Code : 9A03101E

1

B.TECH. I Year(R09) Regular Examinations, May/June 2010
ENGINEERING DRAWING
(Mechanical Engineering, Electronics & Instrumentation Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
All questions carry equal marks

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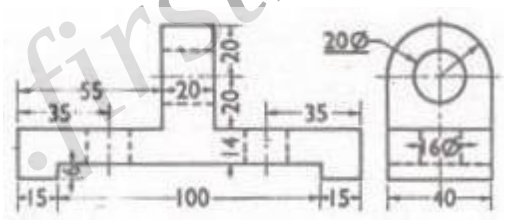
1. A circle of 60 mm diameter rolls on a horizontal line for a half revolution and then on a vertical line for another half revolution. Draw the curve traced out by a point P on the circumference of the circle.
2. A line MN is 70 mm long. It's mid -point is 30 mm above HP and 25 mm in front of VP. The line inclined at an angle of 45^0 to HP and 35^0 VP. Draw its projections.
3. (a) A square ABCD of 50 mm side has its corners A in H.P its diagonal AC is inclined at 30^0 to H.P and the diagonal BD is inclined at 45^0 to V.P and parallel to H.P .Draw its projections.
   (b) A thin 30^0-60^0 set square has its longest edge in V.P and inclined at 30^0 to H.P. Its surface makes an angle of 45^0 with V.P. Draw its projections.
4. (a) A cylinder base 35 mm diameter and axis 60 mm long lies with one of its generators on H.P. such that its axis is parallel to both H.P. & V.P.
   (b) Draw the projections of cube of 40 mm side, resting with a face on H.P. such that one of its vertical faces is inclined at 30^0 to V.P.
5. A cube of 50 mm long edges is resting on the H.P. with a vertical face inclined at 30^0 to the V.P. It is cut by a section plane, perpendicular to the V.P. inclined at 30^0 to the H.P. and passing through a point on the axis, 38 mm above the H.P. Draw the sectional top view, true shape of the section and development of the surface of the remaining portion of the cube.
6. A cylinder of 60 mm diameter and axis 80 mm long is standing on its base on HP. A horizontal rectangular hole of 35 mm x 25 mm sides is cut through the cylinder. Axis of the hole is parallel to VP. The axes of both cylinder and hole intersect at right angles and bisect each other. Draw the projections and show the curves of intersection.
7. Two views of a casting are shown below. Draw the isometric view of the casting (dimensions are in mm)



8. Draw a perspective view with a square plane with a 50 mm side which stands vertically on the GP with an edge parallel to and 10 mm behind the PP. The surface of the plane is inclined at 30^0 to PP. The station point is 60 mm in front of PP, 65 mm above GP and lies in a CP which is 55 mm towards right of the centre of the plane.

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Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
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1. 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 normal to the curve at a point 125 mm from the center of the directing circle.

2. The distance between the projectors of two ends of straight line is 40mm. The lower end is 15 mm above HP and 10 mm in front of VP. The upper end is 40 mm above HP and 40 mm in front of VP. Find true length and true inclination.

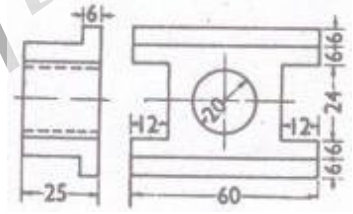
3. Draw the projections of a regular pentagon of 40 mm side , having its surface inclined 30^0 to HP and a side parallel to the HP. and inclined at angle of 60^0 to VP.

4. (a) A hexagonal prism side of base 20 mm and axis 60 mm long lies with one of its rectangular faces on H.P. such that its axis is parallel to both H.P. & V.P.
   (b) A hexagonal pyramid, side of base 25 mm and height 50 mm rests with its base on H.P. such that one of the edges of the base is inclined at 20^0 to V.P. Draw the top and front views of the pyramid.

5. A hexagonal prism, side of base 35 mm and height 75 mm is resting on one of its corners on the H.P. with a longer edge containing that corner inclined at 60^0 to the H.P. and a rectangular face parallel to the V.P. A horizontal section plane cuts the prism in two equal halves.
   (i) Draw the front view and sectional top view of the cut prism.
   (ii) Draw another top view on an auxiliary inclined plane which makes an angle of 45^0 with the H.P.

6. A cylinder of 60 mm diameter and axis 80 mm long is standing on its base on HP. A horizontal hexagonal hole of 25 mm side is cut through the cylinder. Axis of the hole is parallel to VP. The axes of both cylinder and hole intersect at right angles and bisect each other. A side face of the hole is inclined at an angle of 30^0 to the HP. Draw the projections and show the curves of intersection.

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



8. A rectangular plane with 60 mm and 40 mm sides is lying in the GP with the longer side parallel to and 15 mm behind the PP. The station point is 50 mm in front of the PP, 60 mm above GP and lies in the CP passing through the centre of the object. Draw its perspective view.

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Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
All questions carry equal marks

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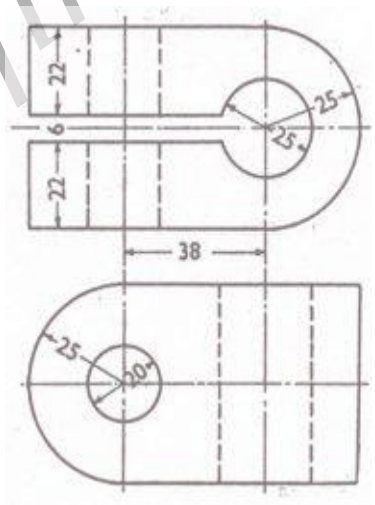
1. (a) A circle of 75 mm diameter rolls on another circle of 115 mm diameter with internal contact. Draw the locus of a point on the circumference of the rolling circle for its one complete revolution.
   (b) Draw the involute of an equilateral triangular of side 20mm.
2. A line PQ 40mm long is parallel to VP and perpendicular to HP. One end Q is 15 mm above HP. Another end P is 55 mm above HP and 25 mm in front of VP. Draw the projections.
3. (a) Draw the projections of a circle of 50 mm diameter resting in the H.P. on a point A on the circumference, its plane inclined at 45^0 to the H.P. and the top view of the diameter AB making 30^0 an angle with the V.P.
   (b) A thin rectangular plate of sides 6ommX30mm has its shorter side in the V.P. and inclined at 30^0 to the H.P. Project its top view if its front view is a square of 30 mm long sides.
4. A pentagonal pyramid, base 40 mm side and height 75 mm rests on one edge of its base on the ground so that the highest point in the base is 25 mm above the ground. Draw its projections when the axis is parallel to the V.P. Draw another front view on a reference line inclined at 30^0 to the edge on which it is resting, and show that the base is visible.
5. A pentagonal prism, side of base 50 mm and length 100 mm has a rectangular face on the H.P. and the axis parallel to the V.P. It is cut by a vertical section plane, the H.T. of which makes an angle of 30^0 with xy and bisects the axis. Draw the sectional front view, top view and true shape of the section. Develop the surface of the remaining half of the prism.
6. A cylindrical pipe of 36 mm diameter has a similar branch of the same size. The axis of the branch intersects the axis of the main pipe at an angle of 60^0. Draw the projections, when the two axes lie in a plane parallel to the VP and the axis of the main pipe is vertical. Also, develop the surfaces of the two pipes assuming suitable lengths.
7. Two views of a grip are shown below. Draw the isometric view of the grip (dimensions are in mm)



8. A pentagonal plane with a 30 mm side lies on the GP with an edge parallel to and 20 mm behind the PP. The station point is 50 mm in front of PP, 65 mm above GP and lies in a CP which is at a distance of 40 mm towards right of the centre of the object. Draw its perspective view.

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ENGINEERING DRAWING
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Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
All questions carry equal marks

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1. A circle of 50 diameter rolls without slipping on the outside of another circle of diameter 150.Show the path of a point on the periphery of the (generating) rolling circle, diametrically opposite to the initial point of contact between the circle.

2. The end A of a line AB is in H.P and 25 behind V.P. The end B is in V.P and 50 above H.P. The distance between the end projectors is 75. Draw the projections of AB and determine its true length, traces and inclinations with the two planes.

3. (a) An equilateral triangular plane ABC of side 40 has its plane parallel to V.P. and 20 away from it. Draw its projections of the planes. i) Perpendicular to H.P. ii) parallel to H.P. and iii) inclined to H.P at an angle of 45^0.

   (b) Draw the equilateral triangle of 75 mm side and inscribe a circle in it. Draw the projections of figure , when its plane is vertical and inclined at 30^0 to VP and one of the sides of the triangle is inclined at 45^0 to HP.

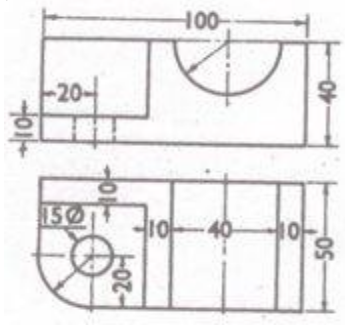
4. (a) A hexagonal pyramid, side of base 25mm and axis 50mmlong ,rests with one of the edges of its base on H.P and its axis is inclined at 30^0 to H.P and parallel to V.P. Draw its projections.

   (b) A pentagonal prism side of base 25 mm and axis 50 mm long rests with one of its shorter edges on H.P.such that the base containing that edge makes an angle a 30^0 to H.P. and its axis is parallel to V.P. Draw its projections.

5. A hollow square prism, base 50 mm side (outside), length 75mm and thickness 9 mm is lying on the H.P. on one of its rectangular faces, with the axis inclined at 30^0 to the V.P. A section plane, parallel to the V.P. cuts the prism, intersecting the axis at a point 25 mm from one of its ends. Draw the top view and sectional front view of the prism.

6. A square hole of 35 mm side is cut in a cylindrical shaft of 60 mm diameter and 100 mm long. The axis of the hole intersects that of the shaft at right angles. All the faces of the hole are inclined at 45^0 to HP.
   Draw the projections of the shaft when an imaginary plane containing the two axes is parallel to VP.

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



8. A pentagonal plane with a 30 mm side stands vertically on the GP on an edge and a corner touching the PP. The surface of the plane makes an angle of 30^0 with the PP. The station point is 60 mm in front of PP, 75mm above GP and lies in a CP which is at a distance of 40 mm towards right of the centre of the plane. Draw its perspective view.

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