

CANDIDATE'S NAME:.....

SIGNATURE: .....

SCHOOL'S NAME: .....

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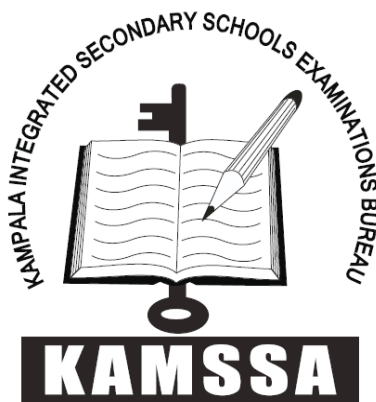
TECHNICAL DRAWING

GEOMETRICAL DRAWING

Paper 1

July/august 2023

Time: 3 Hours



## **KAMSSA JOINT MOCK EXAMINATIONS**

### **Uganda Certificate of Education**

**TECHNICAL DRAWING**

**(GEOMETRICAL DRAWING)**

**PAPER 1**

**3 Hours**

#### **INSTRUCTIONS TO CANDIDATES**

- This question paper consists of two Sections, A and B.
- Answer four questions, two questions are to be chosen from each section
- All questions carry equal marks.
- A sheet of drawing paper, size A2 is provided.
- You may use both sides of the drawing paper for your answer.
- Drawings are not to scale.
- All dimensions of the figures are in millimeters
- Unless otherwise stated, solutions are to be drawn full size.
  
- Write your name, random and personal number at the bottom right hand corner of your paper.

**SECTION A: PLANE GEOMETRY (50 MARKS)**

1. a) Figure 1 below shows a straight line MM, point A, B and X.

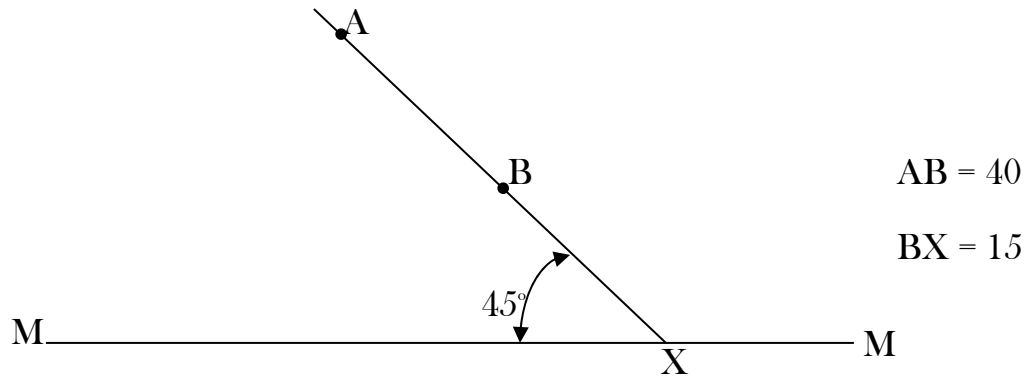
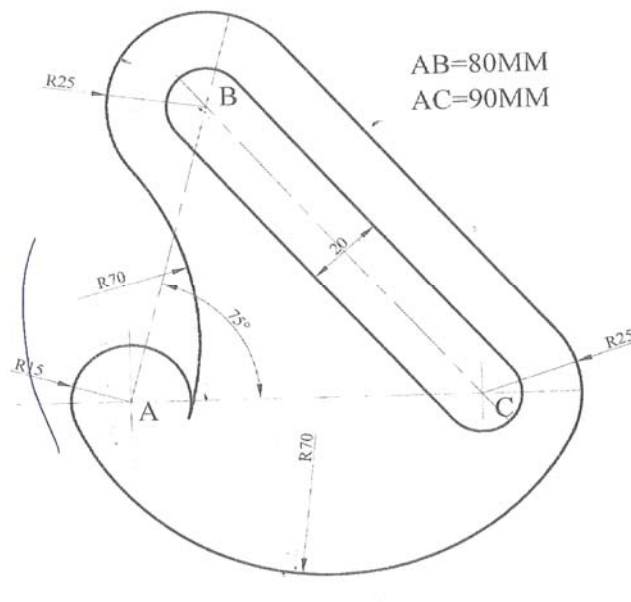


Fig. 1

- i- Construct a circle passing through point A and B and also tangential to the horizontal line MM. (8mks)
  - ii- Measure and state the radius of the circle. (2mks)
- b) Construct figure 2 showing clearly how the centres of the arcs that make up the drawing are obtained. (15mks)



2. a) i- Construct a square of diagonal length 100 mm. (4mks)

- ii- Within the square, inscribe four equal circles such that each circle touches two sides of the square and two other circles. (6mks)
- b) i- Construct a plain scale, 4 cm to 1 Km, 3 km long and use it to construct triangle ABC below. (7mks)

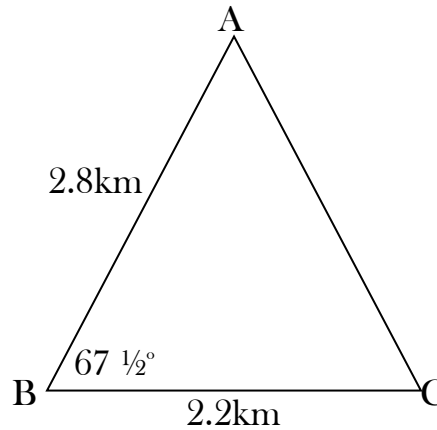


Fig. 3

- ii- Convert the triangle above to another triangle of equal area but with a height of 1.4 km. (8mks)
3. a) Fig. 4 shows a link mechanism in which AB and CD rotate in opposite directions about fixed centres, A and D respectively. BC is a rigid rod connecting link with pin-joints at B and C. The link FE is connected to BC by a pin joint at E whilst the lower end of F is constrained to slide in a vertical line. Draw the locus of P and E as AB makes one revolution. (22mks)
- b) Measure and state the maximum stroke of F. (3mks)

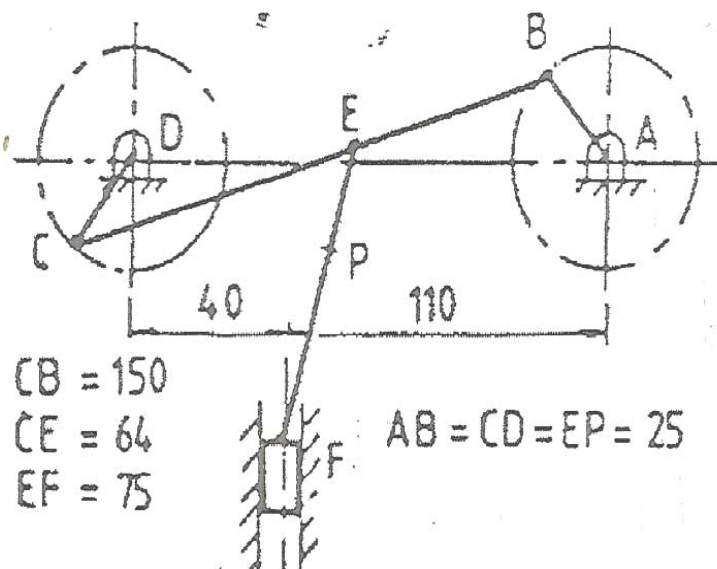
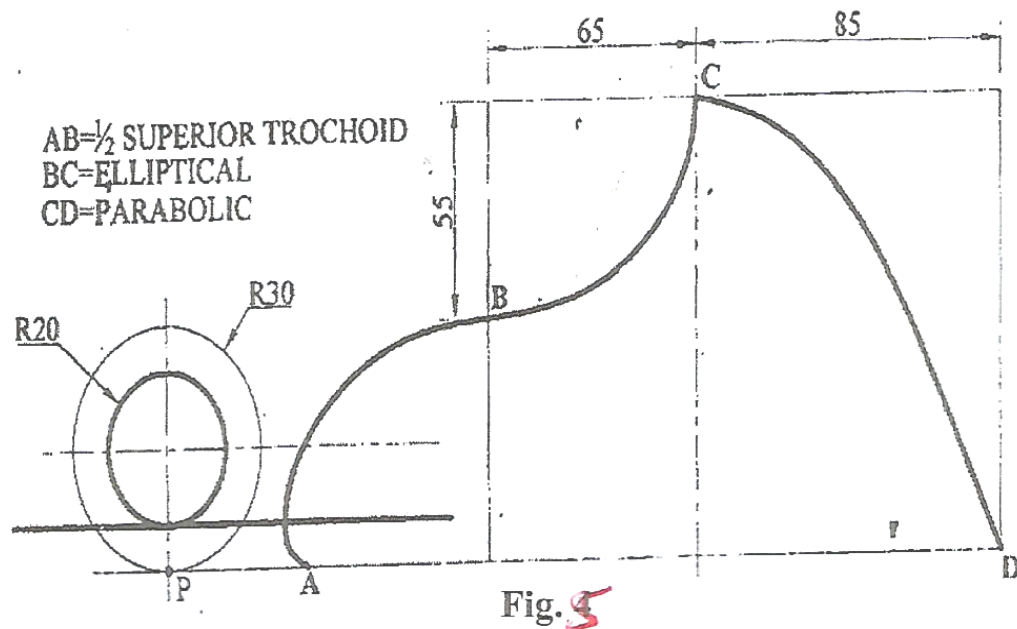


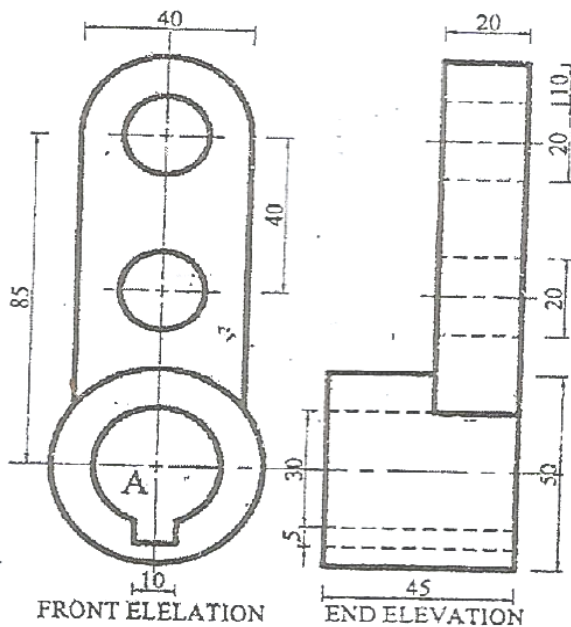
Fig. 4

4. a) Construct figure 5 accurately. (18mks)
- b) Construct a normal and a tangent at any convenient point on the locus CD.



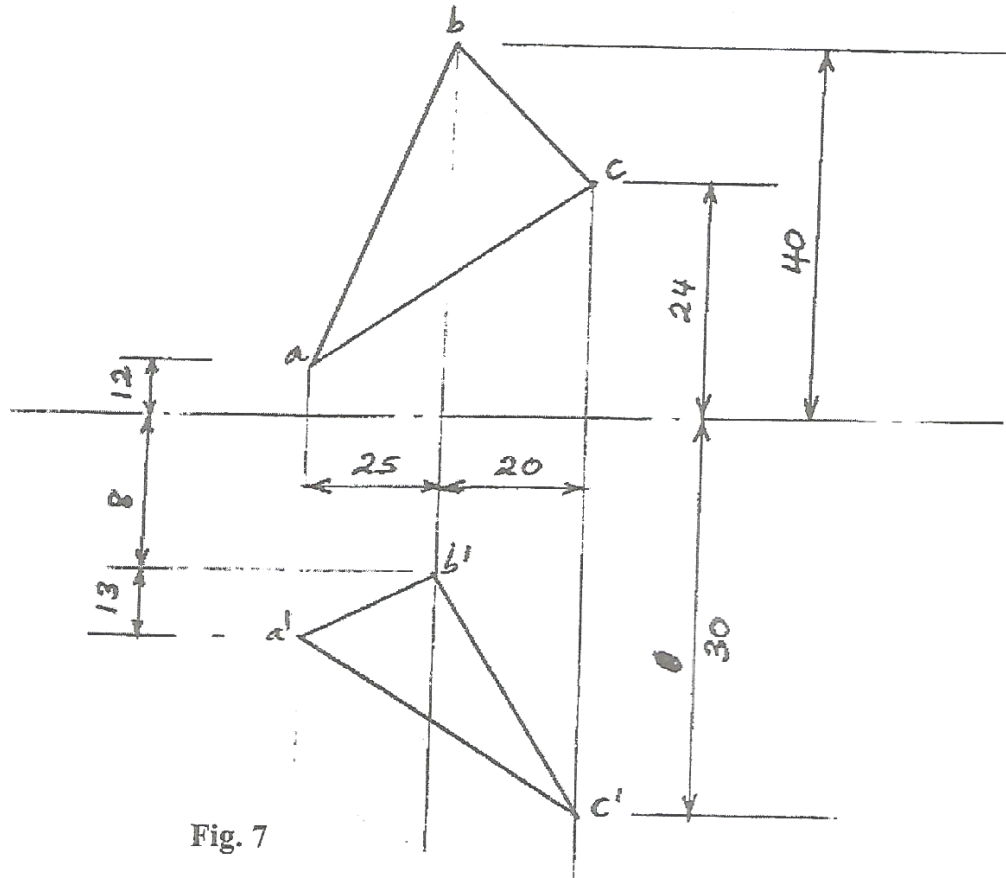
### SECTION B: SOLID GEOMETRY (50MKS)

5. Figure 6 shows two orthographic views of a casting dram in third angle projection of the casting having face A at the foreground. (25mks)



6. The elevation and plan of a triangular lamina (thin plate) are shown in figure 7 in first angle projection. Draw to a scale of 2 : 1

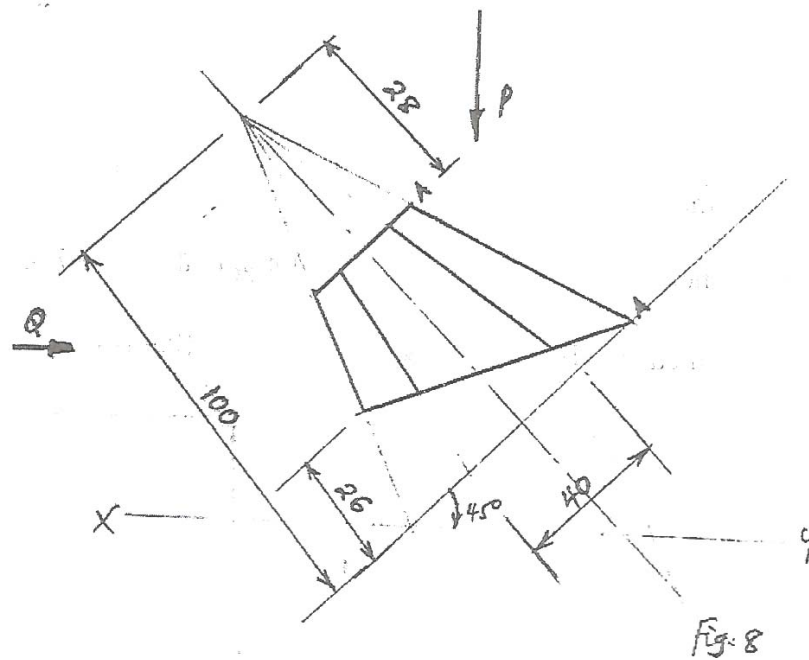
- a) The true shape of the lamina. (15mks)
- b) The true angle of inclination of the lamina to the horizontal plane. (7mks)
- c) The vertical trace of edge AB (3mks)



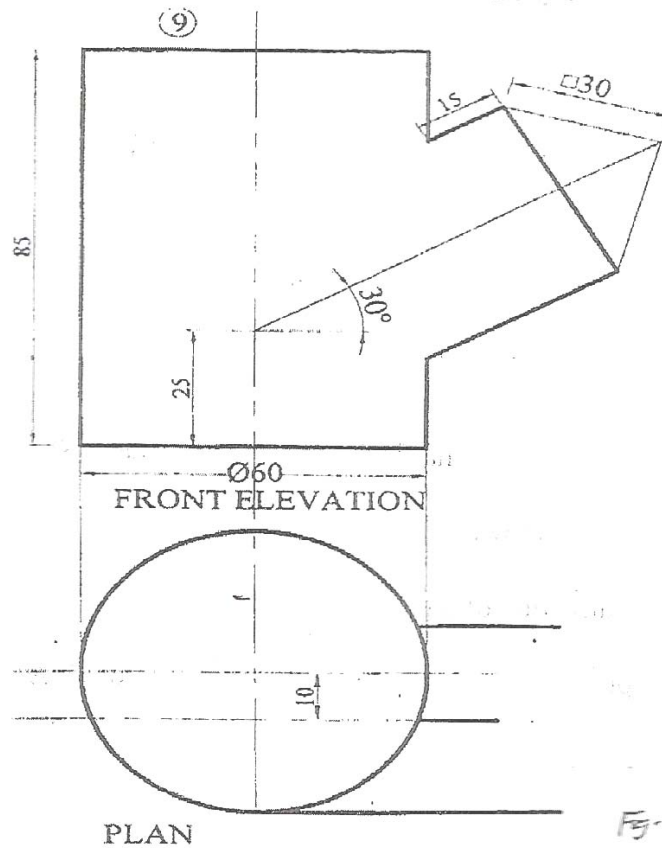
7. The elevation of hexagonal pyramidal lamp shade is shown in figure 8. Draw:

- a) the elevation as shown (5mks)
- b) A plan the direction of arrow P (6mks)
- c) the development of the surfaces taking the seam as A - A (6mks)
- d) An end view seen from arrow Q (8mks)

( use first angle projection)



8. Figure 9 shows the intersection of a right cylinder and a square prism. Draw full size the given views and complete them with curves of intersection. (25mks)



E N D