

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper
ENGINEERING DRAWING

Time: 3 hours

Max Marks: 70

Answer five questions choosing one question from each section and each question carries 14 marks.

- 1 a) A fixed point is 75 mm from a fixed straight line. Draw the locus of a point P moving in such a way that its distance from the fixed straight line is
- twice its distance from the fixed point
 - Equal to its distance from the fixed point
- b) Construct a diagonal scale shown hectometer, decameter and meter in which 1 cm long line represents 50 M and long enough to measure up to 1 KM. Find RF and mark distance 5 HM 3 DM 7 M on it. [4+3M]

OR

- 2 a) A circle having 40 mm diameter rolls on a circle with 150 mm diameter. Trace the path of a point lying on the circumference of the circle when the rolling circle moves outside of the other circle. Name the curve also draw Tangent & Normal to the curve at 100 mm from the centre of the directing circle. [7M]
- b) The actual length of 500 M is represented by a line of 15 CM on drawing. Construct a Vernier scale to read up to 600 M on a scale of length of 549 M on it. [7M]

OR

- 3 a) Draw the projection of the following points on a common reference line keeping the distance between their projectors 30 mm apart
- Point P is 35 mm below HP & on the VP.
 - Point Q is 40 mm in front of VP & 25 mm below HP.
 - Point R is 45 mm above HP. & 20 mm behind the VP.
 - Point S is 30 mm below HP & 45 mm behind the VP.
 - Point T is both ON HP & VP.
 - Point U is on HP. & 35 mm behind VP.
- b) A point P is 15 mm above the H.P. and 35 mm in front of V.P. and Q is 20 mm below the H.P. and behind V.P. distance between the two points PQ is 40 mm apart and the line joining their top views makes an angle 30° . Find the distance of point Q how much behind V.P. [7M]

OR

- 4 A line AB of 80 mm long has its end A at 20 mm above the HP. and 15 mm in front of VP. Its front view and top view measures 60 mm and 70 mm respectively. Draw the projections of the line and determine its inclination with H.P. and V.P. [14M]

- 5 PQRS rhombus having diagonal PR=60 mm and QS = 40 mm and they are perpendicular to each other. The plane of the rhombus is inclined with H.P. such that its top view appears square. The top view of PR makes 30° with V.P. draw its projections and determine its inclination of plane with the H.P. [14M]

OR

- 6 draw the projection of the cone base 45 mm diameter and axis 50 mm long when it is resting on the ground on a point on its base circle with a) THE AXIS MAKES AN ANGLE OF 30° WITH H.P. AND 45° with V.P.; (b) the axis making an angle 30° with H.P. And its top view making 45° with V.P. [14M]
- 7 Draw the isometric view of the pentagonal pyramid with side of base 25 mm and axis 60 mm long the pyramid resting on its base on HP. with an edge of base parallel to V.P. [14M]

OR

- 8 Draw the isometric view of given casting as shown in figure 2 all dimensions are in mm

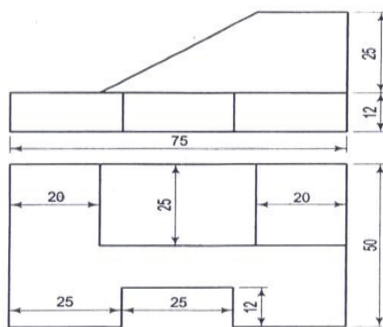


FIGURE ; 1

[14M]

- 9 Draw the a) Front view b) top view c) side view from left as shown in figure 1 all dimensions are in mm

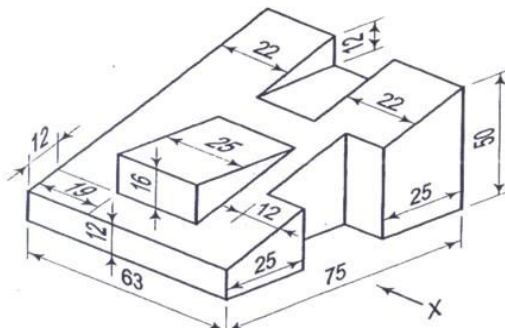


FIGURE : 2

[14M]

OR

- 10 10) Draw the a) Front view b) top view c) side view from left as shown in figure 1 all dimensions are in mm

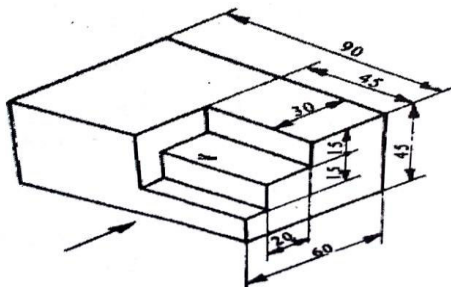


FIGURE : 2

[14M]

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SECTION – I

- 1 a) Construct a regular pentagon of 40mm side. [4M]
b) Construct a scale of 1:60 to show meters and decimeters and long enough to measure up to 6 meters .Mark on it a distance of 4.7m [10M]

OR

- 2 Draw a hypocycloid if the diameter of the rolling circle is 36mm and the diameter of the base circle is 108 mm .Draw a tangent and normal at any point on the curve. [14M]

SECTION – II

- 3 a) The front view and top view of a straight line PQ measures 50mm and 65mm respectively .The point P is in the HP. and 20mm in front of the VP. and the front view of the line is inclined at 45° to the reference line .Determine the true length of PQ, true angles of inclination with the reference planes. [7M]
b) Mark the projections of the following points on a common reference line, keeping the projectors 25mm apart [7M]
a) A, 25mm above HP and 35mm in front of VP
b) B , 25mm above HP and 40mm behind VP
c) C , 30mm below HP and 45mm behind VP
d) D, 30mm below HP and 40mm in front of VP
e) E, 20mm behind VP and in HP

OR

- 4 A line AB measures 75 mm and has end A 10 mm in front of V.P. and 15 mm above H.P. and the other end B, 55 mm in front of V.P and 50mm above HP. Draw the projections of the line and find the inclinations of the line with both the reference planes. [14M]

SECTION – III

- 5 A semicircular plate with an 80mm diameter has its straight edge in the VP and inclined at 45° to the HP .Draw the projections of the plate when its surface is inclined at 30° to the VP. [14M]

OR

- 6 A pentagonal prism, having a base with a 30mm side and 60mm height, rests on the HP. On one of its base edges .Its axis is inclined at 45° to the HP, and the edge of the base on which it rests is inclined at 30° to the VP. Draw its projections. [14M]

SECTION – IV

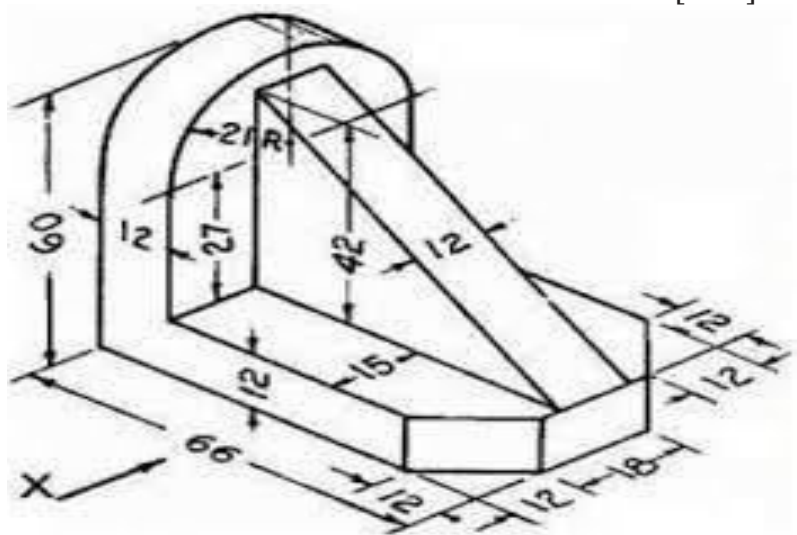
- 7 a) Draw isometric view of a cylinder, with a 50mm base diameter and 70mm long axis
a) when the base is on the H.P. and (b) when one of the generators is on the H.P. [7M]
b) Draw an isometric view of a hexagon with 40mm sides such that its surface is parallel to the H.P. and a side parallel to V.P. [7M]

OR

- 8 A cone is placed centrally on the top of a cube with a 40mm side which is placed centrally over a cylindrical block. The cone has a 30mm base diameter and a 40mm axis. The cylindrical block has a 80mm base diameter and 10mm thickness. Draw isometric projection of the arrangement. [14M]

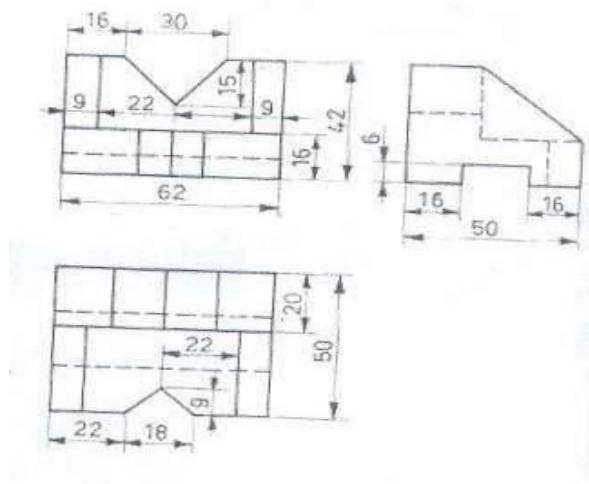
SECTION - V

- 9 Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm [14M]



Or

- 10 Draw the isometric view [14M]



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UNIT-1

1. a) Draw a plain scale of R.F 1:40 to read Meters and Decimeters and long enough to measure up to 8 m. Show lengths of 4:3 m and 6:2 m on this scale. [7M]
b) Draw the hyperbola when the focus and the vertex are 25 mm apart. Consider eccentricity as $3/2$. Draw a tangent and normal to the curve at a point that is 35 mm from the focus. [7M]

OR

2. A circle of 50 mm diameter rolls on the circumference of another circle of 175 mm diameter and outside it. Trace the locus of a point on the circumference of the rolling circle for one complete revolution. Name the curve. Draw a tangent and a normal to the curve at a point 125 mm from the centre of the directing circle. [14M]

UNIT-II

3. a) A line CD 75 mm long is parallel to VP. And perpendicular to HP. End C is 35 mm above HP. And 20 mm in front of VP. End D is above HP. Draw the projections of the line CD [8M]
b) A straight line AB of 75 mm long, has the end A on V.P and the end B on H.P. The line is inclined at 30° to V.P and its front view makes an angle of 45° with xy. Draw the projections of the line [6M]

OR

4. A 120 mm long line PQ is inclined at 45° to the HP and 30° to the VP. A point m on the line is at a distance of 40 mm from p and its front view is 50 mm above the xy line and the top view is 35 mm below the xy line, Draw its projection. [14M]

UNIT – III

5. A regular hexagonal lamina with its edge 50 mm has its plane inclined at 45° to HP and lying with one of its edges in HP. The plane of one of its diagonals is inclined at 45° to XY. The corner nearest to VP.is 15 mm in front of it. Draw its projections. [14M]

OR

6. A rectangular lamina of size 50 mm × 40 mm has a coaxial circular hole of 30 mm diameter. It is resting on HP with a shorter edge perpendicular to VP. The surface of the lamina is inclined at 35° to HP. Draw the top, and front views.

UNIT – IV

7. a) A hexagonal prism with side of base 25 mm and 50 mm long is resting on a corner of its base on HP. Draw the projections of the prism when its axis is making 30° with HP and parallel to VP. [8M]
b) Draw the projections of a right circular cone of base 40 mm diameter and height 60 mm when resting with its base on HP. [6M]

OR

8. A cylinder of diameter 30 mm and axis height 60 mm lying on the ground on a point of its base circle such that the axis is inclined at 45° to the H.P and the plane containing the axis makes an angle of 30° with the VP. Draw the projection of the cylinder. [14M]

UNIT - V

9. Draw the isometric view of Figure 1.

[14M]

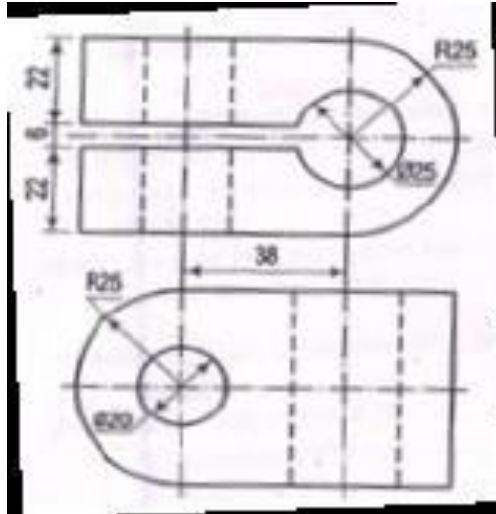


Figure 1

OR

10. Draw the elevation, plan and side view of the picture shown in the Figure 2.

[14M]

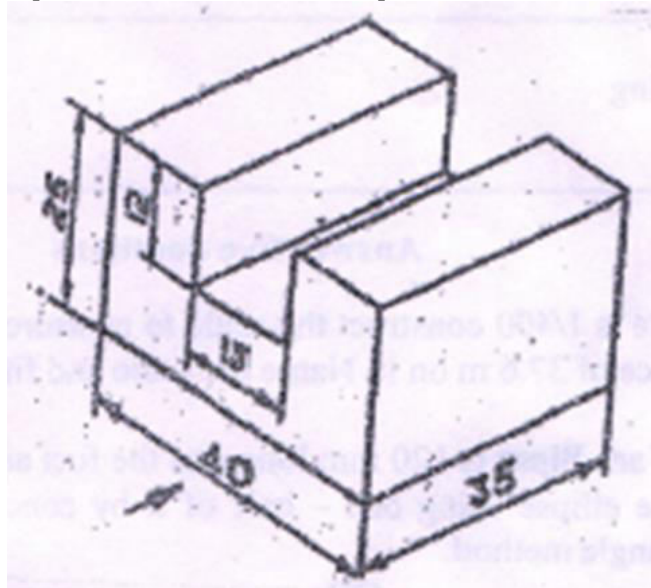


Figure 2

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SECTION-I

- 1 a) Construct a scale of 1:4 to show centimeters and long enough to measure up to 6 decimeters and show on it a length of 4.5 decimeters.
b) Construct a rectangular hyperbola, when a point P on it is at a distance 30 mm and 40mm from two asymptotes. Also, draw a tangent to the curve at a point 35 mm from asymptotes.

OR

- 2 The major axis of an ellipse is 160 mm long and the minor axis 90 mm long. Find the foci and draw the ellipse by 'Arcs of circles method '. Draw a tangent to the ellipse at a point on it 25 mm above the major axis.

SECTION-II

- 3 a) Draw the projections of the following points
 - i) Point A 25mm above HP and 35mm in front of VP
 - ii) Point B 30mm below HP and 45 mm behind VP
 - iii) Point A whose front view is 70 mm above XY and top view 50 mm below XY
 - iv) Point B whose front view is 40 mm below XY and top view 55 mm above XY
 - v) Point C whose front view is 45 mm above XY and top view 60 mm above XY.

OR

- 4 Draw the projections of a straight line AB 100 mm long when one of its ends is in the VP and the other end is in the HP. The angles of inclination of the line with HP and VP are 40° and 50° respectively.

SECTION-III

- 5 A regular pentagon of 30 mm sides is resting on HP on one of its sides while its opposite vertex (corner) is 30 mm above HP. Draw projections when side in HP is 30 inclined to VP.

OR

- 6 A square pyramid, 40 mm base sides and axis 60 mm long, has a triangular face on the ground and the vertical plane containing the axis makes an angle of 45° with the VP. Draw its projections. Take apex nearer to VP

SECTION-IV

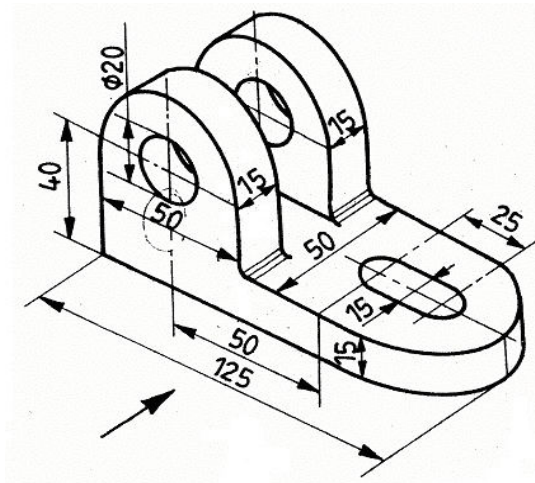
- 7 A pentagonal pyramid, with edge of base 30 mm and 65 mm height stands on HP such that an edge of the base is parallel to VP. It is cut by a plane perpendicular to VP and inclined at 30° to HP cuts the pyramid passing through a point on the axis at a height to 35 mm from the base. Draw the isometric view of the truncated pyramid showing the cut surface.

OR

- 8 A cylinder, with diameter of base 35 mm and axis 55 mm long, is resting on its base on HP. A section plane, perpendicular to VP and inclined at 45° to HP passes through the axis at a distances of 15 mm from its top end. Draw the isometric projection of the truncated cylinder.

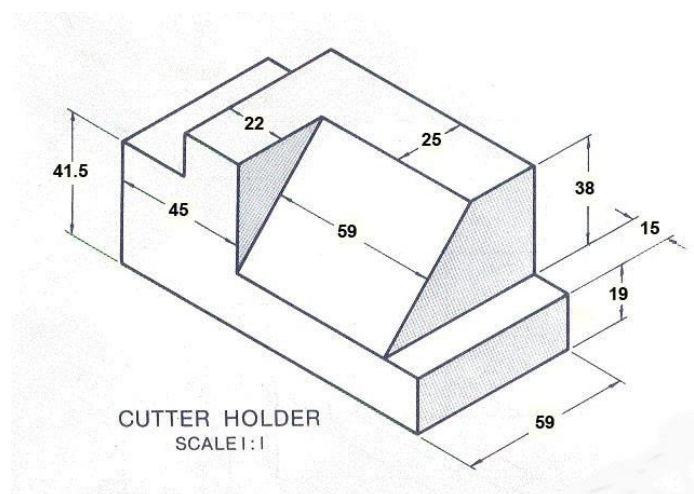
SECTION-V

- 9 Draw the orthographic projections for the following object shown below.



OR

- 10 Draw the orthographic projections for the following object shown below.



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- 1 A circle having a 50mm diameter rolls within a circle with a 150mm diameter with internal contact. Draw the locus of a point lying on the circumference of the rolling circle for its complete turn. Name the curve. Also draw tangent and normal to the curve at a point of 40mm from the centre of the directing circle. [14M]

OR

- 2 Draw a Vernier scale of R.F=5 to read 1/5cm and 1/25cm and to measure upto 5cm. Mark on the scale distances of 2.12cm and 3.47cm. [14M]
- 3 (a) Two points A and B are in the H.P. the point A is 30 mm in front of the V.P. While B is behind the V.P. The distance between their projections is 75 mm and line joining their top views makes an angle of 45 degrees with xy. Find the distance of the point B from the V.P.
- (b) The top view of a 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P and 12 mm in front of the V.P. Draw the projections of AB and determine its inclinations with the H.P and the V.P. [14M]

OR

- 4 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. [14M]
- 5 A regular hexagon of 30mm side has one side on the ground and its plane is inclined at 45° and perpendicular to V.P and the side resting on ground is inclined at 30° to H.P. Draw the projections. [14M]

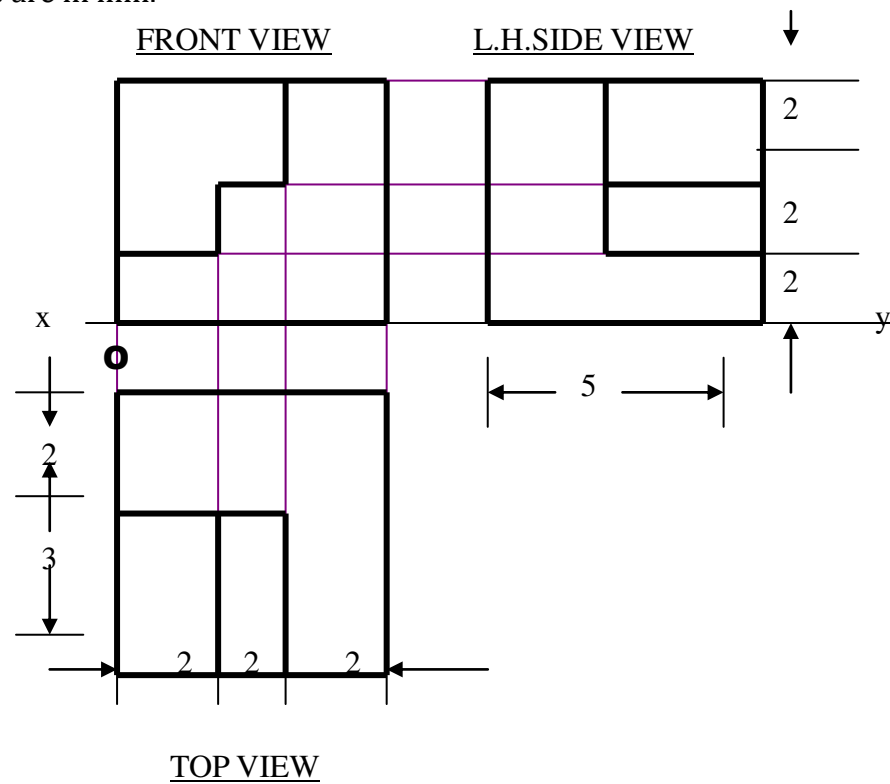
OR

- 6 Draw the projections of a cylinder base 40 mm diameter and axis 70 mm long resting on H.P on a point on its base circle with the axis making an angle of 45 degrees with H.P and top view of axis makes an angle of 30 degrees with xy line. [14M]
- 7 A square pyramid and square prism, base 50mm side and axis 75mm long, is resting on the H.P. with its side parallel to V.P and parallel to H.P. [14M]

OR

- 8 (a) A cylindrical block of base 60mm diameter and height 90mm, standing on the HP. With its axis perpendicular to the HP. Draw its Isometric view.
- (b) A pentagonal prism with base edge parallel to VP and side of the pentagon is 35mm and axis height 70mm. [14M]

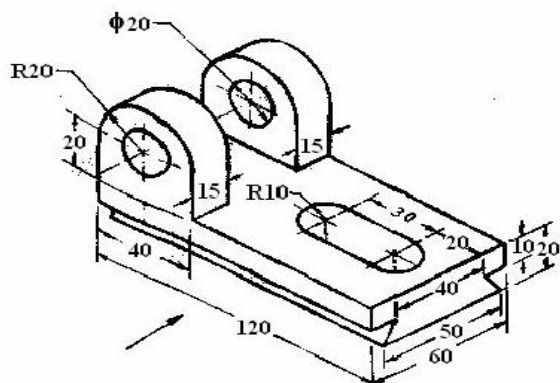
- 9 Draw the front view, top view & side view of the object shown in figure 1. All dimensions are in mm. [14M]



OR

- 10 Draw the following views of a Dove Tail bracket given in figure. All dimensions are in mm.

- i) Front view
- ii) Top view
- iii) Side view



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SECTION-I

- 1 Draw an ellipse when the distance of its vertex from its directrix is 24 mm and distance of its focus from directrix is 42mm. [14 M]

OR

- 2 a) Construct a scale of 1:40 to read meters and decimeters and long enough to measure up to 6 meters. Mark a distance of 4.7 m on it.
b) A 40 mm diameter circle rolls out side an arc of radius 70 mm for a circular distance of 120 mm. Trace the path of a point lying on the circumference of rolling circle, which is in contact with the arc in its initial position. Name the curve.

[14 M] **SECTION-II**

- 3 a) A point is 30 mm from the H.P. and 50 mm from the V.P. Draw its projections keeping it in all possible positions. [4 M]
b) A 60 mm long line AB is parallel to and 20 mm in front of the V.P. The ends A and B of the line are 10 mm and 50 mm above the H.P respectively. Draw the projectors of the line and determine its inclination with the H.P.

[10 M]

OR

- 4 The front view and top views of an 80 mm long line PQ measures 70 mm and 60 mm, respectively. The end P is on the H.P. and the end Q is in the V.P. Draw the projections of line PQ and determine its inclinations with the H.P and the V.P. [14 M]

SECTION-III

- 5 A hexagonal plane of side 30 mm has an edge in the V.P. The surface of the plane is inclined at 45° to the V.P. and the edge on which it rests is inclined at 30° to the H.P. Draw its projections. [14 M]

OR

- 6 A square pyramid of base side 40 mm and axis 55 mm is resting on one of its triangular faces on the H.P. A vertical plane containing the axis is inclined at 45° to the V.P. Draw its projections. [14 M]

SECTION-IV

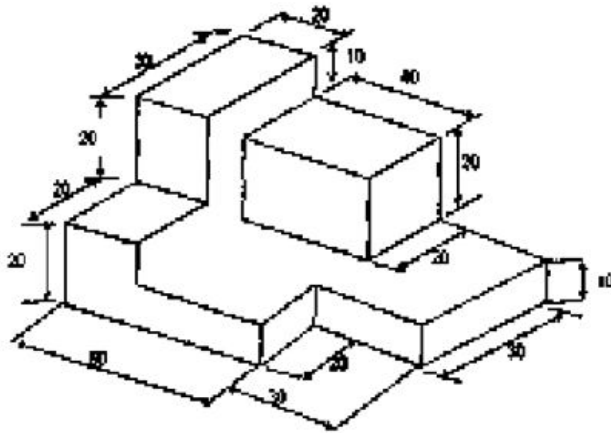
- 7 Draw the isometric view of a hexagonal prism of base side 30 mm and axis 70mm. The prism is resting on its base on the H.P. with an edge of the base parallel to the V.P. [14 M]

OR

- 8 A square pyramid of base side 25 mm and axis 40 mm rests centrally over a cylindrical block of base diameter 50 mm and thickness 20 mm. Draw the isometric projection of the arrangement. [14 M]

SECTION-V

- 9 Draw the orthographic projections for the pictorial view shown in figure All dimensions are in mm [14 M]



OR

- 10 Draw the isometric view of the given orthographic projection of the object? [14 M]

