

OR

10 Draw the front view, top view and side view of the component shown in Fig. 2

L3 CO5 14 M

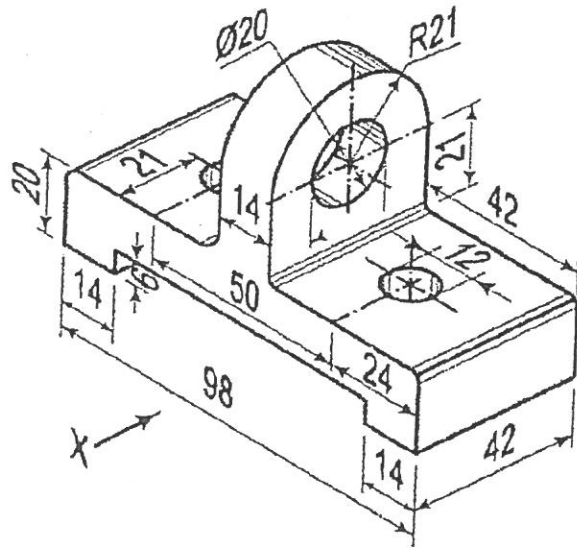


Fig. 2

PVP 23

Code: 23ES1104

I B.Tech - I Semester – Regular/Supplementary Examinations
DECEMBER 2024

ENGINEERING GRAPHICS
(Common for CE, AIML, DS)

Duration: 3 hours

Max. Marks: 70

Note: 1. This question paper contains 5 essay questions with an internal choice from each unit. Each question carries 14 marks.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	On a map, the distance between two points is 14 cm. The real distance between them is 20 km. Draw a diagonal scale of this map to read kilometers and hectameters and to measure upto 25 km. Show a distance of 17.6 km on this Scale.	L3	CO1	14 M	
OR					
2	Draw an involute for a circle of 40mm diameter. Draw a normal of tangent at any point on the curve.	L3	CO1	14 M	
UNIT-II					
3	a) Draw the projections of the following points and state the quadrants in which they lie. i. A point is 50mm above HP and 45mm behind VP	L3	CO2	7 M	

	ii. The front view of a point is 40mm above XY line and top view is 20mm below front view.			
b)	The front view of a line measures 65mm which is parallel to XY line. The line is inclined at 35° to VP. Draw the projections and find the true length of the line.	L3	CO2	7 M
OR				
4	The front and top views of a 100mm long line measures 75mm each. One end of the line is 15mm above HP and on VP. Draw the projections and find all the inclinations.	L3	CO2	14 M
UNIT-III				
5	A pentagonal plane is resting on one of its edges on HP which is inclined at 40° to VP. The plane inclined at 35° to HP. Draw the projections.	L3	CO3	14 M
OR				
6	A cylinder of 50mm base diameter and axis 70mm long is resting on a point on the circumference of one of its bases on HP such that the axis is inclined at 55° to HP and parallel to VP. Draw the projections.	L3	CO3	14 M
UNIT-IV				
7	A square pyramid of base edge 33mm and axis 55mm long is resting on its base on HP such that all the base edges are equally inclined to VP. It is cut by a plane which is inclined at 50° to the	L3	CO4	14 M

	base and passing through the midpoint of the axis. Draw the sectional front view, sectional top view and true shape of the cut surface.			
OR				
8	A cone of base diameter 55mm and axis 72mm long is cut by a plane, inclined at 40° to the axis and passing through a point 24mm below the apex. Draw the development of the lateral surface of the cone.	L3	CO4	14 M
UNIT-V				
9	Draw the front view top view and side view of the component shown in Fig. 1	L3	CO5	14 M
Fig. 1				

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PVP 23

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UNIT-I

1. Construction of scale – 10M
LOS – 2M
Indicating points – 2M

OR

2. Construction of Involute – 10M
Tangent and normal – 2M
Dimensioning – 2M

UNIT-II

3. a) i) Drawing point – 3.5M
ii) Drawing point – 3.5M
b) Drawing the final projections and true length – 5M
Dimensioning – 2M

OR

4. Drawing the line with True inclination with HP – 4M
Drawing the line with True inclination with VP – 4M
Drawing the final projections – 4M
Dimensioning – 2M

UNIT-III

5. Drawing initial positions – 4M
Drawing first stage Projections – 4M
Drawing Second stage Projections – 4M
Dimensioning – 2M

OR

6. Drawing first stage Projections – 6M
Drawing Second stage Projections – 6M
Dimensioning – 2M

UNIT-IV

7. Drawing sectional top view – 6M
Drawing true shape – 6M
Dimensioning – 2M

8. Drawing initial positions - 4M
Development - 8M
Dimensioning - 2M

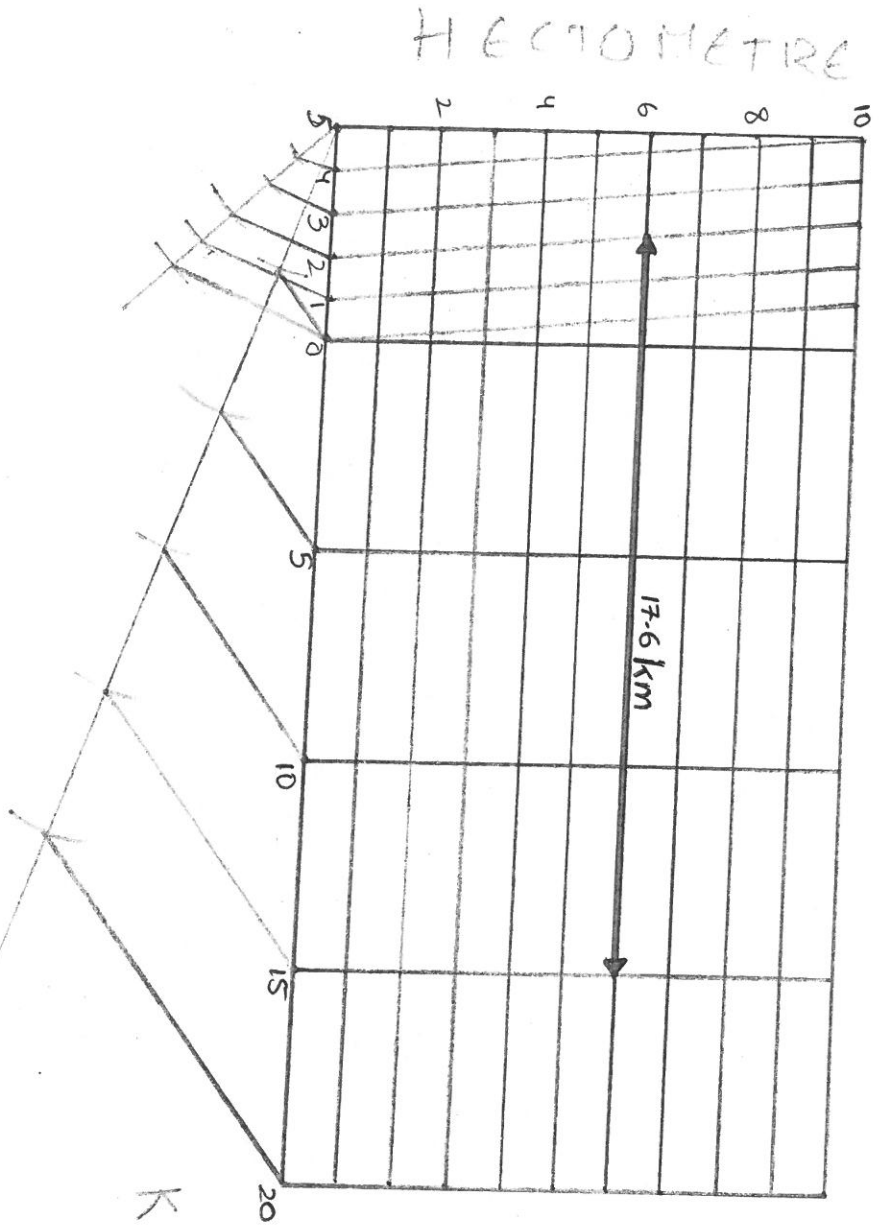
UNIT-V

9. Front View - 5M
Top view - 4M
Anyone Side view - 3M
Dimensioning - 2M

OR

10. Front View - 5M
Top view - 4M
Side view - 3M
Dimensioning - 2M

1) Ans)



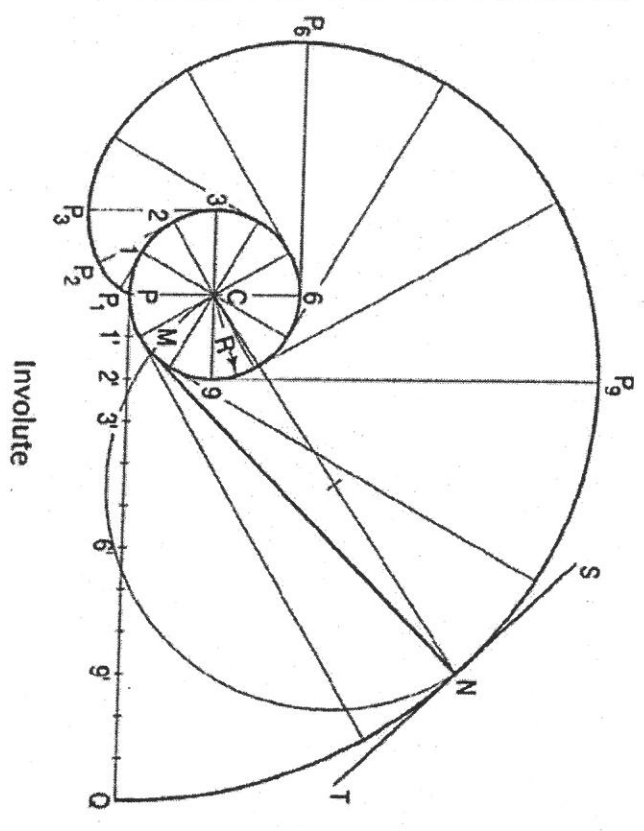
$$RF = \frac{14 \text{ cm}}{20 \text{ km}} = \frac{14 \text{ cm}}{20 \times 10^5 \text{ cm}}$$

$$= 7/10^6$$

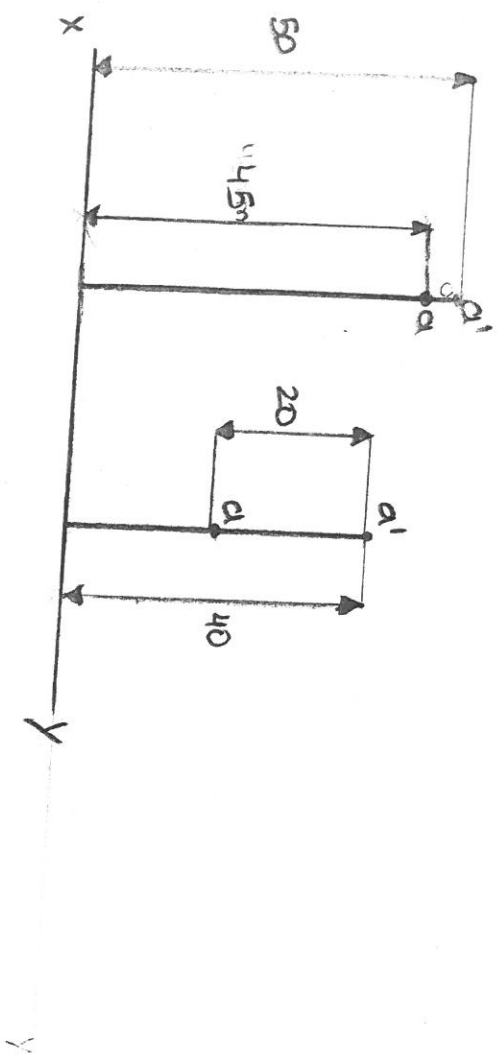
$$LOS = \frac{7}{10^6} \times 25 \times 10^5 \text{ cm} = 17.5 \text{ cm}$$

2. Draw an involute for a circle of 40mm diameter. Draw a normal of tangent at any point on the curve

$\pi \cdot d = \pi \cdot 40 = 125.7 = \overset{PQ}{A\cancel{P}} \& \overset{PQ}{A\cancel{P}} \cdot 6' = 40$

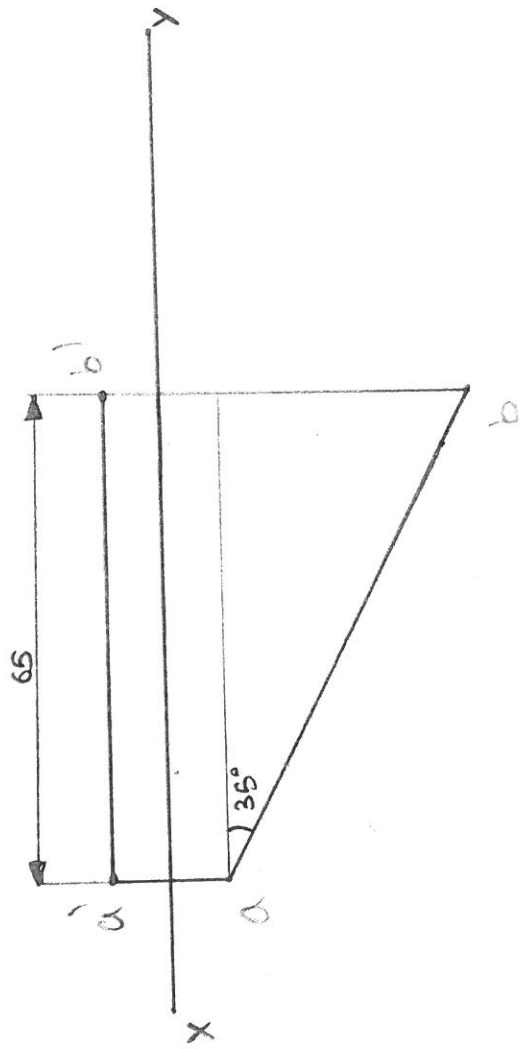


3(a)



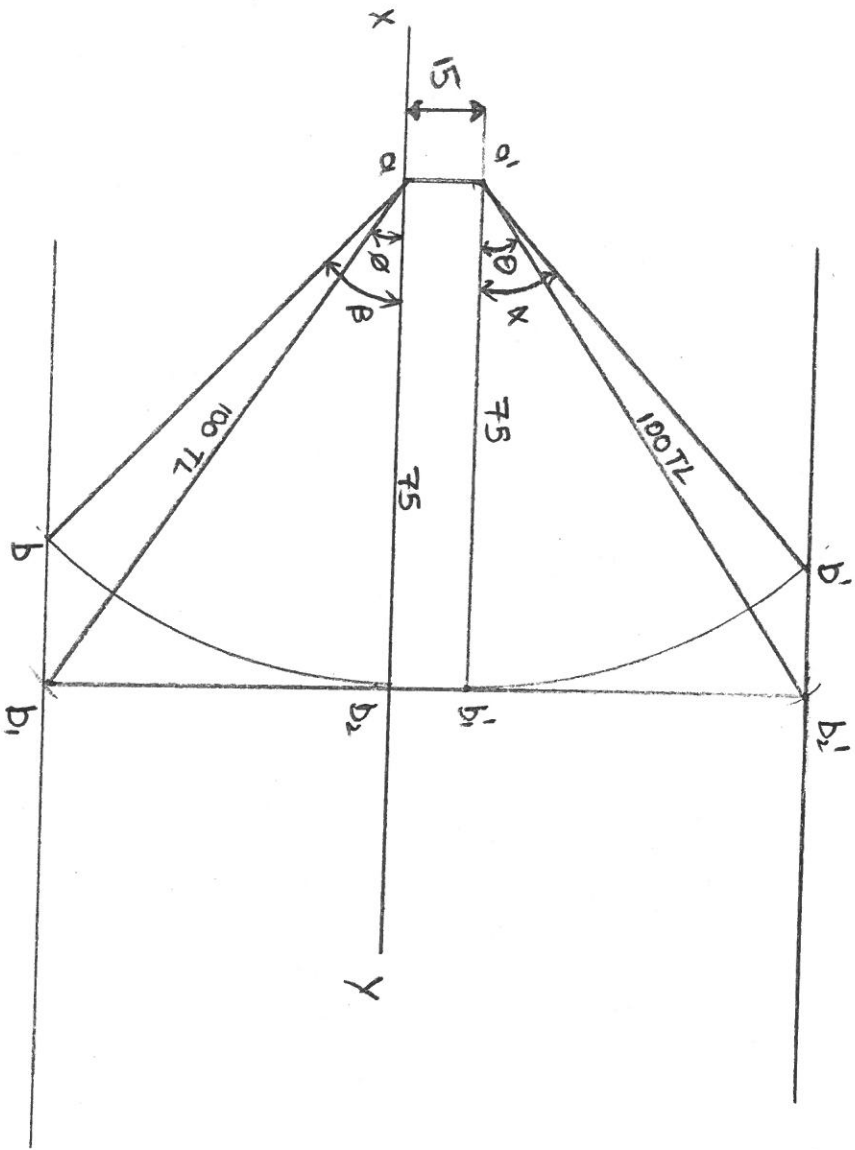
Ans

3) b)



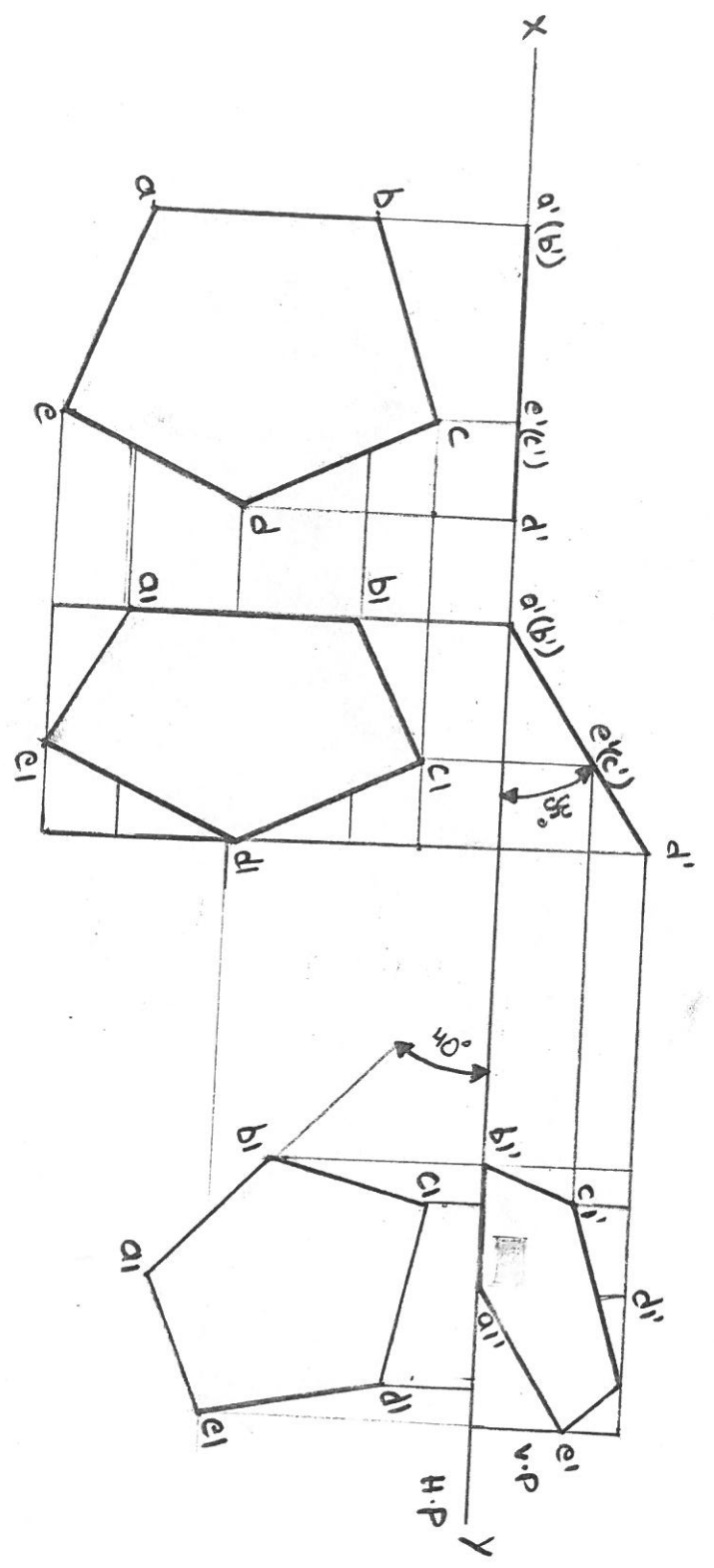
do: 79 mm

4) Ans)



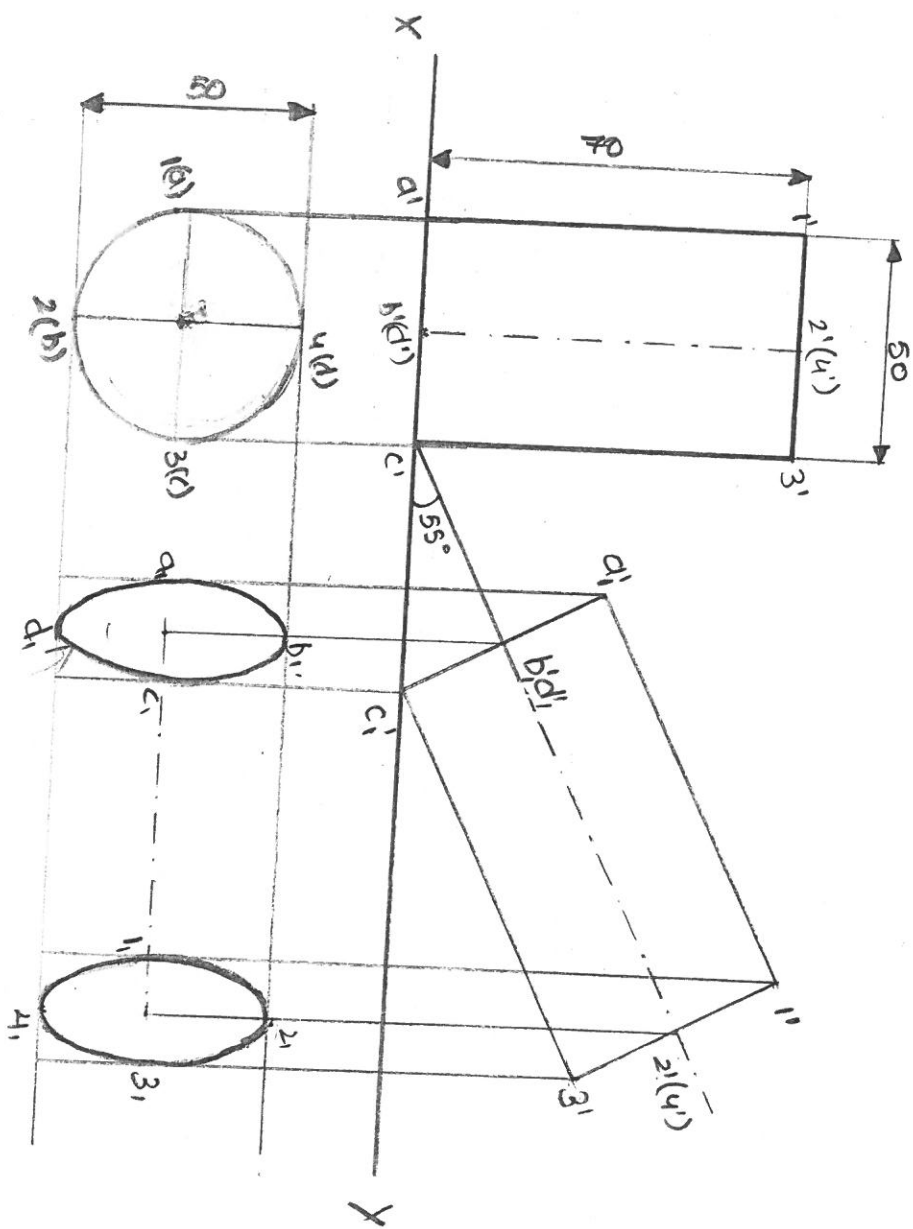
$$\phi = \theta = 41.4^\circ$$

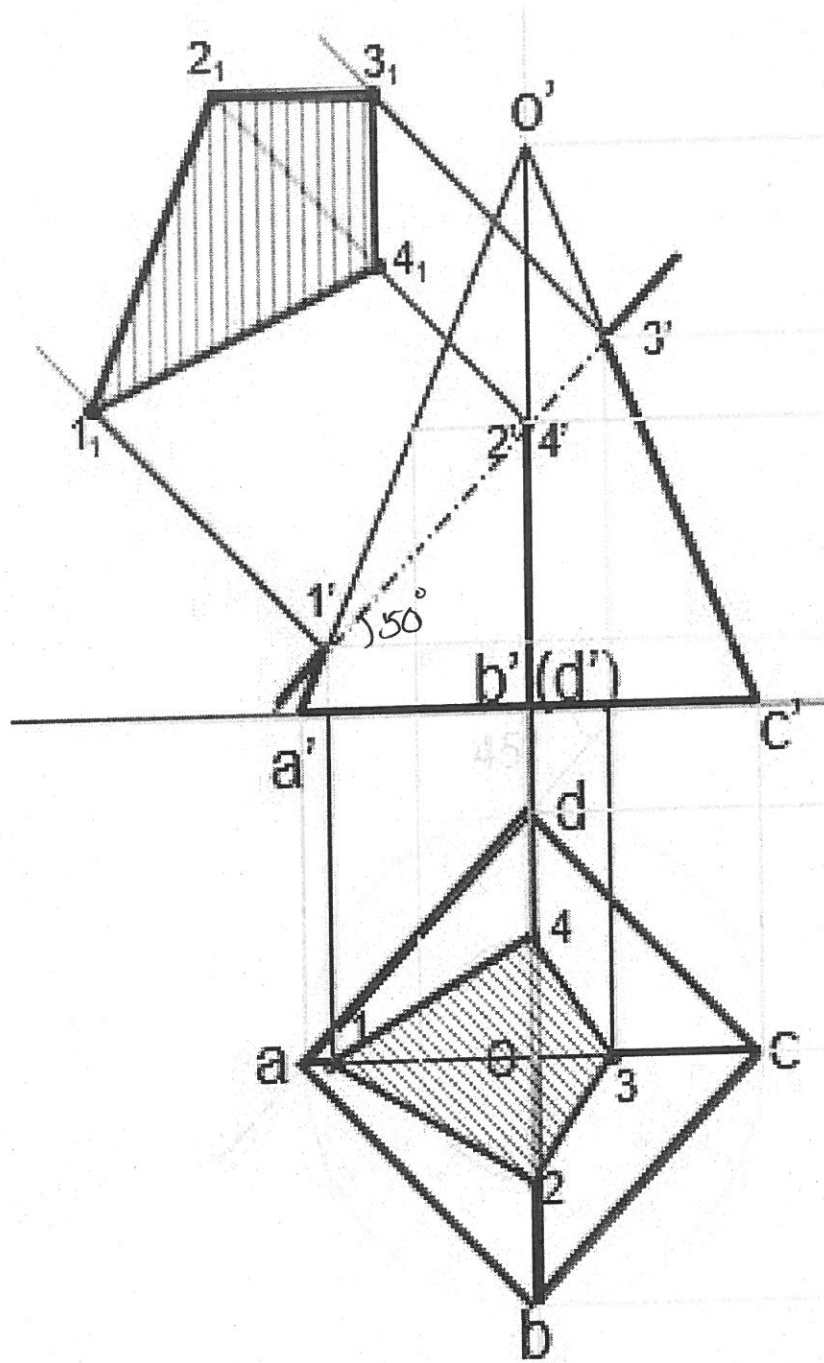
$$\alpha = \beta = 61.86^\circ$$



or not given assume

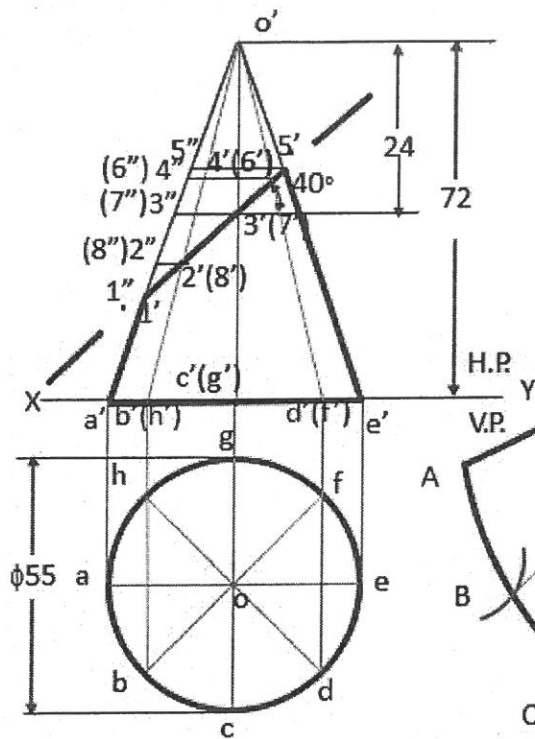
6) Ans)



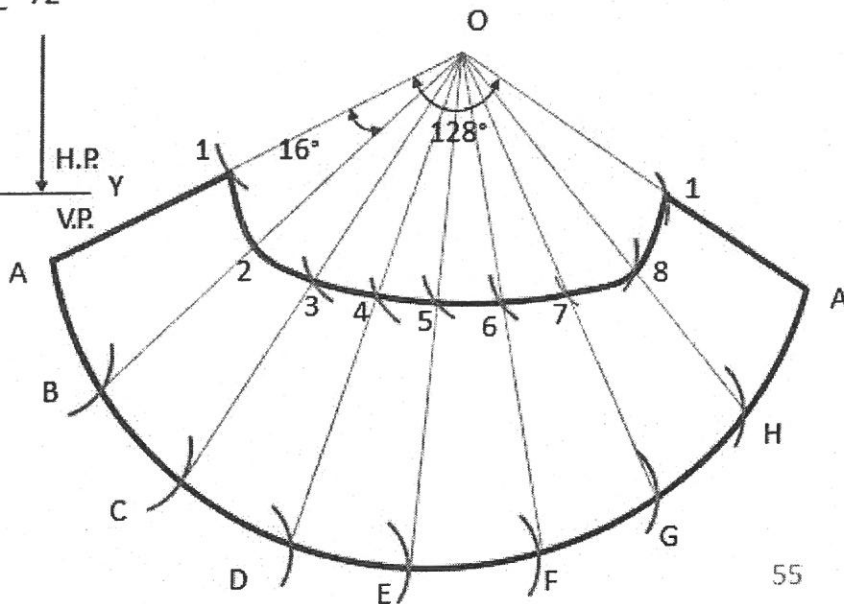


$ab = 33\text{mm} / b'o' = 55\text{mm}$

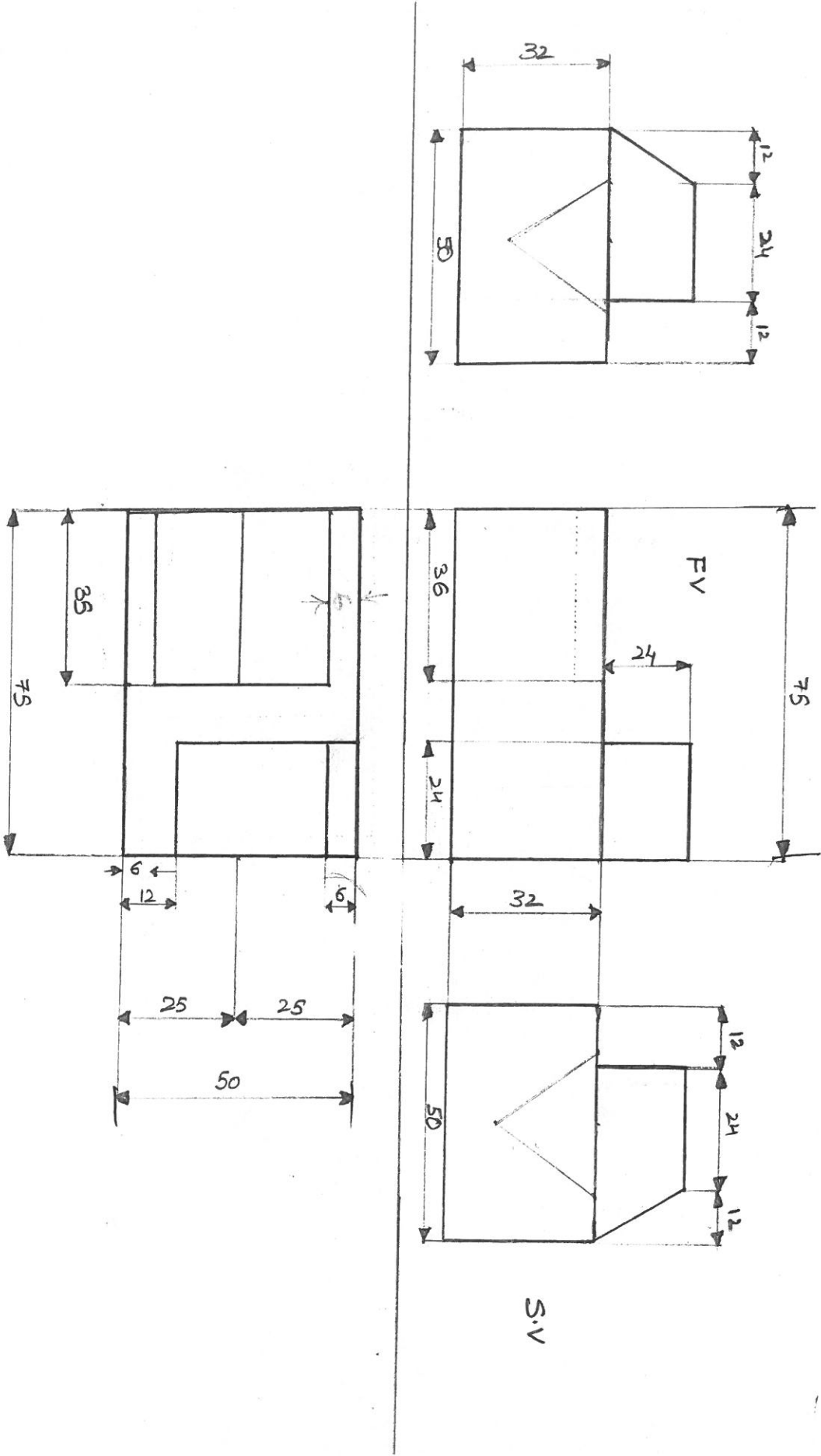
oa is parallel to XY. So o'a' = OA = True length of the generator (slant height)



$\theta = (r/L) \cdot 360^\circ$
 $\theta = (27.5/77) \cdot 360^\circ$
 $\theta = 128^\circ$
 Divide 128° into 8 equal parts.
 Per division 16°



TV



Y

X

