

I. B.Tech, I SEM I- MID Examination, December - 2023

Sub: Engineering Graphics

Branch: ECE-A

Date: 11 -12-2023

Time: 110 Minutes

Max.Marks:30

(Answer any THREE Questions)

(3X10=30 Marks)

1. Draw the involute of a Hexagon of side 20 mm and draw a normal and tangent to the curve at any point.

Marks:10	Unit:1	CO:1	CL: APPLY
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(OR)

2. The Focus of a parabola is 70 mm from its Directrix. Draw the curve and draw a normal and a tangent at any point on the curve

Marks:10	Unit:1	CO:1	CL: APPLY
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3. A semi circular plate of 80mm diameter has its straight edge in the VP and inclined at  $60^{\circ}$  to the HP, the surface of the plate makes an angle of  $30^{\circ}$  with the VP. Draw its projections

Marks:10	Unit:2	CO:2	CL: APPLY
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(OR)

4. Draw the projections of the following points, keeping the distance between the projectors as 40mm on the same reference line.

- A – 25mm above HP and 30mm in front of VP
- B – 35mm above HP and 40mm behind VP
- C – 25mm below HP and 35 mm behind VP
- D – On HP & On VP.
- E – On VP and 35mm above HP

Marks:10	Unit:2	CO:2	CL: APPLY
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5. Construct a vernier scale of R.F=1/25 to read centimeters and long enough to measure up to 4 meters. Also shows a length of 2.67 meters .

Marks:10	Unit:1	CO:1	CL: APPLY
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(OR)

6. A line AB, 60mm long, has its end A in 30 above the H.P. and 40 in front of the V.P. It is inclined at  $30^{\circ}$  to the H.P and at  $60^{\circ}$  to the V.P. Draw its projections

Marks:10	Unit:2	CO:2	CL: APPLY
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Faculty

H.O.D

G. PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY: KURNOOL  
 (AUTONOMOUS)

SET - 3

I. B.Tech, I SEM II- MID Examination, January - 2024

Sub: Engineering Graphics  
 Time: 110 Minutes

Branch: ECE & CAI

Date: -02-2024  
 Max.Marks:30

(Answer any THREE Questions)

(3X10=30 Marks)

1. Draw the projections of a pentagonal pyramid, side of base 30mm & height 60mm resting with its base on HP. Such that one of the edges of the base is perpendicular to VP.

Marks:10	Unit:3	CO:3	CL: APPLY
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(OR)

2. A hexagonal pyramid, side of base 25mm & axis 50mm long, rests with its base on HP & its axis inclined at  $30^{\circ}$  to HP & parallel to VP. Draw its projections

Marks:10	Unit:3	CO:3	CL: APPLY
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3. A cylinder , diameter of base 50 mm and axis 65 mm long, is resting on the H.P. with the axis parallel to the V.P. It is cut by a section plane inclined at an angle of 30 degrees which cuts the axis 40 mm above the ground. Draw its front view and sectional top view and draw the true shape of the section..

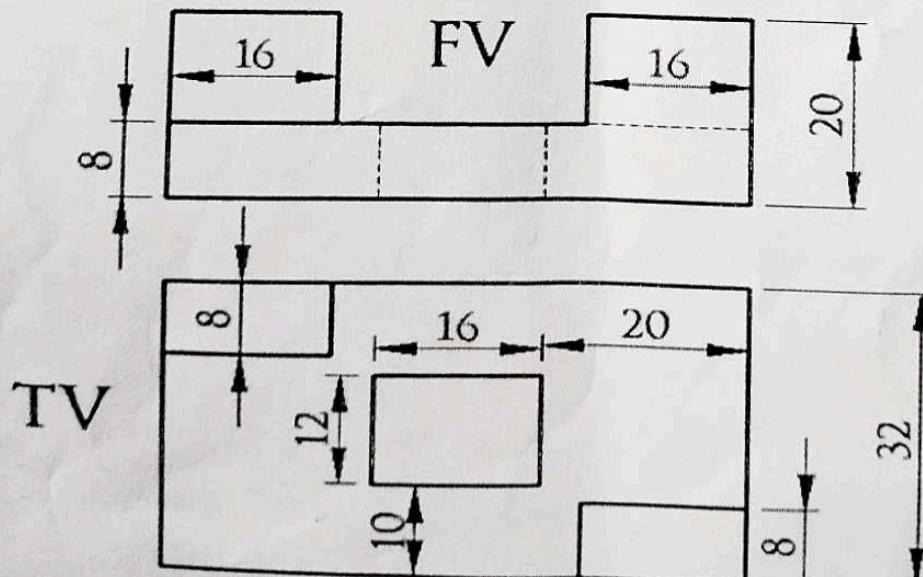
Marks:10	Unit:4	CO:4	CL: APPLY
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(OR)

4. Draw the development of cuve of side 40 mm which rests with its base on HP such that one of its longer rectangular faces is parallel to VP. Draw also its top view and front view

Marks:10	Unit:4	CO:4	CL: APPLY
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5. Two views of an object are shown in figure below. Draw the isometric view of the object.

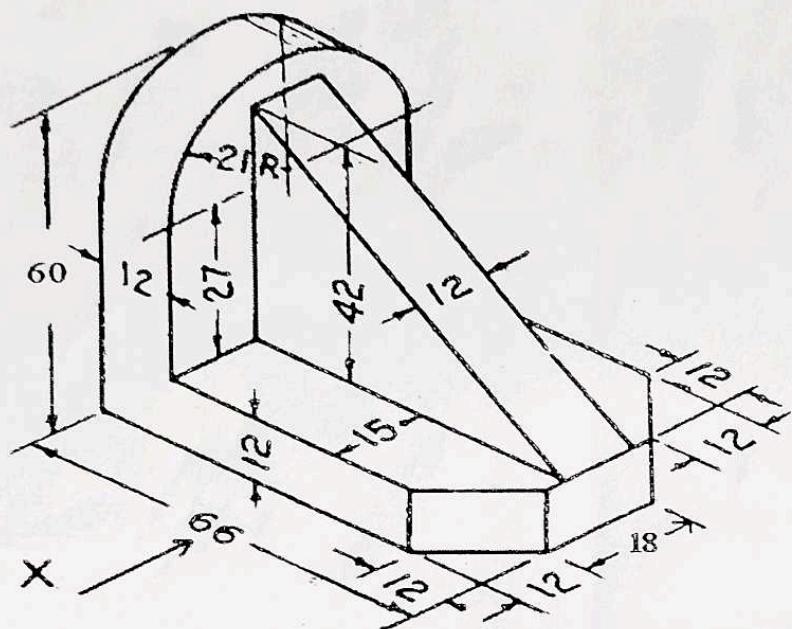


Marks:10	Unit:5	CO:5	CL: APPLY
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(OR)

6. Draw the following views of the object shown in figure .

- a) Front view.
- (b) Top view
- (c) Side view



Marks:10 | Unit:5 | CO:5 | CL: APPLY

Faculty

H.O.D

**G.PULLIAIH COLLEGE OF ENGINEERING AND TECHNOLOGY  
(AUTONOMOUS)**

**B.Tech. I Year I Semester Regular Examinations February 2024**

Subject Name: ENGINEERING GRAPHICS

Branch: ECE -A

Time: 3 Hours

Max. Marks: 70

**Instructions:**

(Answer all five units,  $5 \times 14 = 70$  Marks)

**UNIT-I**

- 1 Draw an Involute of a circle of 40 mm diameter. Also, draw a normal and a tangent to it at a point 100 mm from the centre of the circle.

14M CO 1 BTL3

**OR**

- 2 Draw a vernier scale of RF = 1 / 25 to read centimeters up to 4 meters and on it, show lengths 2.39 m and 0.91 m. (backward vernier)

14M CO 1 BTL3

**UNIT-II**

- 3 a A line AB 100mm long is inclined at  $45^\circ$  to the H.P. and  $30^\circ$  to the V.P. Its end point A is in V.P. and 20mm above H.P. Draw the projections of the line

7M CO 2 BTL3

- b Draw the projections of the following points on the same ground line, keeping the projectors 25 mm apart.

7M CO 2 BTL3

- (i) A, in 25 mm above H.P. and 20 mm behind the V.P.
- (ii) B, 25 mm above the H.P. and 25 mm behind V.P.
- (iii) C, in the V.P. and in the H.P.

**OR**

- 4 Draw the projections of a regular hexagon of 25mm side, having one of its sides in the H.P. and inclined at 60 degrees to the V.P., and its surface making an angle of 45 degrees with H.P.

14M CO 2 BTL3

**UNIT-III**

- 5 Draw the projections of a pentagonal prism, base 25 mm side and axis 50 mm long, resting on one of its rectangular faces on the ground, with the axis inclined at  $45^\circ$  to the VP.

14M CO 3 BTL3

**OR**

- 6 A cylinder of base diameter 50 mm and axis 65 mm rests on a point of its base circle on the HP. Draw its projections when the axis is inclined at  $30^\circ$  to the HP

14M CO 3 BTL3

**UNIT-IV**

- 7 A square pyramid of base side 40 mm and axis 60 mm is resting on its base in the HP with a side of the base parallel to the VP. Draw its sectional view and true shape of the section, if it is cut by a section plane perpendicular to the VP bisecting the axis from the base 30mm distance and is inclined at  $45^\circ$  to the HP.

14M CO 4 BTL3

**OR**

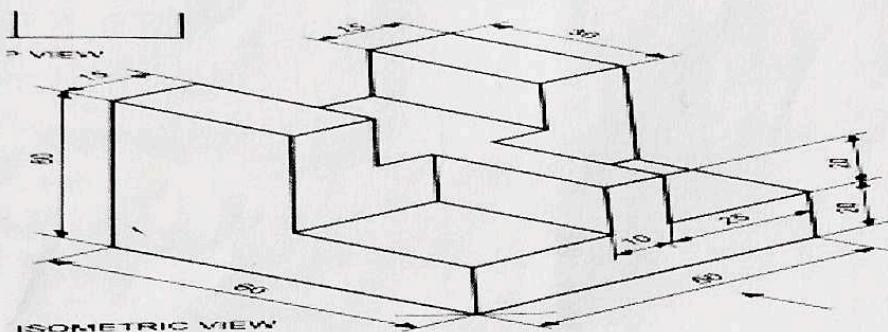
- 8 A cone, 50 mm base diameter and 70 mm axis is standing on its base on HP. It is cut by a section plane  $45^0$  inclined to HP through base end of end generator. Draw development of surfaces of remaining solid.

14M CO 4 BTL2

**UNIT-V**

9

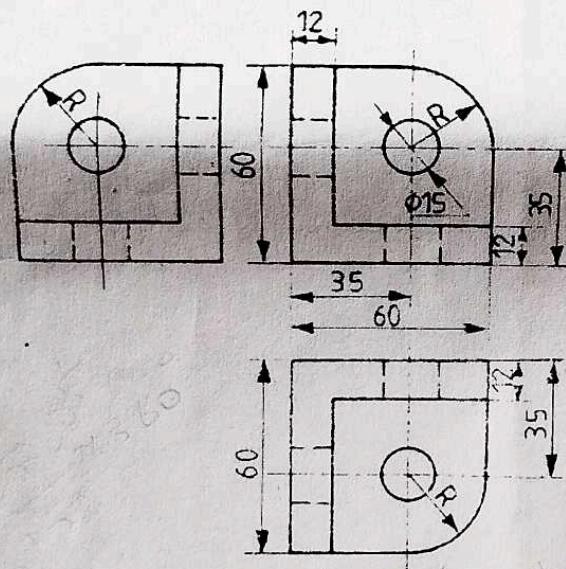
- Draw (i) Front View (ii) Top View (iii) Side View of the object shown below



14M CO 5 BTL3

**OR**

- 10 Draw the isometric view. All dimensions are in mm.

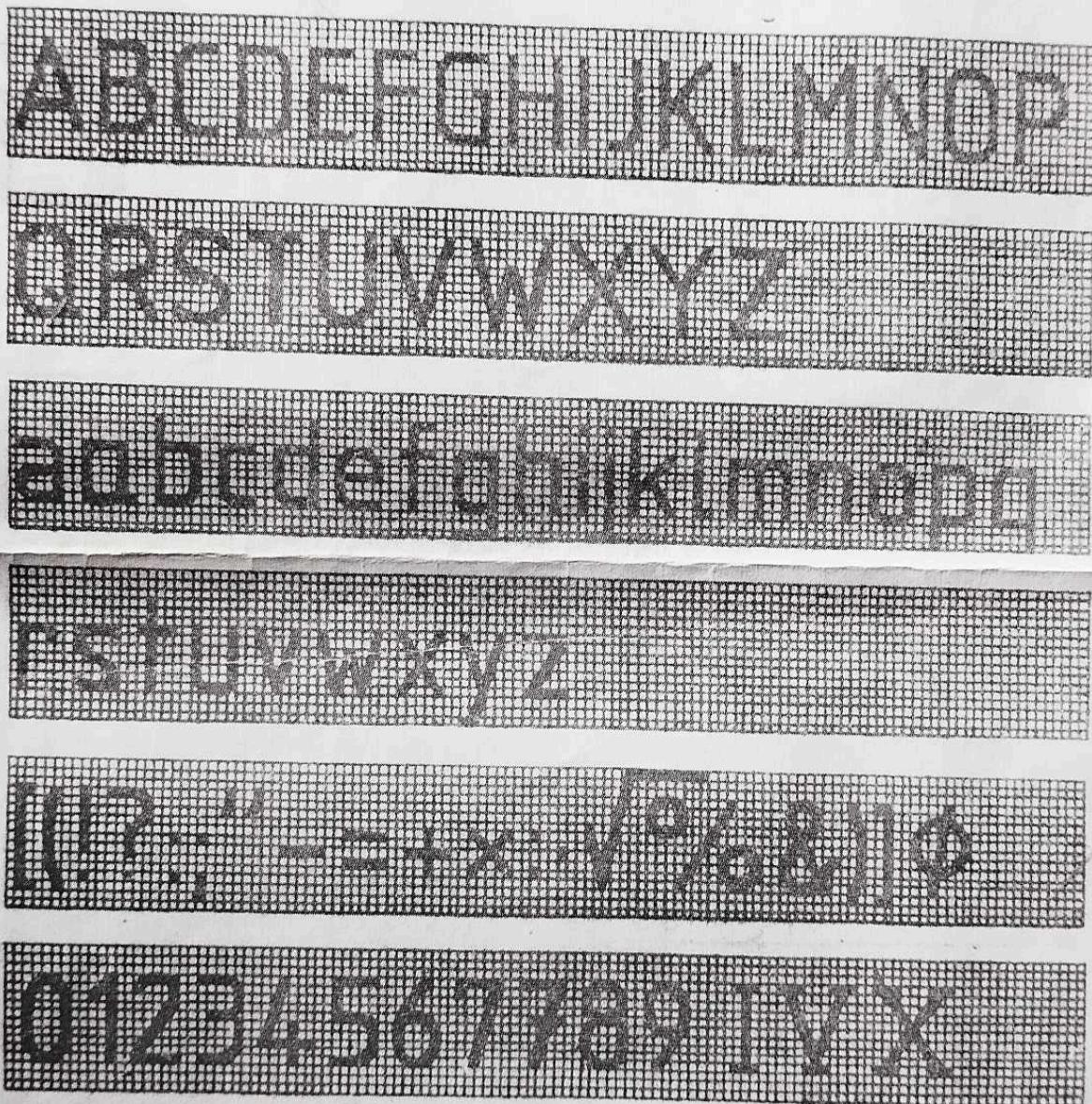


14M CO 5 BTL3

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## LETTERING

1. Write the alphabets in capital and lower case letters with a height of 10 mm.
2. Write the numbers from 0 to 9 with a height of 10 mm.
3. Write Your name, College name , Branch and roll number with a height of 5 mm.



Note: 1. Height to width ratio is 10:6 for Alphabets except for W and M where the ratio is 10:8 and 10:1 for I.

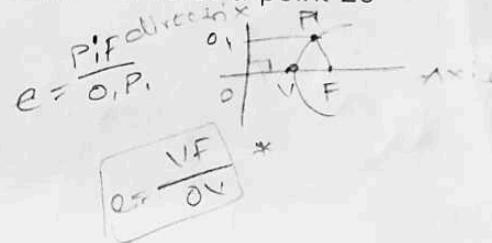
2. Height to width ratio is 10:5 for Numbers except for 1 where the ratio is 10:1

3. Gap between the letters is 2 mm and between words is 6 mm for a height of 10mm

## CONIC SECTIONS

only  
General method

1. Draw the curve when the distance between the Directrix and focus is 60 mm and  $e=3/2$ . Also draw a normal and tangent to the curve at any point
2. Draw the curve when the distance between the Directrix and focus is 50 mm and  $e=1$ . Also draw a normal and tangent to the curve at any point
3. Construct an ellipse, when the distance of the focus from the directrix is equal to 60 mm and eccentricity  $2/3$ . Also draw a normal and tangent to the curve at a point 35 mm from the focus.
4. Construct a rectangular hyperbola when a point P on it is at a distance of 20 and 30 from two asymptotes. Also draw a tangent to the curve at a point 25 from an asymptote.



### Important definitions:

Distance of the point from the Fixed point or Focus

$$1. \text{ Eccentricity } (e) = \frac{\text{Distance of the point from the Fixed point or Focus}}{\text{Distance of the point from Directrix}}$$

- a) If  $e < 1$ , then the curve is Ellipse
  - b) If  $e = 1$ , then the curve is Parabola.
  - c) If  $e > 1$ , then the curve is Hyperbola.
2. Ellipse is defined as a curve traced by a point moving such that the sum of its distances from two points known as Foci is constant and is equal to the major axis.
  3. A Hyperbola is curve traced by a point moving such that the difference of its distances from two fixed points called Foci is constant and is equal to the distance between the vertices of the two branches, which is known as Major axis of the hyperbola

## PROJECTIONS OF POINTS

1. Draw the projections of the following points, keeping the distance between the projectors as 40mm on the same reference line.  
A - 25mm above HP and 40mm in front of VP  
B - 35mm above HP and 30mm behind VP  
C - 45mm below HP and 25 mm behind VP  
D - 30 mm below HP and 30mm in front of VP  
E - On HP and 20 mm in front of VP  
F - On VP and 35mm above HP
2. Two points A and B are in the H.P. The point A is 30mm in front of the V.P., while B is behind the V.P. The distance between their top views makes an angle of  $45^\circ$  with xy. Find the distance of the point B from the V.P.
3. A point P is 15mm above the H.P. and 20mm in front of the V.P. Another point Q is 25mm behind the V.P. and 40mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90mm. Draw straight lines joining i.) their top views and ii). their front views.
4. The point A is on H.P. and 40mm in front of V.P. Another point B is on V.P. and below H.P. The line joining their front views makes an angle of  $45^\circ$  with x y, while the line joining their top views makes an angle of  $30^\circ$ . Find the distance of the point B from H.P.
5. Two points A and B are on H.P; the point A being 30mm in front of V.P., while B is 45mm behind V.P. The line joining their top views makes an angle of  $45^\circ$  with xy. Find the horizontal distance between two points.

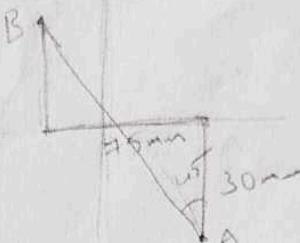
### Important points

1. The distance of the point from H.P can be seen in Front View. -  $a''$
2. The distance of the point from V.P can be seen in Top View. -  $a'$
3. In the first angle projection, Front view is drawn above the xy line ( Reference line) and Top view is drawn below the xy line.
4. In the Third angle projection, Top view is drawn above the xy line ( Reference line) and Front view is drawn below the xy line.
5. If the point is above H.P, then the front view of the point will be above xy line.
6. If the point is below H.P, then the front view of the point will be below xy line.
7. If the point is in front of V.P, then top view of the point will be below xy line.
8. If the point is behind V.P, then the top view of the point will be above xy line.
9. If the point is on the H.P, then the front view of the point will be on xy line.
10. If the point is on V.P, then top view of the point will be on xy line.

Points  
Line  
Planes

## PROJECTIONS OF POINTS

1. Draw the projections of the following points, keeping the distance between the projectors as 40mm on the same reference line.  
A - 25mm above HP and 40mm in front of VP  
B - 35mm above HP and 30mm behind VP  
C - 45mm below HP and 25 mm behind VP  
D - 30 mm below HP and 30mm in front of VP  
E - On HP and 20 mm in front of VP  
F - On VP and 35mm above HP
2. Two points A and B are in the H.P. The point A is 30mm in front of the V.P., while B is behind the V.P. The distance between their projectors is 75mm and the line joining their top views makes an angle of  $45^\circ$  with xy. Find the distance of the point B from the V.P.
3. A point P is 15mm above the H.P. and 20mm in front of the V.P. Another point Q is 25mm behind the V.P. and 40mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90mm. Draw straight lines joining i.) their top views and ii.) their front views.
4. The point A is on H.P. and 40mm in front of V.P. Another point B is on V.P. and below H.P. The line joining their front views makes an angle of  $45^\circ$  with xy, while the line joining their top views makes an angle of  $30^\circ$ . Find the distance of the point B from H.P.
5. Two points A and B are on H.P; the point A being 30mm in front of V.P., while B is 45mm behind V.P. The line joining their top views makes an angle of  $45^\circ$  with xy. Find the horizontal distance between two points.



### Important points

1. The distance of the point from H.P can be seen in Front View. - ~~a~~ - elevation
2. The distance of the point from V.P can be seen in Top View. - ~~a~~ - plan
3. In the first angle projection, Front view is drawn above the xy line ( Reference line) and Top view is drawn below the xy line.
4. In the Third angle projection, Top view is drawn above the xy line ( Reference line) and Front view is drawn below the xy line.
5. If the point is above H.P, then the front view of the point will be above xy line.
6. If the point is below H.P, then the front view of the point will be below xy line.
7. If the point is in front of V.P, then top view of the point will be below xy line.
8. If the point is behind V.P, then the top view of the point will be above xy line.
9. If the point is on the H.P, then the front view of the point will be on xy line.
10. If the point is on V.P, then top view of the point will be on xy line.

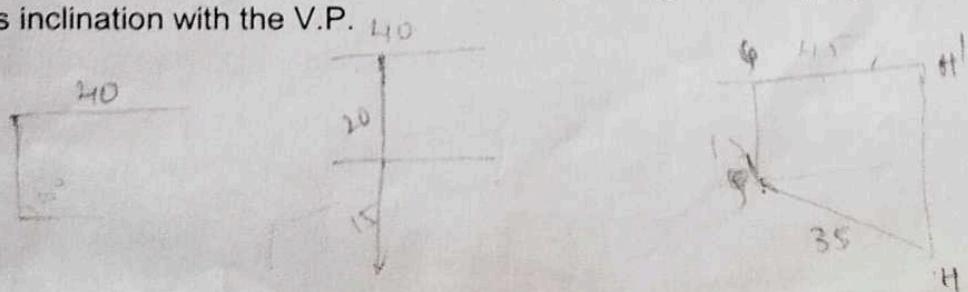
Second angle projection  $\rightarrow$  FV, TV

IV + fourth angle projection  $\rightarrow$  FV, TV

## PROJECTIONS OF LINES

MAXIMUM 15

1. A line PQ of 70 mm length is resting in both HP and VP. Draw the projections
2. A line CD is 30mm long is parallel to both the planes. The line is 40mm above HP and 25mm infront of VP. Draw its projections.
3. A line RS 60mm long lies in HP & 45mm infront of VP. Draw its projections.
4. A line PQ 55mm long is lying in VP and 45mm above HP. Draw its projections.
5. A line AB 55mm long is lying on both HP & VP. Draw its projections.
6. A line AB 25mm long is parallel to VP and  $\perp$ lar HP. Point A is 35mm above HP and 20mm infront of VP. Point B is 10mm above HP. Draw the projections of the line AB.
7. A line AB 25mm long is parallel to HP and  $\perp$ lar VP. Its end A is 10mm infront of VP And the line is 20mm Above HP. Draw the projections of the line.
8. A line PQ 40mm long is parallel to VP and inclined at angle of  $30^{\circ}$  to HP. The lower end 'P' is 15mm above HP and 20mm infront of VP. Draw the projections of the line.
9. A line CD 30mm long is parallel to HP and  $\perp$ lar VP. Its end C is 5mm infront of VP And the line is 10mm Above HP. Draw the projections of the line.
10. A line CD 25mm long is parallel to VP and  $\perp$ lar HP. Point C is 45mm above HP and 15mm infront of VP. Draw its projections.
11. Draw the projections of a line EF 40mm long parallel to HP & inclined at  $35^{\circ}$  to VP. E is 20mm above HP & 15mm infront of VP.
12. A line AB 50mm long is in VP and inclined at an angle of  $35^{\circ}$  to HP. The end 'A' is 10mm above HP. Draw the projections.
13. A 100mm long line is parallel to and 40mm above the H.P. Its two ends are 25mm and 50mm in front of the V.P. respectively. Draw it projections and find its inclination with the V.P
14. The line EF 60 mm long is in VP and inclined to HP. The top view measures 45 mm. The end E is 15 mm above HP, Draw the projections of the line. Find its inclination with HP
15. A straight line is parallel to both VP and HP. Its one end is 25 mm behind VP and 15mm above HP. Length of the line is 10m. Draw its projection
16. The top view of a 75mm long line measures 55mm. The line is in the V.P., its one end being 25mm above the H.P. Draw its projections.
17. A line GH 45 mm long is in HP and inclined to VP. The end G is 15 mm in front of VP. The length of the front view is 35 mm. Draw the projections of the line. Determine its inclination with VP
18. A 100mm long line is parallel to and 40mm above the H.P. Its two ends are 25mm and 50mm in front of the V.P. respectively. Draw it projections and find its inclination with the V.P.



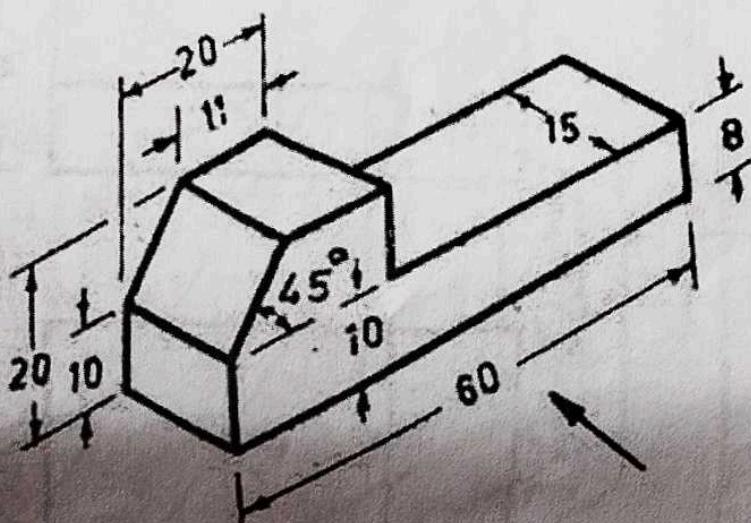
- 19.. A line AB of 70mm long, has its end A at 10mm above H.P. and 15mm in front of V.P. Its front view and top view measure 50mm and 60mm respectively. Draw the projections of the line and determine its inclinations with H.P. and V.P
- 20.A line AB, 50mm long, has its end A in both the H.P. and the V.P. Its is included at  $30^\circ$  to the H.P and at  $45^\circ$  to the V.P. Draw its projections
- 21.A line AB 120mm long is inclined at  $45^\circ$  to the H.P. and  $30^\circ$  to the V.P. Its mid point C is in V.P. and 20mm above H.P. The end A is in the third quadrant, and B is in the first quadrant Draw the projections of the line
- 22.A line AB 75mm long has its end A in the H.P. and 12 mm in front of V.P. the line is inclined at 60 degrees to H.P. and 30 degrees to V.P. Draw projections
- 23.The front view of a line AB, 80 mm long , measures 55 mm while its top view measures 70 mm. End A is in both HP and VP. Draw the projections of the line and find its inclinations with the reference planes. Also locate the traces
- 24.The distance between the end projectors of a line AB is 50 mm. Point A is 15 mm above HP and 10 mm infront of VP. Point B is 40 mm above HP and 40 mm infront of VP. Find the true length of the line AB, the inclinations of the line AB with HP and VP.
- 25.A line AB, 90 mm long, is inclined at  $45^\circ$  to the HP and its top view makes an angle of  $60^\circ$  with the VP. The end A is in the HP and 12 mm in front of the VP. Draw its front view and find its true inclination with the VP.
- 26.The end A of a line AB is in the H.P. and 25 mm in front of the V.P. The end B is in the V.P. and 50 mm above the H.P. The distance between the end projectors is 65 mm. Draw the projections of AB and determine its true length.
- 27.A line AB, 50mm long, has its end A in both the H.P. and the V.P. It is inclined at  $30^\circ$  to the H.P and at  $45^\circ$  to the V.P. Draw its projections

### Important points

1. If a line is perpendicular to H.P, then it should be parallel to V.P. Hence, the projection on V.P ie Front view will show the true length of the line and the Top view is a point.
2. If a line is perpendicular to V.P, then it should be parallel to H.P. Hence, the projection on H.P ie Top view will show the true length of the line and the Front view is a point.
3. If a line is parallel to both H.P and V.P, then both the Front and Top views show the true length of the line..
4. If a line is inclined to H.P and parallel to V.P, then the projection on V.P ie Front view will show the true inclination and true length of the line and top view will be a line parallel to xy line.
5. If a line is inclined to V.P and parallel to H.P, then the projection on H.P ie Top view will show the true inclination and true length of the line and front view will be a line parallel to xy line.
6. If a line is inclined to both H.P & V.P, then neither the Top View nor the Front view shows the true inclination and true length .

## CONVERSION OF ISOMETRIC VIEW INTO ORTHOGRAPHIC VIEWS

1. Draw the elevation, plan and right side view of the part shown in figure.1



2. Draw the elevation, plan and right side view of the part shown in figure.2

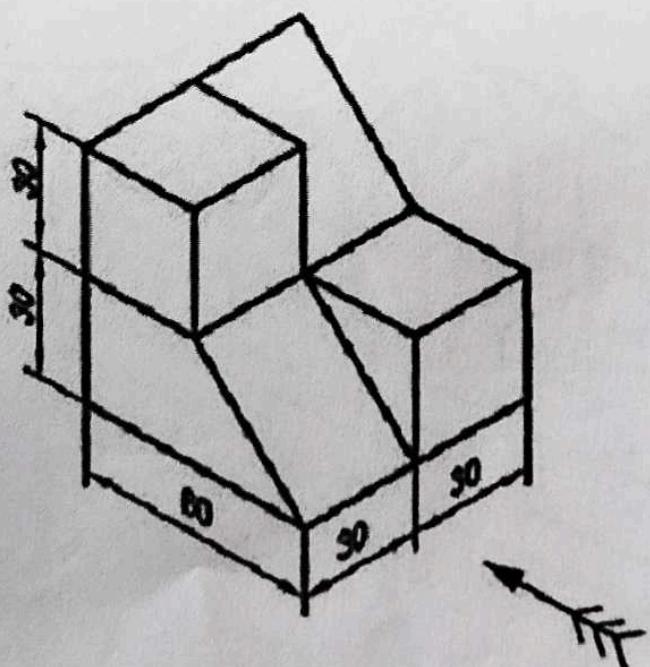


figure 2

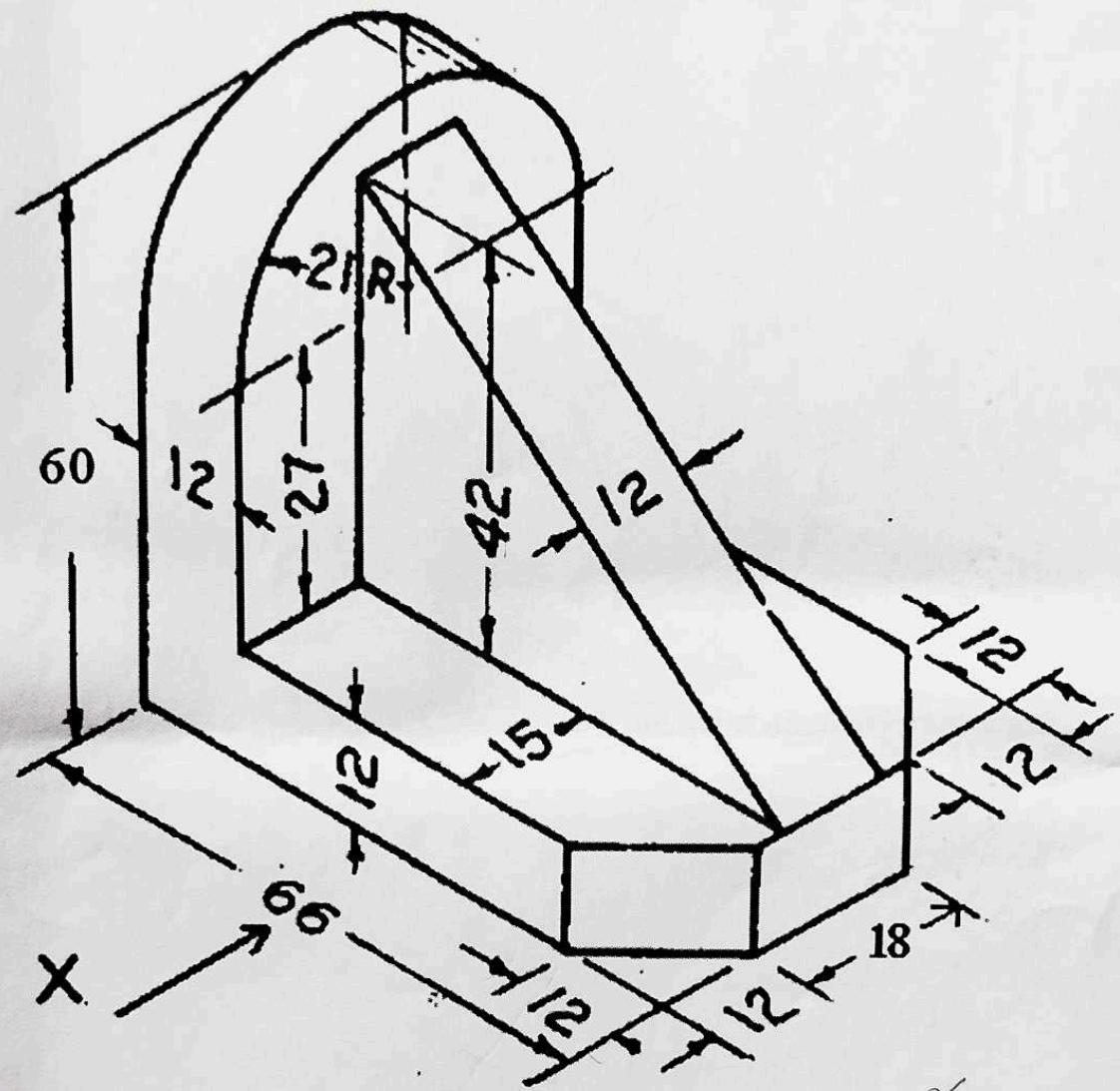
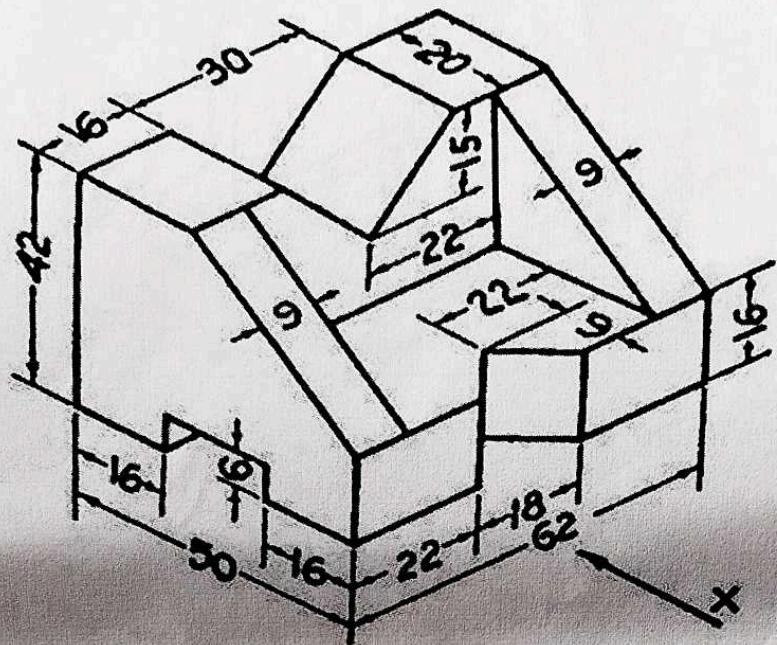


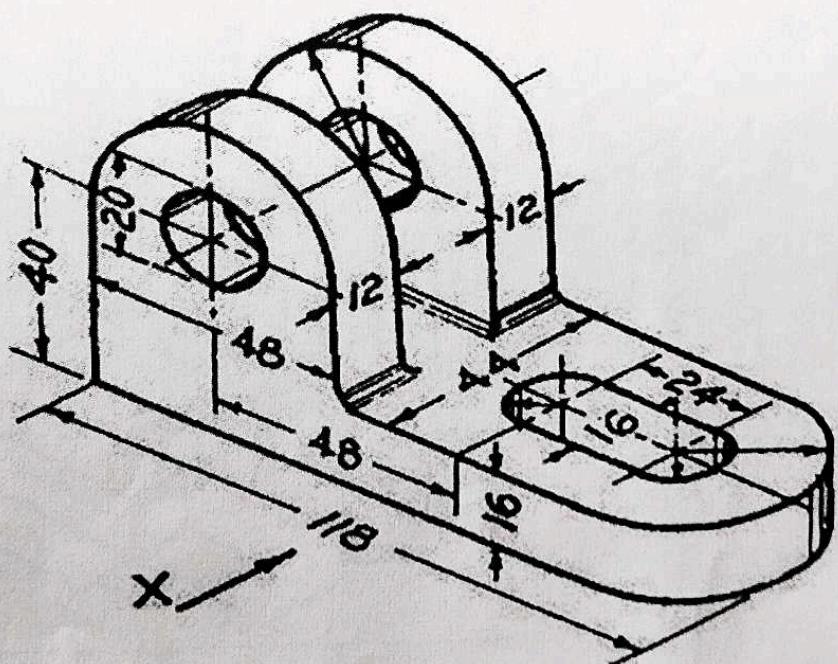
Figure 3

$\frac{12}{2} \times \frac{12}{2} / 15$   
 $\frac{12}{2} \times \frac{12}{2} / 60$   
 $\frac{12}{2} \times \frac{12}{2} / 6$   
 $\frac{12}{2} \times \frac{12}{2} / 12$   
 $\frac{12}{2} \times \frac{12}{2} / 12$   
 $\frac{12}{2} \times \frac{12}{2} / 12$



5. Draw the following views of the object shown in figure 5. All dimensions are in mm

- (a) Front view
- (b) Top view
- (c) Side view from the rig



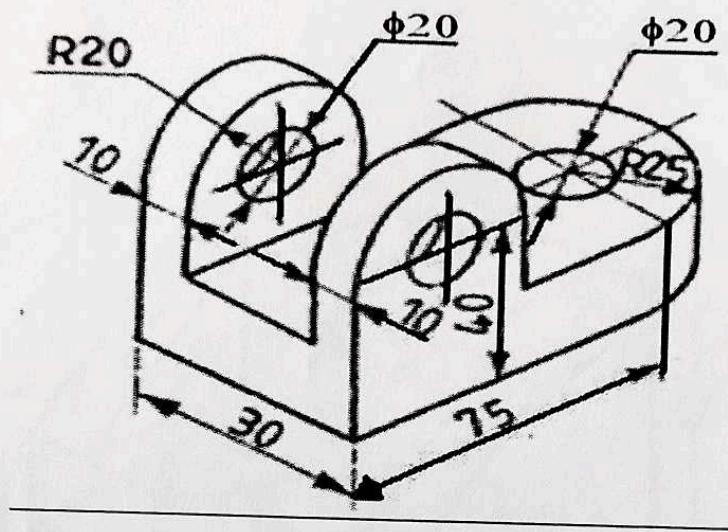


Figure -6

7. Draw the elevation, plan and right side view of the part shown in figure.7

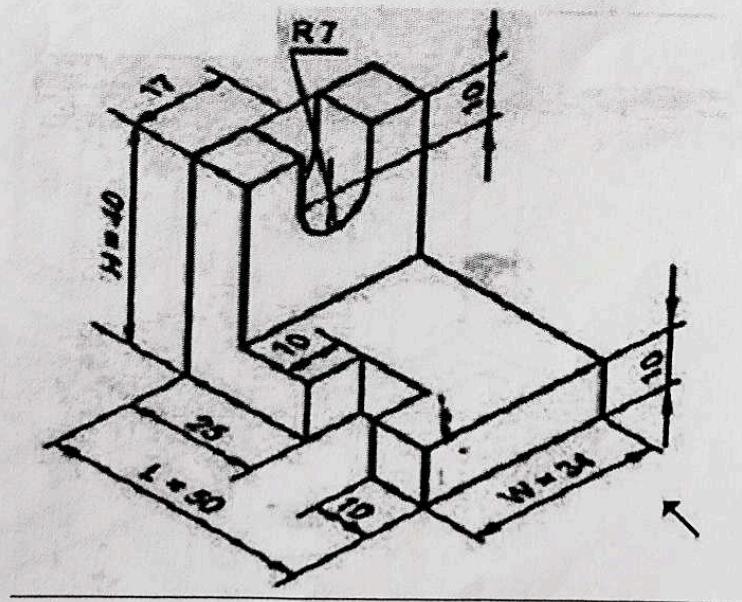


Figure -7

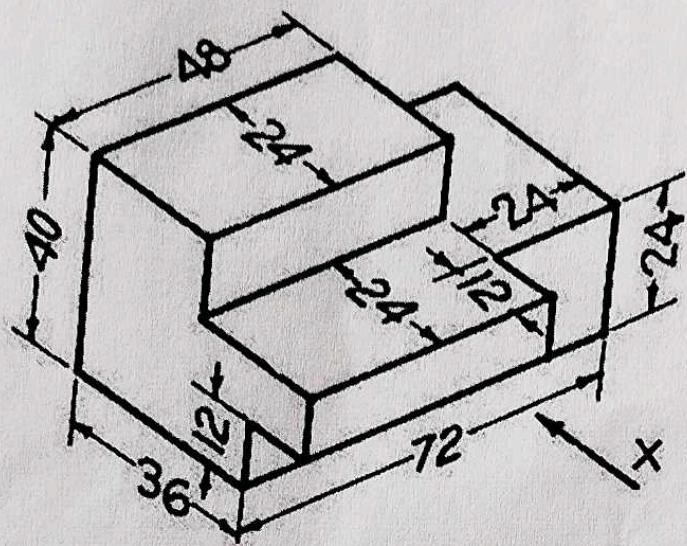
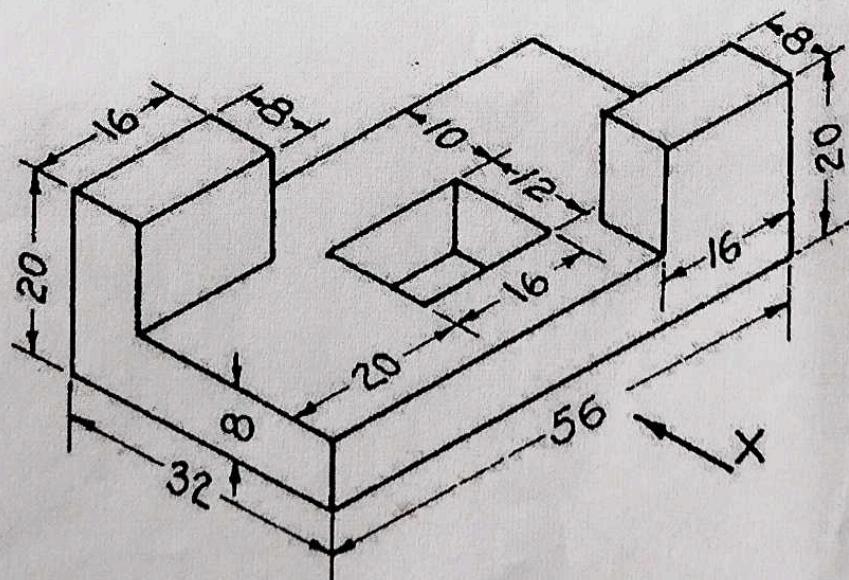


Figure.8

9. Draw the elevation, plan and right side view of the part shown below



8 Draw the elevation, plan and left and right views of the figure shown below

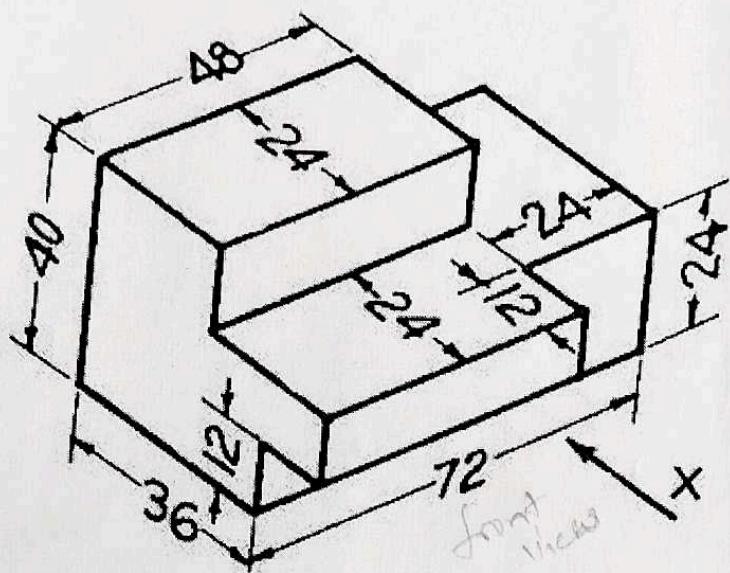
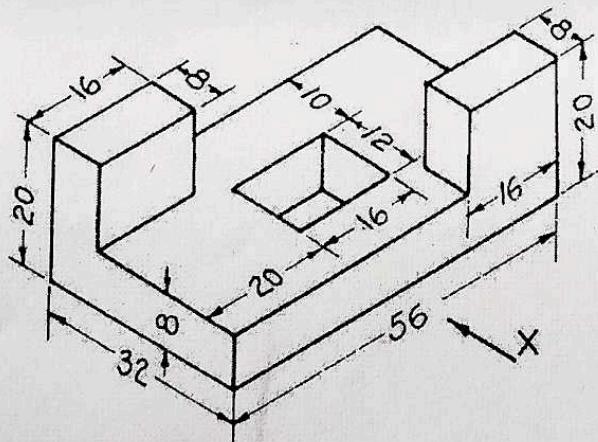


Figure.8

9. Draw the elevation, plan and right side view of the part shown below



# Engineering Drawing Sheet

NAME : \_\_\_\_\_

ALL DIMENSIONS ARE IN mm

NAME OF THE TITLE : 2D T.D.s

DATE : 19-01-2018

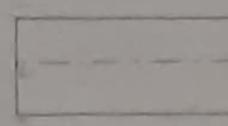
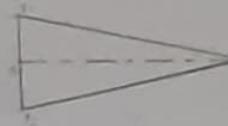
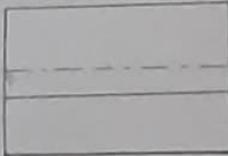
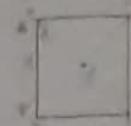
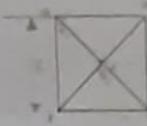
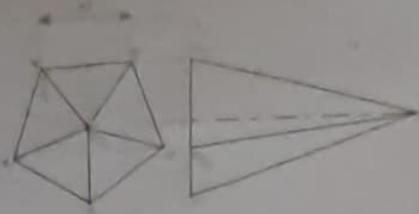
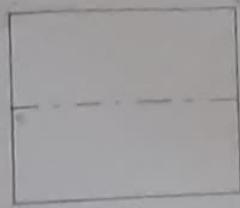
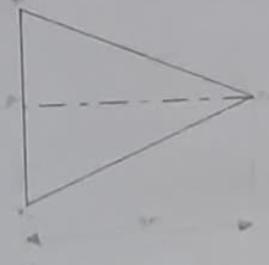
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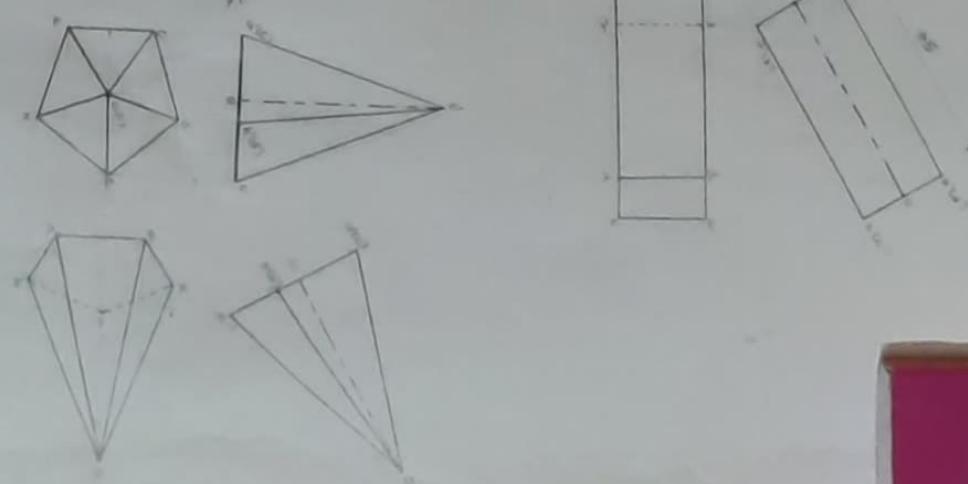
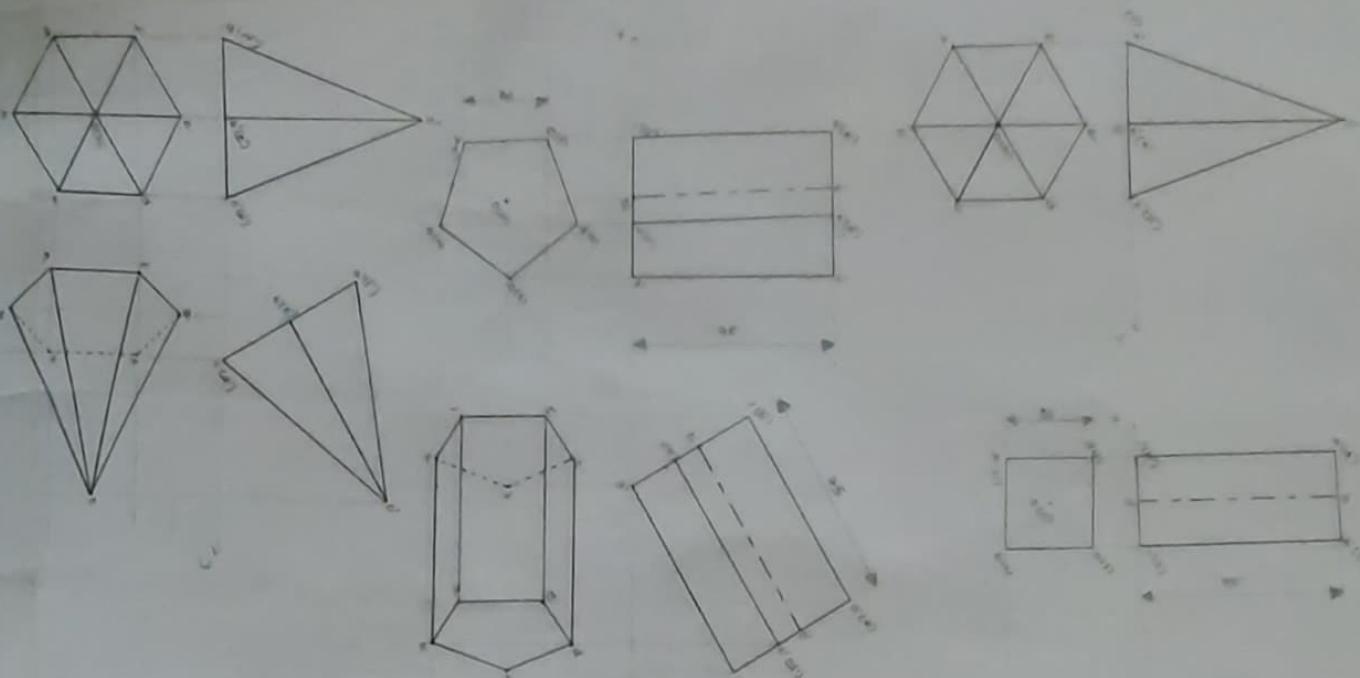
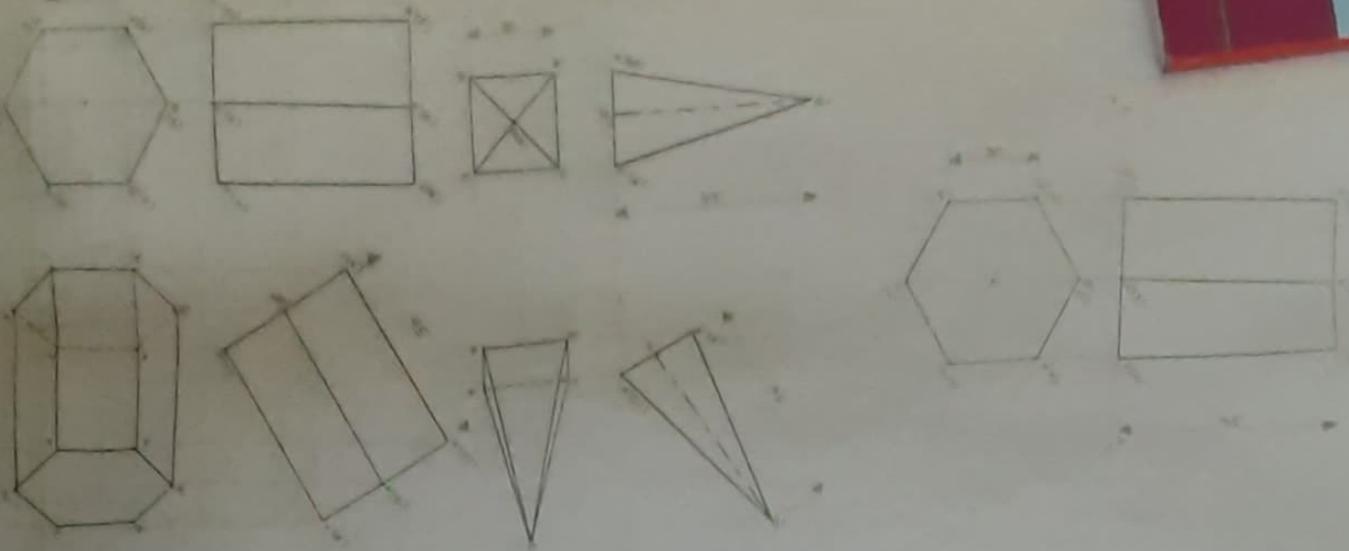
PLATE :

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ROLL NO. : 25672

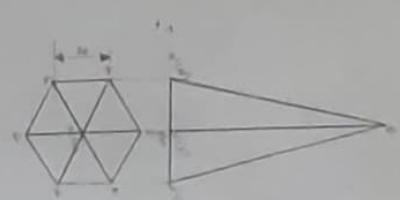
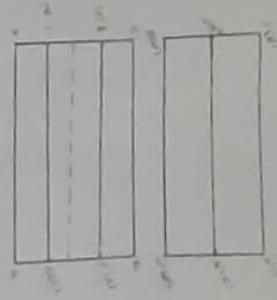
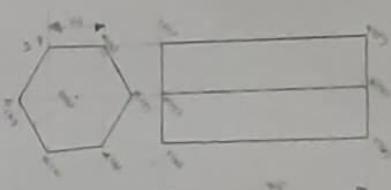
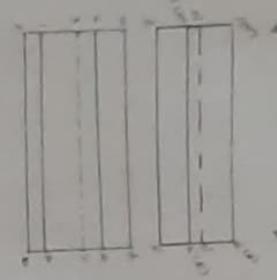
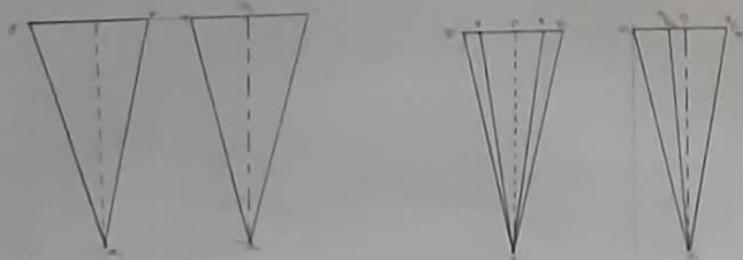
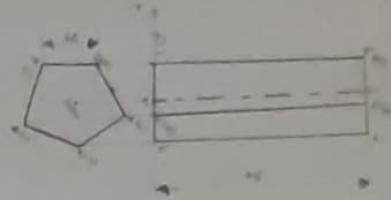
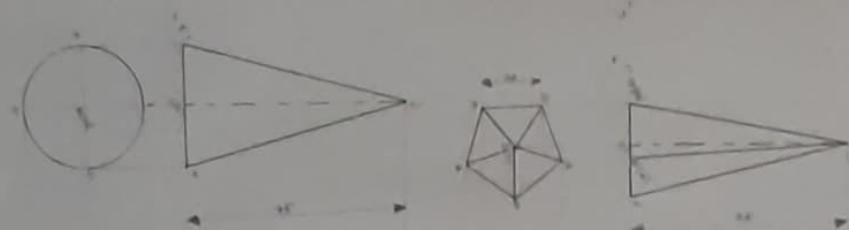
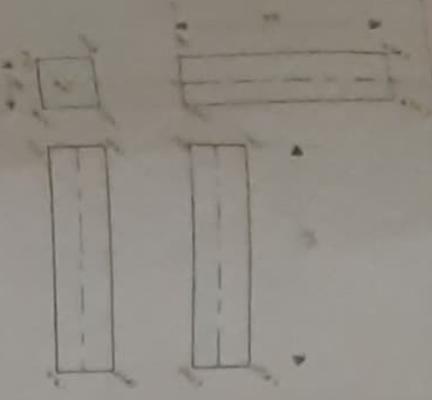
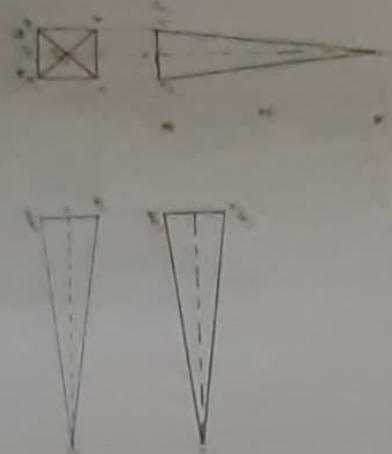
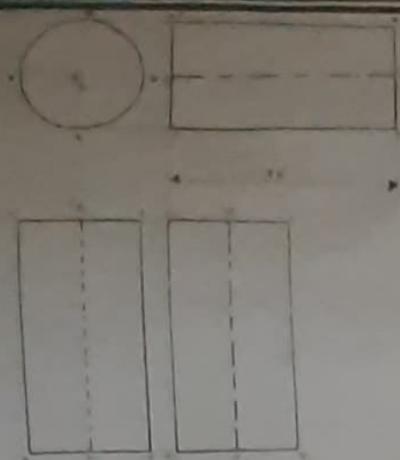
DRAWING SHEET NO. : 1



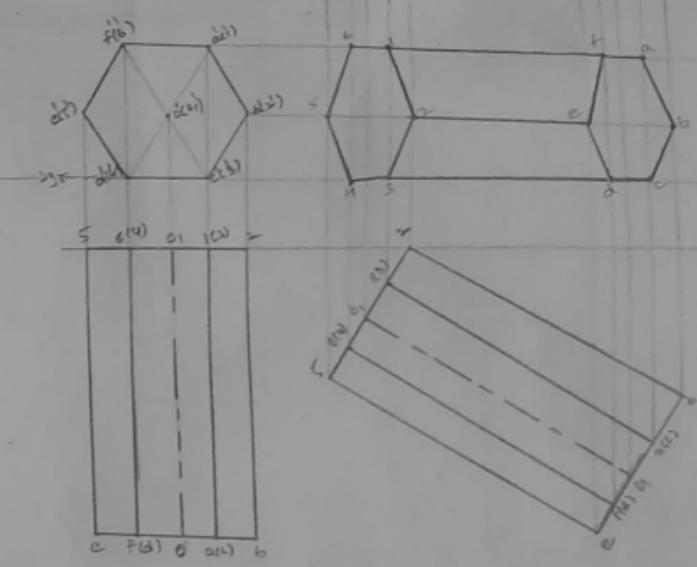
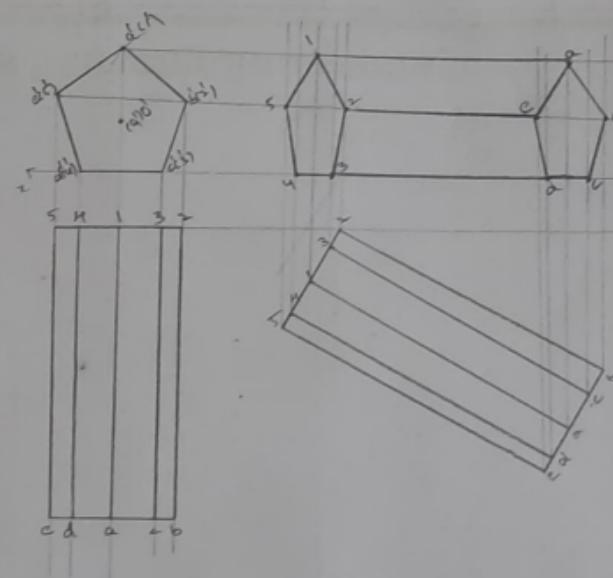
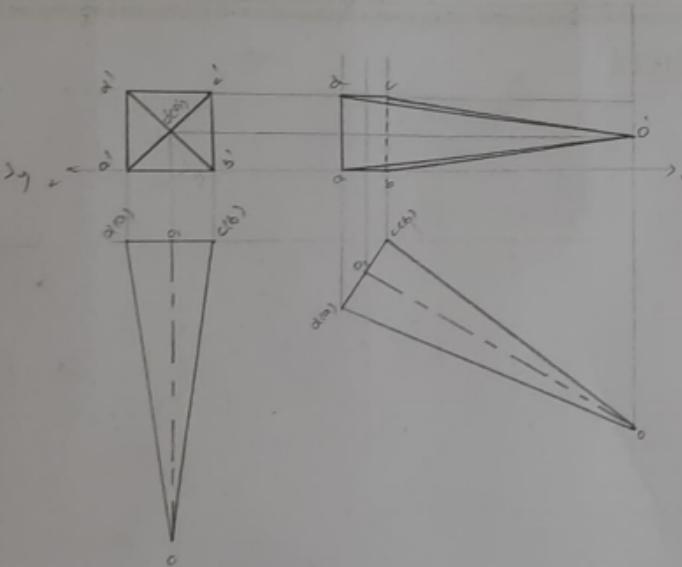
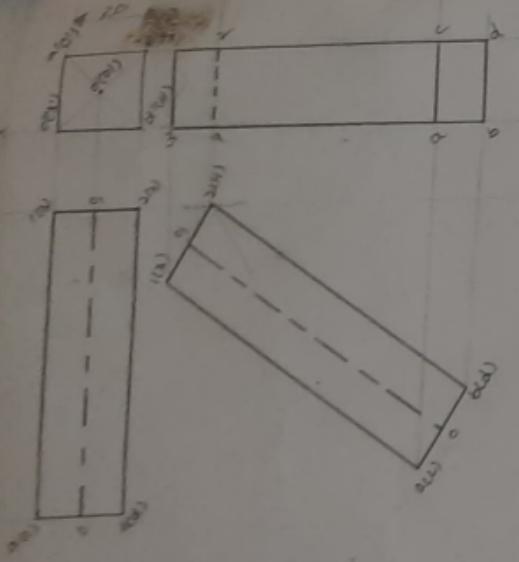


# Engineering Drawing Sheet

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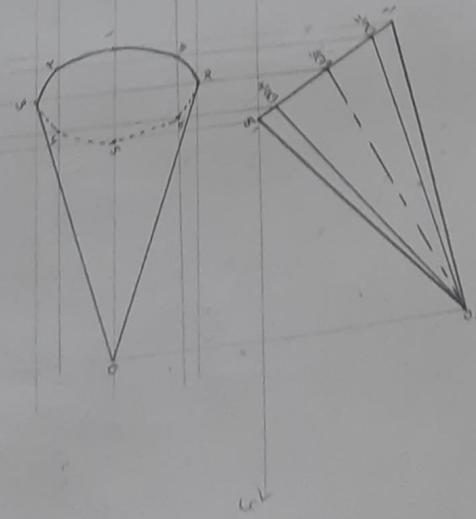
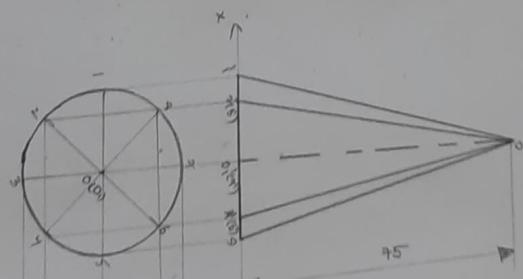
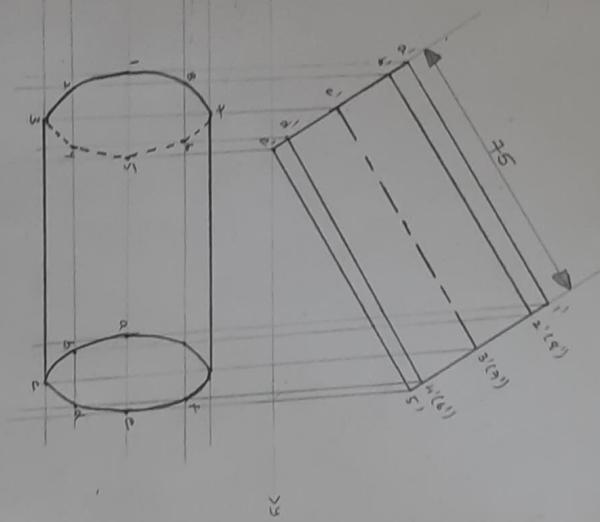
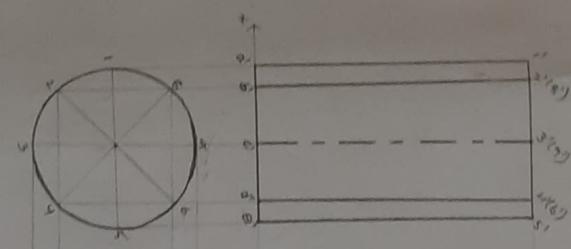
ALL DIMENSIONS ARE IN mm	
<i>(Signature)</i>	
NAME OF THE TITLE	2017-18
DATE	19-01-2018
BRANCH	ECE
PLATE	
CLASS	EEC-A
ROLL NO.	23
DRAWING SHEET NO.	1
SCALE	1:10



NAME OF THE COLLEGE :

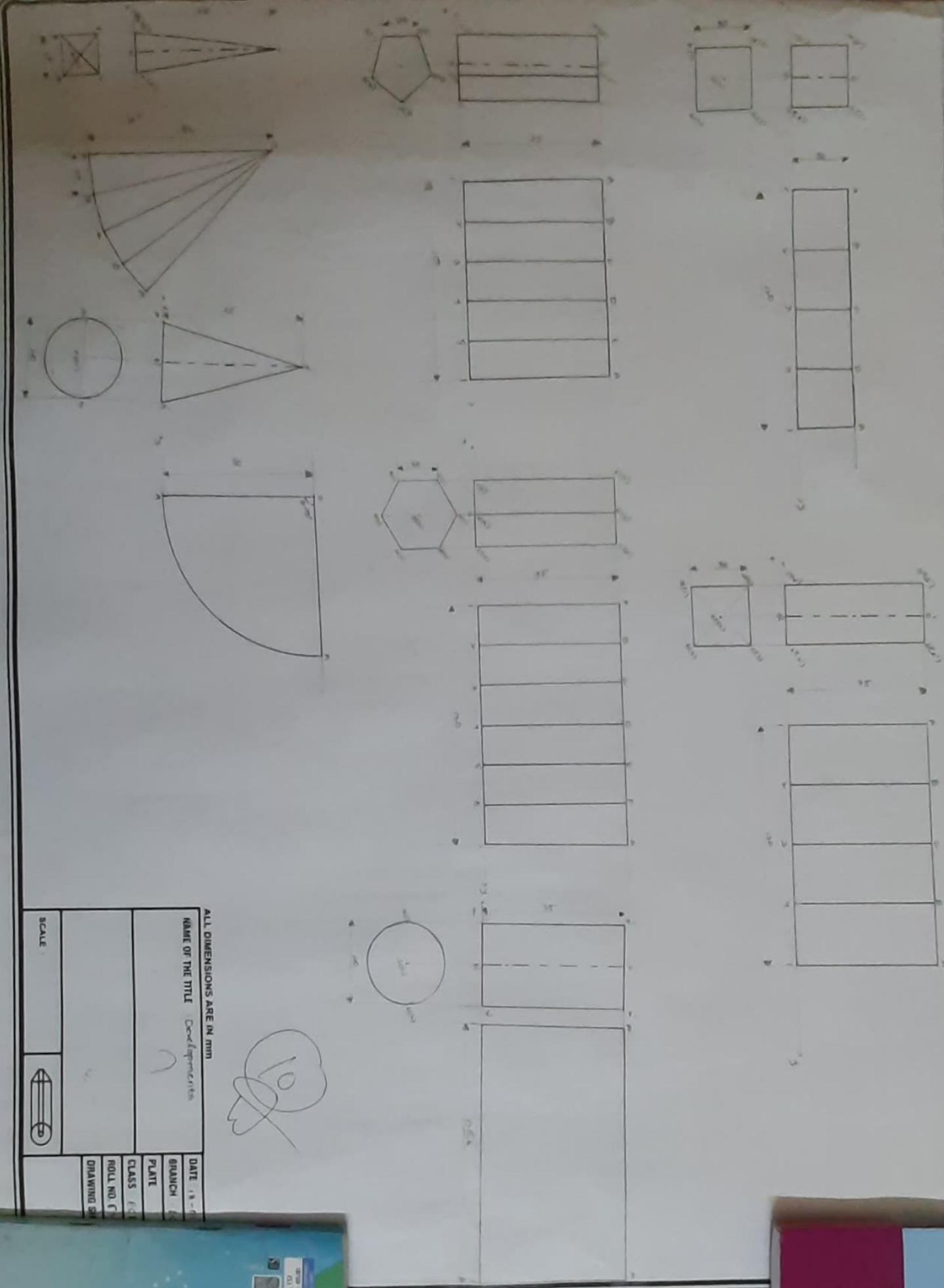
# Engineering Drawing Sheet

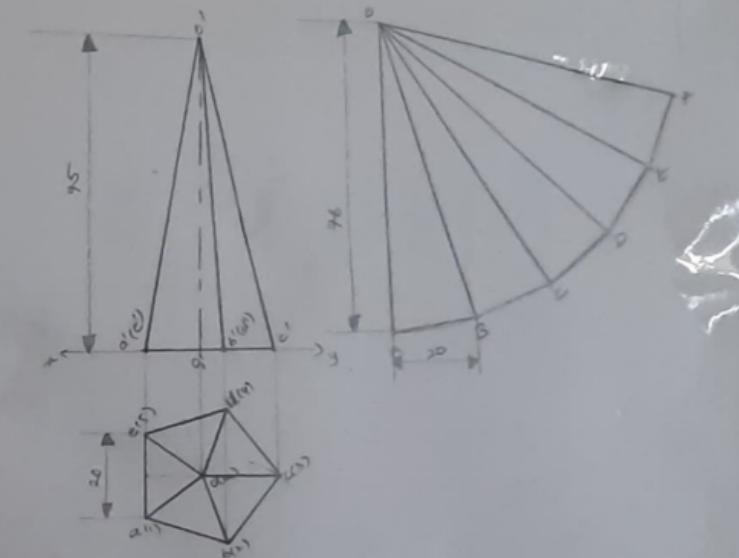
NAME :



# Engineering Drawing Sheet

NAME : \_\_\_\_\_





## Engineering Drawing Sheet

NAME:

ALL DIMENSIONS ARE IN mm

NAME : G-Tarun Patel	ROLL NO.
	CLASS
DRAWING	DATE
SCALE	

This Original Drawing Sheet Keep the neat, if fetches your marks