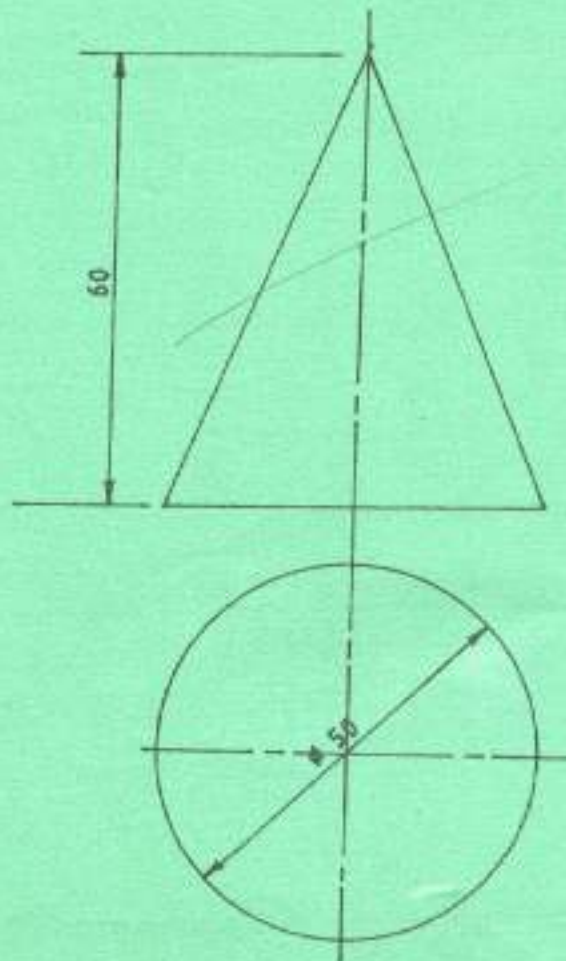


Fig. 1

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3. (a) Construct a pentagon within a circle of diameter 50 mm. (5 marks)
- (b) Figure 2 shows a pictorial view of a box made from manila paper. Draw an orthographic projection of the box in 3rd angle. (15 marks)

ALL IN SURFACE DRAWING

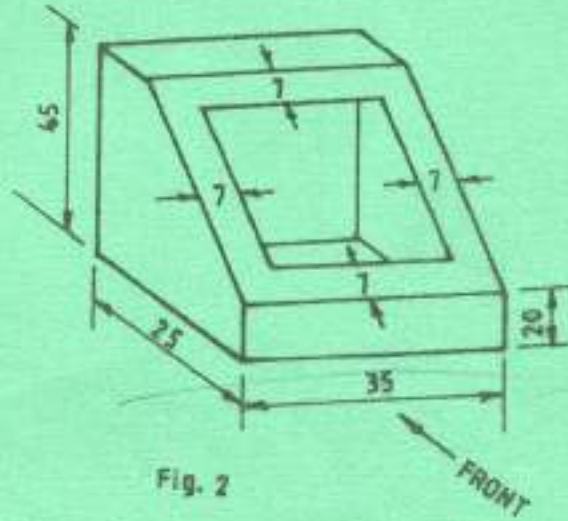


Fig. 2

4. (a) Construct an ellipse within two concentric circles. The larger circle has a radius of 90 mm and the smaller circle has a radius of 60 mm. (5 marks)
- (b) Figure 3 shows the position of a circle on a straight line. Trace the locus of a point A on the circle of radius 20 mm as it rolls along the straight line without slipping. (15 marks)

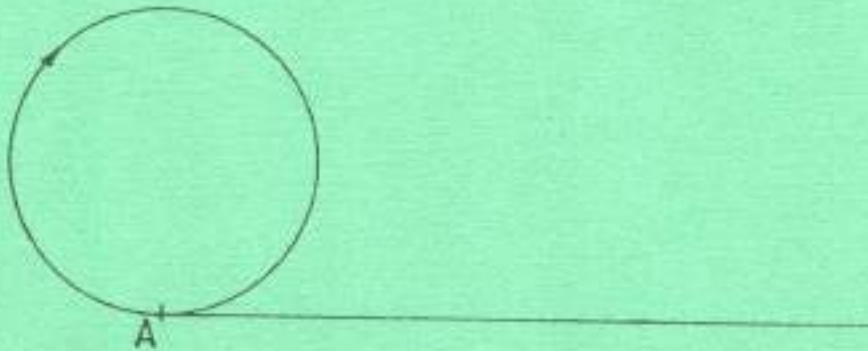


Fig. 3

5. (a) Construct an involute on a circle of radius 25 mm for half a rotation. (5 marks)
- (b) Figure 4(a) shows a pictorial view of a shaped object. Using the outline given in figure 4(b) make a projection of a two-point perspective view. (15 marks)

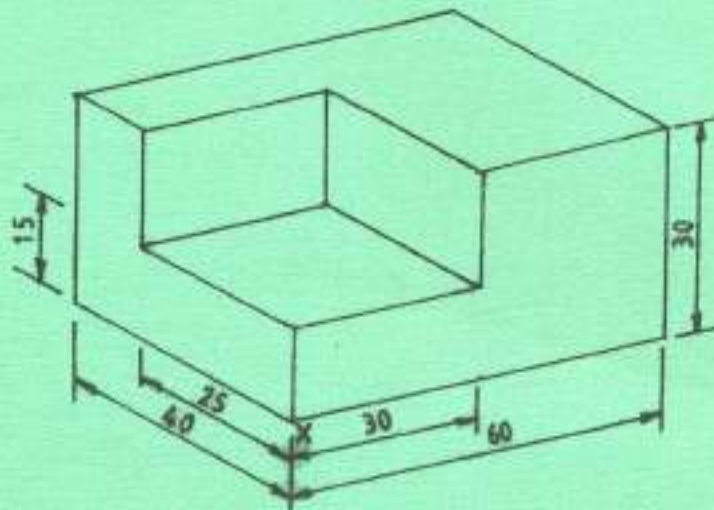


Fig. 4 (a)

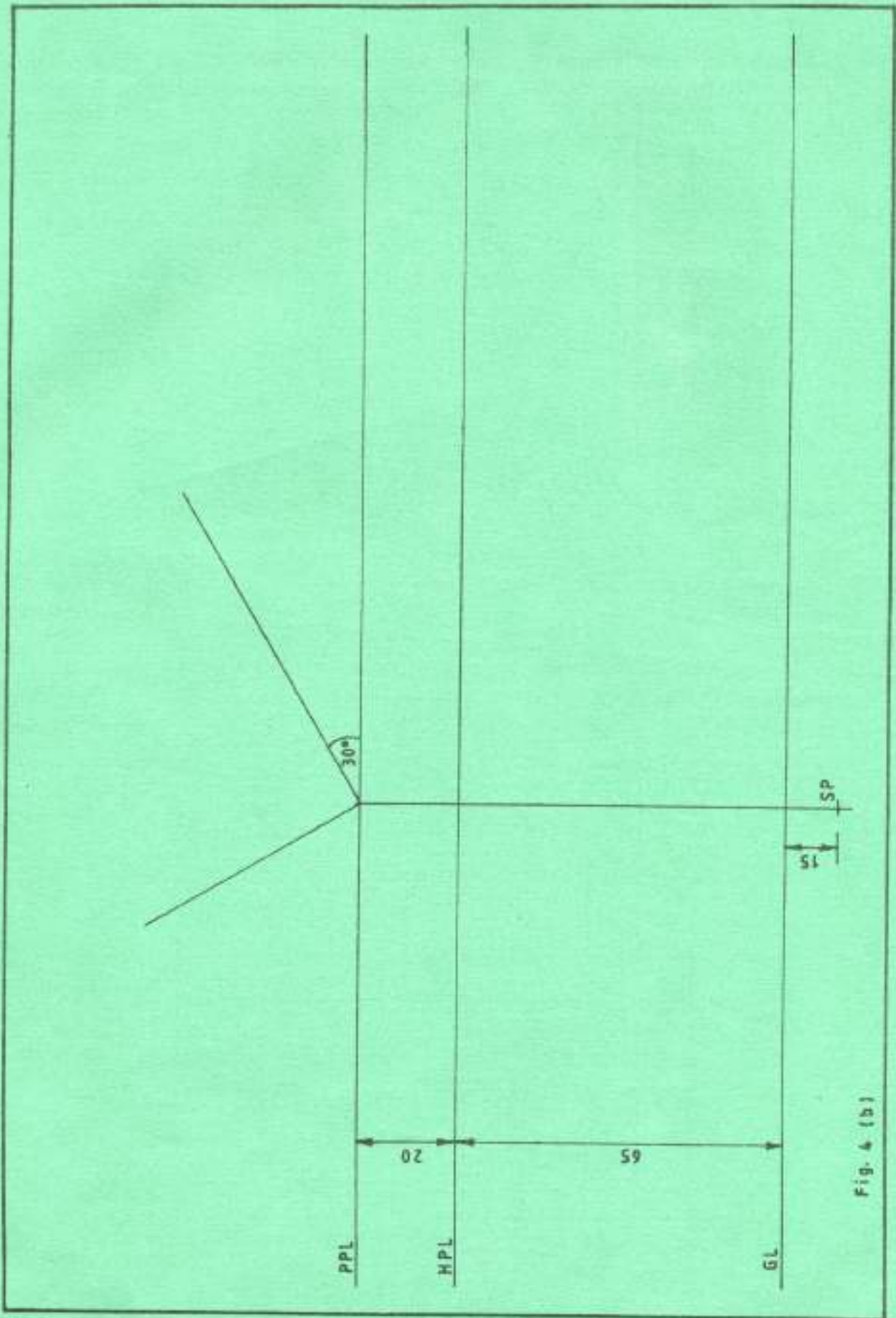


Fig. 4 (b)

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6. (a) Figure 5 shows the position of a ladder leaning against a wall. Plot the path traced by point A on the ladder as the ladder falls to the ground with its top sliding along the wall. (10 marks)

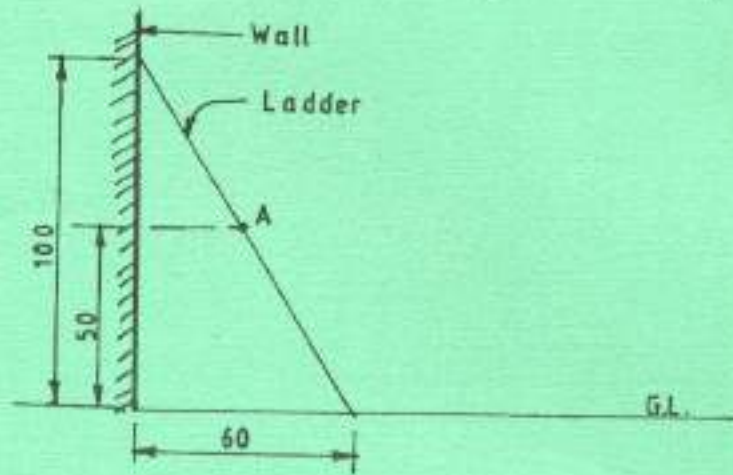


Fig. 5

- (b) Construct a diagonal scale, 50 mm = 1mm, 3 mm long to read 0.01 mm. On it indicate 2.73 mm. (10 marks)
7. (a) Figure 6 shows orthographic views of a shaped object. To a scale of 1:1, draw an isometric view of the object with X as the lowest point. (Show me) (15 marks)

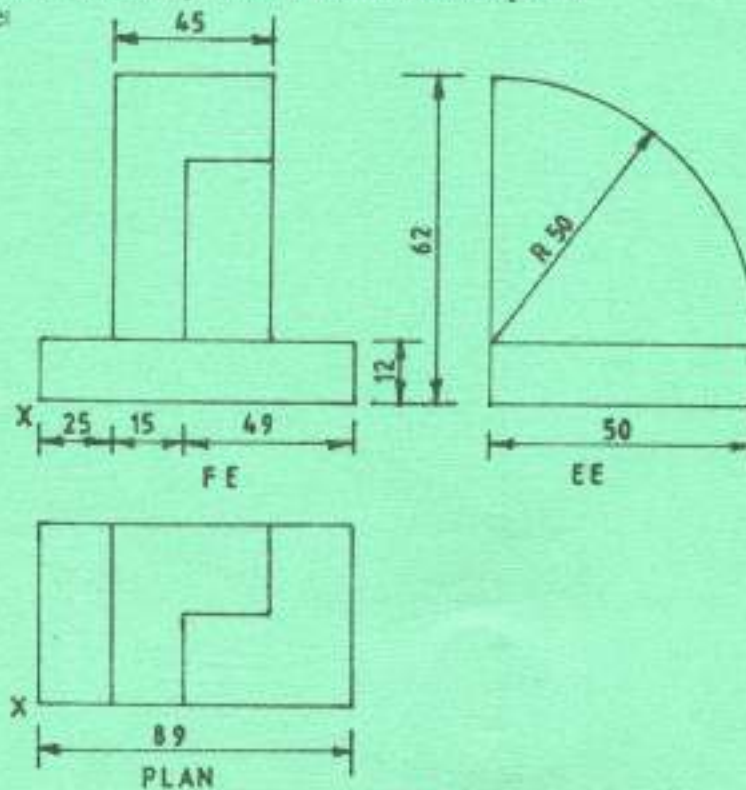


Fig. 6

- (b) Make a labelled sectional sketch of a solid ground floor suitable for a waterlogged site. (To include part of the external wall). (5 marks)
8. (a) Figure 7 shows an irregular polygon. To a scale of 4:3, draw a similar polygon with the base side AE. (5 marks)

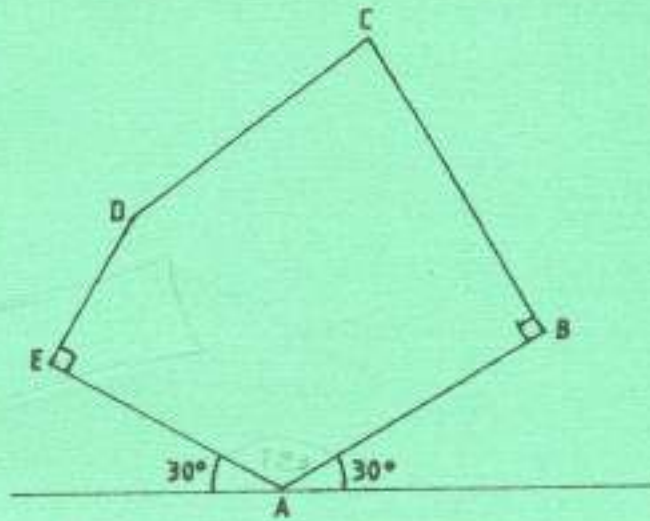


Fig.7

(b) Figure 8 shows a front elevation of a cut cone and an incomplete plan. Draw:

- (i) a complete plan;
- (ii) true shape of the cut portion;
- (iii) surface development of the cone opened at A.

(15 marks)

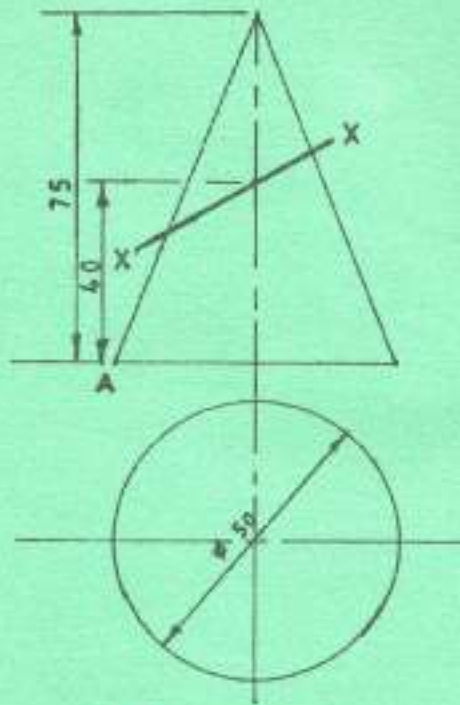


Fig. 8

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