

Subject Code: R10205/R10

Set No - 1

I B.Tech II Semester Regular Examinations Oct./Nov. - 2013

ENGINEERING DRAWING

(Common to ECE, BT, PCE Branches)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

*** * * * ***

1. A fixed point is 75mm from a fixed straight line. Draw the locus of a point P moving such a way that its distance from the fixed straight line is
 - (a) Twice its distance from the fixed point
 - (b) Equal to its distance from the fixed point. Name the curves.

[15]
2. Draw a hypocycloid of a circle of 45mm diameter which rolls inside another circle of 200 mm diameter for one revolution. Draw a tangent and normal at any point on it.

[15]
- 3.(a) 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° with x y, while the line joining their top views makes an angle of 30° . Find the distance of the point B from H.P.
 - (b) Draw the projections of the following points in third quadrant when the
 - (i) Point A lies in the H.P. and 22mm away from the V.P.
 - (ii) Point B lies in the V.P. and 32mm away from the H.P.
 - (iii) Point C lies 32mm from the H.P. and 22mm from the V.P.

[7+8]
4. A line PQ, 100mm long, is inclined at 45° to the H.P. and at 30° to the V.P. Its end P is in the second quadrant and Q is in the fourth quadrant. A point R on PQ, 40mm from P is in both the planes. Draw the projections of PQ.

[15]
5. Draw the projections of a regular hexagon of 25mm side, having one of its sides in the H.P. and inclined at 60° to the V.P, and its surface making an angle of 45° with the H.P.

[15]
6. The frustum of a hexagonal pyramid side of top and bottom 25 mm and 40 mm respectively with axis 50 mm height rests on its base in H.P. Its axis is parallel to V.P. A sphere of diameter 40 mm is placed centrally on top of the prism. Draw the orthographic projections and provide the isometric projection of the solid.

[15]

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7. Two views of a casting are shown in figure 1. Draw the isometric view of the casting (All dimensions are in mm).

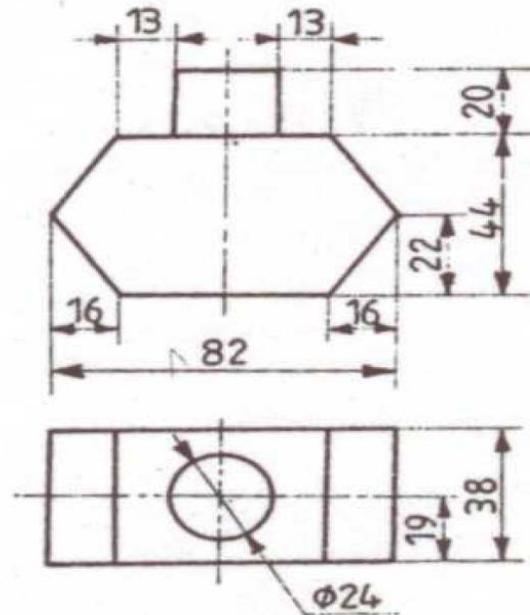


Figure-1

[15]

8. Draw the front view, top view, right and left side views of the object shown in figure 2 (All dimensions in mm).

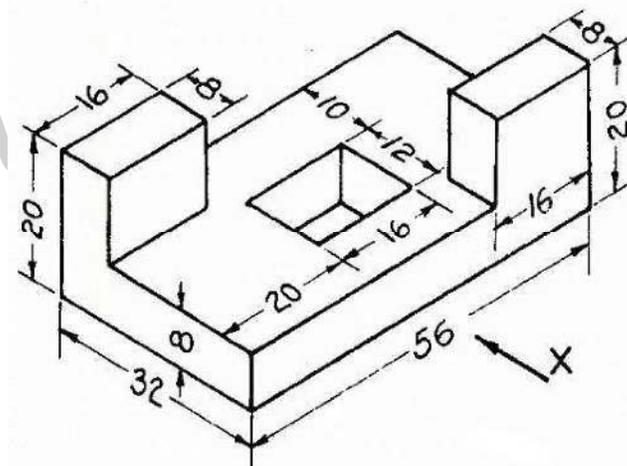


Figure-2

[15]

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Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

*** * * * ***

1. A fixed point is 75mm from a fixed straight line. Draw the locus of a point P moving such a way that its distance from the fixed straight line is
 - (i) twice its distance from the fixed point
 - (ii) equal to its distance from the fixed point. Name the curves.

[15]
2. A circle of 50mm diameter rolls on the circumference of another circle of 175mm 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 125mm from the center of the directing circle.

[15]
3.
 - (a) A point A is 2.5 cm above the H.P. and 3 cm in front of the V.P. Draw its Projections.
 - (b) A point A is 2 cm below the H.P. and 4 cm behind the V.P. Draw its Projections.
 - (c) 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° with xy. Find the distance of the point B from the V.P.

[4+4+7]
4. A line AB 120mm long is inclined at 45° to the H.P. and 30° 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.

[15]
5. Draw the projections of a circle of 60 mm diameter, resting on V.P. on a point on the circumference. The plane is inclined at 45° to V.P. and perpendicular to H.P. The centre of the plane is 40mm above H.P.

[15]
6.
 - (a) Draw the projections of a hexagonal prism of base 25mm and axis 60mm long, when it is resting on one of its corners of the base on H.P. The axis of the solid is inclined at 45° to H.P.
 - (b) Draw the projections of a pentagonal prism of base 25mm side and axis 50mm long, when it is resting on one of its rectangular faces on H.P., the axis of the solid is inclined at 45° to V.P.

[8+7]
7. Draw the isometric view of a hexagonal prism, with side of base 25mm and axis 60mm long, The prism is resting on its base on H.P. with an edge of the base parallel to V.P. Use the box method

[15]

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8. Draw the front view, top view and right side view of the object shown in figure 1.
(All dimensions are in mm).

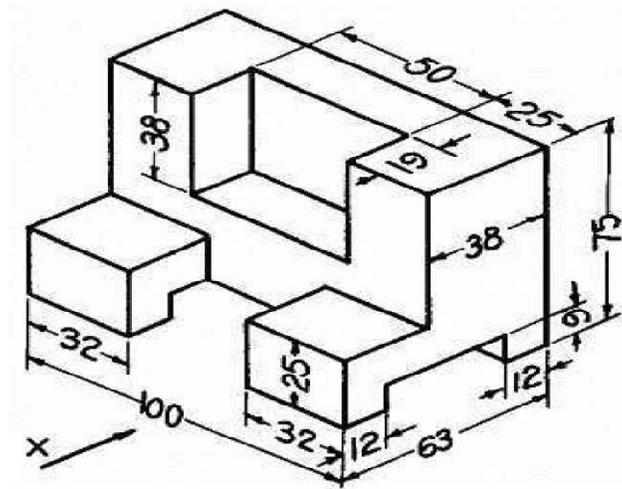


Figure-1

[15]

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Set No - 3

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ENGINEERING DRAWING

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Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

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1. A fixed point F is 7.5cm 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 $\frac{2}{3}$ times its distance from F. Plot at least 9 points. Name the curves. Also draw a normal and a tangent to the curve at a point on it 6cm from F. [15]
2. A circle of 115 mm diameter rolls on another circle of 75mm diameter with internal contact. Draw the locus of a point on the circumference of rolling circle for its one complete revolution. [15]
- 3.(a) Draw the projections of the following points on the same ground line, keeping the Projectors 25mm apart.
(i) A, in the H.P. and 20 mm behind the V.P.
(ii) B, 40mm above the H.P. and 25mm in front of the V.P.
(b) State the quadrants with the help of drawing, in which the following points are situated
(i) A point P; its top view is 40mm above xy; the front view 20 mm below the top view.
(ii) A point Q; its projections coincide with each other 40mm below x y. [8+7]
4. The mid point of a straight line AB is 60mm above H.P. and 50mm in front of V.P. The line measures 80mm long and inclined at 30° to H.P. and 45° to V.P. Draw its projections. [15]
- 5.(a) A regular pentagon of 25mm side has one side on the ground. Its plane is inclined at 45° to the H.P. and perpendicular to the V.P. Draw its projections.
(b) Draw the projections of a circle of 5cm diameter, having its plane vertical and inclined at 30° to the V.P. Its centre is 3cm above the H.P. and 2cm in front of the V.P. [8+7]
6. Draw the projections of a pentagonal prism, base 25mm side and axis 50mm long, resting on one of its rectangular faces on the H.P., with the axis inclined at 45° to the V.P. [15]
7. Draw the isometric view of a Door-Steps having three steps of 22cm tread and 15cm rise. The steps measure 75cm widthwise. [15]

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8. Draw the elevation, plan and left and right views of the bracket shown in the figure- 1.
(All dimensions are in mm).

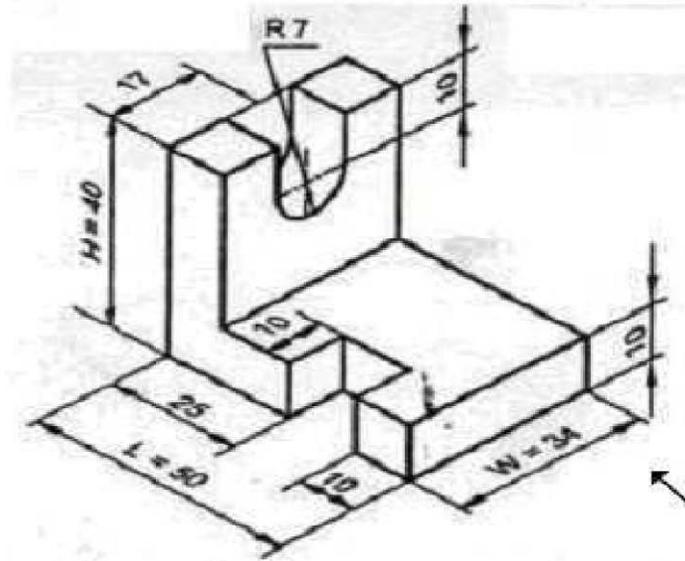


Figure-1

[15]

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Set No - 4

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Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

*** * * * ***

1. Show by means of a drawing that when the diameter of the directing circle is twice that of the generating circle, the hypocycloid is a straight line. Take the diameter of the generating circle equal to 50mm. [15]
2. A circle of 35mm diameter rolls on a horizontal line. Draw the curve traced out by a point R on the circumference for one half revolution of the circle. For the remaining half revolution, the circle rolls on the vertical line. The point R vertically above the center of the circle in the starting position. [15]
- 3.(a) A point A is 20mm above H.P. and in the first quadrant. Its shortest distance from the reference line XY is 40mm. Draw the projections of the point and determine its distance from V.P. [8+7]
(b) A point at 25mm above the reference line x y is the front view of two points A and B. The top view of A is 40mm behind V.P. and the top view of B is 50mm in front of V.P. Draw the projections of the points and state their positions relative to the planes of projection and the quadrants in which they lie. [15]
4. A line measuring 75mm long has one of its ends 50mm in front of V.P. and 15mm above H.P. The top view of the line is 50mm long. Draw and measure the front view. The other end is 15mm in front of V.P. and is above H.P. [15]
5. Draw the projections of a regular hexagon of 25mm side, having one of its sides in the H.P. and inclined at 60° to the V.P, and its surface making an angle of 45° with the H.P. [15]
6. An equilateral triangular prism of side of base 25mm and axis 50mm long, is resting on an edge of its base on H.P. The face containing that edge is inclined at 30° to H.P. Draw the projections of the prism, when the edge on which the prism rests, is inclined at 60° with V.P. [15]
7. Draw the isometric drawing of a cone of base diameter 30mm and axis 45mm long. [15]

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8. Draw the following views of the block shown in figure 1. All dimensions are in mm.

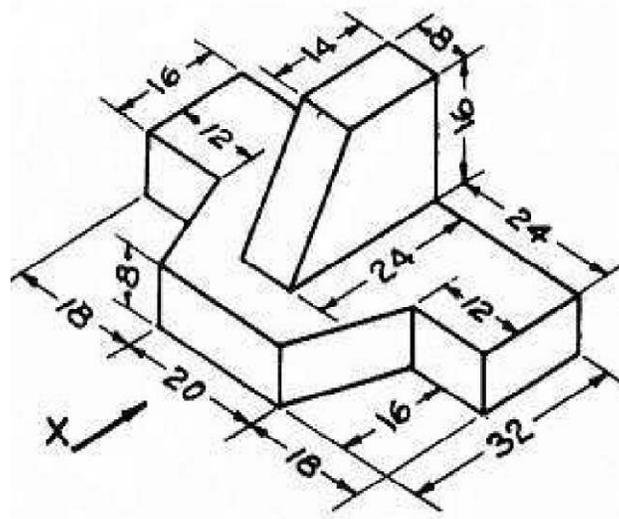


Figure 1

- (i) Front View.
- (ii) Top view
- (iii) Both side views.

[15]