

Code No: Z0223/R07

Set No. 1

I B.Tech Supplementary Examinations, January 2014
ENGINEERING DRAWING
 (Common to Electrical & Electronic Engineering, Electrical &
 Communication Engineering, Bio-Technology and Electronics & Computer
 Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Two fixed points A and B are 100mm apart. Trace the complete path of a point P moving (in the same plane as that of A and B) in such a way that, the sum of its distances from A and B is always the same and equal to 125mm . Name the curve. Draw another curve parallel to and 25mm away from this curve [16]
2. Construct a cycloid, given the diameter of the generating circle is 40mm. Draw a tangent to the curved at a point on it 30mm from the line. [16]
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. [8+8]
4. (a) 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.
- (b) A line AB, 50mm long, has its end A in both the H.P. and the V.P. Its is inclined at 30° to the H.P and at 45° to the V.P. Draw its projections. [8+8]
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+8]
6. (a) Draw the projections of a triangular prism, base 40 mm side and axis 50 mm long, resting on one of its bases on the H.P. with a vertical face perpendicular to the V.P.
- (b) A cube of 50mm long edges is resting on the H.P. with its Vertical faces equally inclined to the V.P. Draw its projections.

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- (c) A triangular prism, base 40 mm side and height 65 mm is resting on the H.P. on one of its rectangular faces with the axis parallel to the V.P. Draw its projections. [4+8+4]
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 [16]
8. Draw the following views of the block shown in figure 8. All dimensions are in mm.

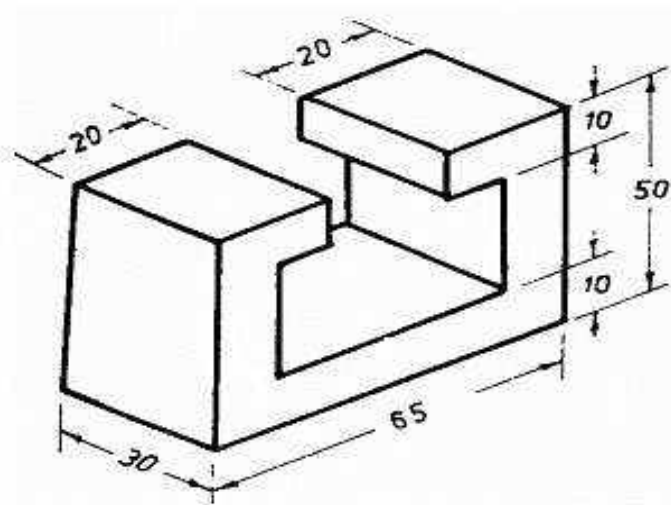


Figure 8

- (a) Front View.
 (b) Top view
 (c) Both side views.

[16]



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1. Draw a straight line AB of any length. Make a point F, 65mm from AB. Trace the paths of a point P moving in such a way that the ratio of its distance from the point F, to its distance from AB is
 - (a) 1
 - (b) 2:3

Plot at least 8 points. Name each curve. Draw a normal and a tangent to each curve at a point on it 45 mm from F. [8+8]

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. [16]

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. [8+8]

4. A line PQ, 100mm long, is inclined at 30° to the H.P. and at 45° to the V.P. Its mid point is in the V.P. and 20mm above the H.P. Draw its projections, if its end P is in the third quadrant and Q in the first quadrant. [16]

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. [16]

6. (a) Draw the projections of
 - i. a cylinder, base 40 mm diameter and axis 50 mm long, and
 - ii. a cone, base 40mm diameter and axis 50mm long, resting on the H.P. on their respective bases.

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- (b) A hexagonal prism has one of its rectangular faces parallel to the H.P. Its axis is perpendicular to the V.P. and 3.5 cm above the ground. Draw its projections when the nearer end is 2 cm in front of the V.P. Side of base 2.5cm long, axis 5 cm long.
- (c) A cube of 40mm side rests with one of its square faces on the H.P. such that one of its vertical faces is perpendicular to V.P. Draw its projections. The nearest edge parallel to V.P. is 5mm in front of it. [8+4+4]
7. Draw the isometric drawing of a cone of base diameter 30mm and axis 45mm long. [16]
8. Draw the following views of the block shown in figure 8. All dimensions are in mm.

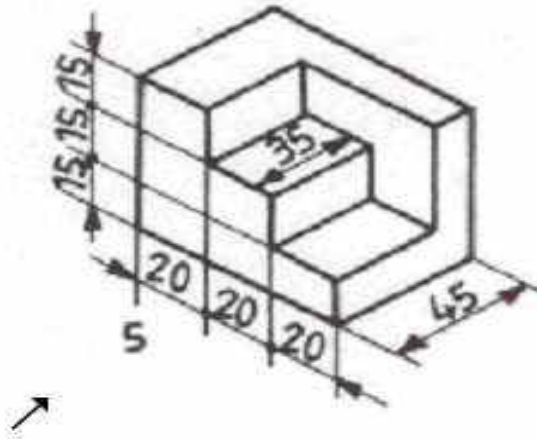


Figure 8

- (a) Front View.
 (b) Top view
 (c) Both side views. [16]



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Set No. 3

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Answer any FIVE Questions
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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. [16]

2. Draw a cycloid given the diameter of a rolling circle as $d=30\text{mm}$. Draw a normal and tangent at any point on the curve. [16]

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+8]

4. (a) A line AB, 90mm long is inclined at 30° to the H.P. Its end A is 12mm above the H.P. and 20mm in front of the V.P. Its front view measures 65mm. Draw the top view of AB.
 (b) A line AB 25mm long is parallel to V.P. and perpendicular to H.P. Point A is 35mm above H.P. and 20mm in front of V.P. Point B is 10mm above H.P. Draw the projections of the line AB. [6+10]

5. A regular pentagon of 30mm side, is resting on one of its edges on H.P. which is inclined at 45° to V.P. Its surface is inclined at 30° to H.P. Draw its projections. [16]

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+8]

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7. A cylindrical block of base, 60mm diameter and height 90mm, standing on the H.P. with its axis perpendicular to the H.P. Draw its isometric view. [16]
8. Draw the following views of the block shown in figure 8. All dimensions are in mm.

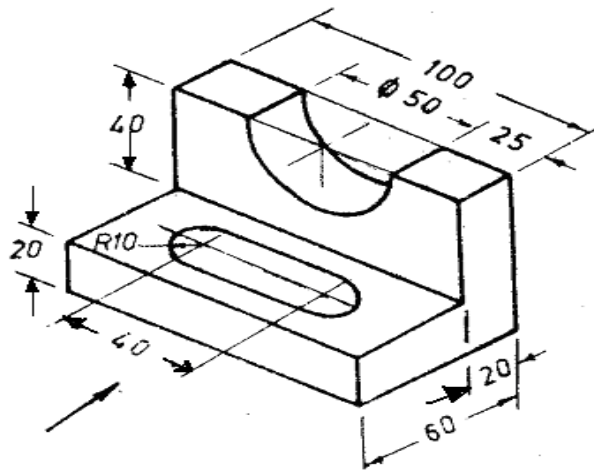


Figure 8

- (a) Front View.
 (b) Top view
 (c) Both side views.

[16]



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Set No. 4

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Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Inscribe an ellipse in a parallelogram having sides 150mm and 100mm long and an inclined angle of 120° .
 (b) Draw a rectangle having its sides 125mm and 75mm long. Inscribe two parabolas in it with their axis bisecting each other. [8+8]
2. A circle of 50mm diameter rolls along a straight line without slipping. Draw the curve traced out by a point P on the circumference, for one complete revolution of the circle. Name the curve. Draw a tangent to the curve at a point on it 40mm from the line. [16]
3. (a) Draw the projectors of the following points in different quadrants.
 - i. Point A, 25mm in front of V.P. and 30mm above H.P.
 - ii. Point B, 22mm behind V.P. and 28mm above H.P.
 - iii. Point C, 28mm behind V.P. and 30mm below H.P.
 - iv. Point D, 40mm in front of V.P. and 25mm below H.P.
 (b) A point P is 25mm in front of the V.P. and 40 mm above the H.P. Another point Q is 40mm in front of the V.P. and 25mm above the H.P. The distance measured between the projectors is 40mm. Draw the projections and find the distance between P and Q. [8+8]
4. (a) A line PQ 75mm long has its end P in the V.P and the end Q in the H.P. The line is inclined at 30° to the H.P. and at 60° to the V.P. Draw its projections.
 (b) Draw the projections of a 65mm long straight line, in the following positions :
 - i. Parallel to both the H.P and the V.P and 25mm from each.
 - ii. Perpendicular to the H.P in the V.P and its one end in the H.P. [8+8]
5. A regular hexagonal plane of 45mm side has a corner on H.P. and its surface is inclined at 45° to H.P. Draw the projections, when the diagonal through the corner, Which is on H.P. makes 30° with V.P. [16]
6. Draw the projections of a cube of 25mm long edges resting on the H.P. on one of its corners with a solid diagonal perpendicular to the V.P. [16]
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 [16]

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

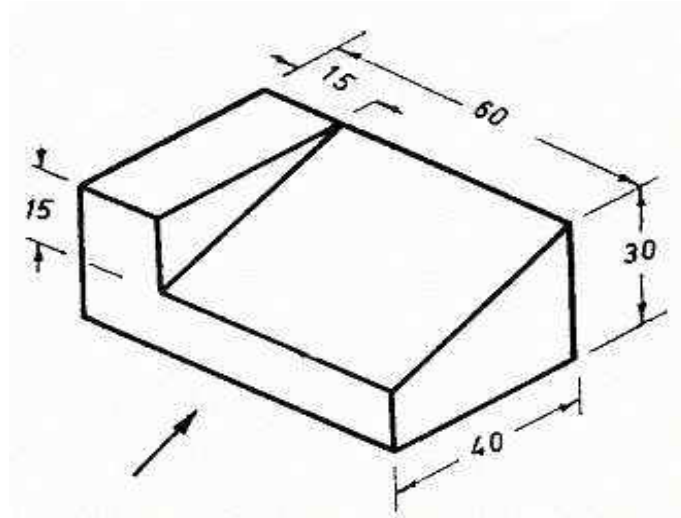


Figure 8

- (a) Front View.
- (b) Top view
- (c) Both side views.

[16]

