Code: 9A03101a

B. Tech I Year (R09) Regular & Supplementary Examinations, May 2012

ENGINEERING DRAWING

(Common to ECE, E.Con.E & BT)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) A ball thrown up in the air reaches maximum height of 45 meters and travels a horizontal distance of 75 metres. Trace the path of the ball, assuming it to be parabolic.
(b) Inscribe an ellipse in a parallelogram having sides 150 mm and 100 mm long and an included angle of 120^0.

2 (a) A line AB of 100 mm length is inclined at an angle of 30^0 to HP and 45^0 to VP. The point A is 15 mm above HP and 20 mm in front of VP. Draw the (i) front view (ii) top view.
(b) A line AB of 100 mm length is inclined at 30^0 to HP and 45^0 to VP. The point A is 15 mm above HP and 20mm in front of VP. Draw the projections of the line.

3 (a) Draw the projections of a pentagonal plane figure of side 28 mm resting with one of its edges on HP. Such that the plane figure is inclined at 30^0 to VP perpendicular to HP.
(b) A thin square plate ABCD of side 40 mm is perpendicular to both HP and VP. Draw its projections.

4 (a) 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.
(b) Projection of cylinder 60 mm diameter and 90 mm long. Axis inclined at 45^0 to H.P. and parallel to V.P.

5 (a) Draw the projection of a cylinder of 40 mm diameter and axis 60 mm long, when it is lying on HP, with its axis inclined at 45^0 to HP and parallel to VP.
(b) Draw the projections of a cone of diameter of base 40 mm and axis 60 mm long, when it is lying on a point of the base on HP, with its axis inclined at 45^0 to HP and perpendicular to VP. Follow the auxiliary method.

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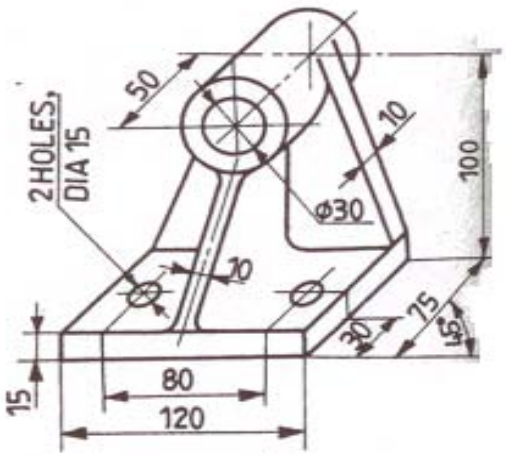
6 Convert the bracket shown in the pictorial view below into orthogonal projections of three views.



7 A square prism of base 50 mm side and height 125 mm stands on the ground with a side of the base inclined at 30^0 to the V.P. It is penetrated by a cylinder, 50 mm diameter and 125 mm long, whose axis is parallel to both the H.P. and the V.P. and bisects the axis of the prism. Draw the projections showing fully the curves of intersection.

8 A hexagonal plane with a 40 mm side has a centrally cut square hole with a 30 mm side such that a side of the hole and a side of the hexagon are parallel PP. It lies on the GP with a nearer edge of the hexagon 10 mm behind the PP. The station point is 50 mm in front of PP, 70 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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1 (a) Two points A & B are 100 mm apart. A point C is 75 mm from A and 60 mm from B. Draw the ellipse passing through A,B and C.
(b) A ball thrown up in the air reaches maximum height of 45 metres and travels a horizontal distance of 75metres. Trace the path of the ball, assuming it to be parabolic.

2 (a) A line AB, 65 mm long has its end A in the H.P. and 15 mm in front of the V.P. The end B is in the third quadrant. The line is inclined at 30^0 to the H.P. and at 60^0 to the V.P. Draw its projections.
(b) A line PQ 75 mm long has its end P in both HP and VP .It is inclined at an angle of 30^0 to HP and 45^0 to VP. Draw projections of the line.

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 side's 60 mm X 30 mm 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) Draw the projections of a hexagonal prism of side of base 25 mm and height 50 mm resting with its base on H.P. such that one of its rectangular faces is perpendicular to V.P.
(b) Square pyramid base 40 mm side, axis 65 mm long has base in V.P. one edge of base inclined to 30^0 to H.P. and corner contained by that edge is on H.P. Draw its projections.

5 (a) A right circular cone of 50 mm base diameter and of altitude 60 mm is lying on one of the generator on HP, such that the axis of the cone is parallel to VP it is cut by a section plane to HP and perpendicular to VP and 30 mm above HP. Show the sectional plan and elevation of the solid.
(b) A sphere of 60 mm diameter is cut by a section plane perpendicular to the VP, inclined at 45^0 to the HP and at a distance of 15 mm from its centre. Draw the sectional plan and true shape of section.

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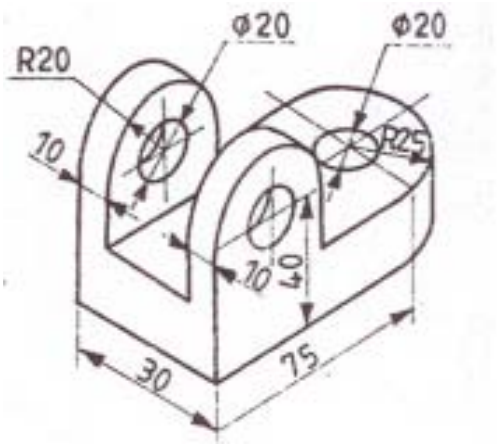
6 Draw the elevation, plan and left and right side views of the bracket shown in the picture below (dimensions in mm)



7 A cylinder of 75 mm diameter and 125 mm height stands on its base on the ground. It is penetrated centrally by a cylinder, 50 mm diameter and 125 mm long, whose axis is parallel to the H.P. but inclined at 30^0 to the V.P. Draw the projections showing curves of intersection. Draw also the development of the penetrated cylinder.

8 Draw a perspective view of a hexagonal prism having a base with a 40 mm side and a 60 mm long axis, resting on its base in the GP with a side of base parallel to and 10 mm behind the PP. The station point is 50 mm in front of PP, 75 mm above GP and lies in a CP which is 50 mm towards the right of the axis.

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B. Tech I Year (R09) Regular & Supplementary Examinations, May 2012

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1 (a) Construct a parabola with the length of base as 60 and axis 30 long. Also draw a tangent to the curve at a point 25 from the base.
(b) The major and minor axes of an ellipse are 120 & 80 mm. draw an ellipse by arcs of circles method.

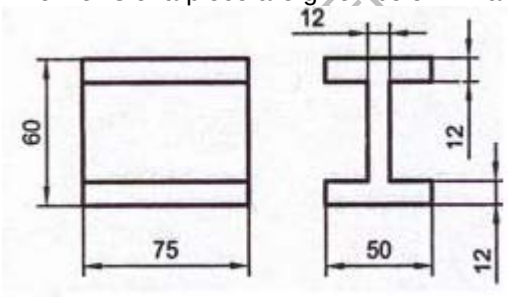
2 (a) Draw the projection s of a line CD 50 mm long, parallel to HP and inclined to VP. The end of C is 10 mm in front of VP and D is 30 mm in front of VP. The line is 15 mm above HP.
(b) A line AB is 75 mm long. A is 50 mm in front of VP and 15 mm above HP. B is 15 mm in front of VP and is above HP. Top View of AB is 50 mm long. Draw and measure the front view. Find the true inclinations.

3 (a) A triangular lamina of 50 mm side , is standing on one of its sides, which is inclined 45^0 to VP and surface of the lamina is making an angle of 30^0 to HP .Draw its projections
(b) A regular pentagonal plate of side 28 mm is placed with one side on HP such that the surface is inclined at 45^0 to HP and perpendicular to VP. Draw its projections.

4 (a) A cube of 30 mm long edges lies with one of its square faces on H.P. Such that one of its vertical faces is inclined at 30^0 to V.P. Draw its projections.
(b) Draw the projections of a regular pentagonal prism side of base 30 mm and axis 55 mm resting with its base on H.P. such that one of its rectangular faces is perpendicular to V.P.

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 Two views of a piece are given below. Draw the isometric view of the piece (dimensions are in mm)



7 Two circular pipes of 75 mm and 50 mm diameters (inside) meet at 30^0. The axes of both the pipes are in one plane and the 75mm pipe is vertical. The thickness of the pipes is 6 mm in both cases. Draw the projections showing curves of intersection.

8 A frustum of a square pyramid, base 28 mm side, top 22 mm side and 36 mm height is resting on its base on the GP such that the sides of base are equally inclined to the picture plane. The axis of the frustum is 30 mm to the right of the station point. The station point is 45 mm in front of the PP and 50 mm above the GP. The nearest base corner is 10 mm behind the PP. Draw the perspective projection.

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B. Tech I Year (R09) Regular & Supplementary Examinations, May 2012

ENGINEERING DRAWING

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Time: 3 hours Max Marks: 70

Answer any FIVE questions
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*****

1 (a) The asymptotes of a hyperbola are inclined at 70^0 to each other. Construct the curve when a point *p* on it is at a distance of 20 and 30 from the two asymptotes.

(b) The major axis of an ellipse is 120 long and the foci are at a distance of 20 from its ends. Complete the ellipse and draw a tangent at a distance of 35 from focus.

2 (a) A 90 mm long line is parallel to and 25 mm in front of the V.P. It's one end is in the H.P. while other ends 50 mm above the H.P. respectively. Draw the projections of the line and determine its inclination with the H.P.

(b) The length of the top view of a line parallel to the V.P. and inclined at 45^0 to the H.P. is 5 cm. One end of the line is 1.2 cm above the H.P. and 2.5 cm in front of the V.P. Draw the projections of the line and determines its true length.

3 (a) A square plane ABCD of side 30 is parallel to H.P. and 20 away from it. Draw its projections of the plane:
(i) parallel to V.P.
(ii) inclined at 30^0 to V.P.

(b) A regular pentagon of 30 mm side has one of its corners on VP and Its surface is inclined at 60^0 to VP .The edge, opposite to corner on VP, makes an angle of 45^0 with HP .draw the projections of the plane.

4 (a) A rectangular prism side of base 40 mm X 25 mm and height 60 mm rests with its base on H.P. such that one of its larger rectangular faces is parallel to V.P. Draw its projections.

(b) A cube of 40 mm side rests with one of its square faces on H.P. such that one of its vertical faces is perpendicular to V.P. Draw its projections.

5 A hollow square prism, base 50 mm side (outside), length 75 mm 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.

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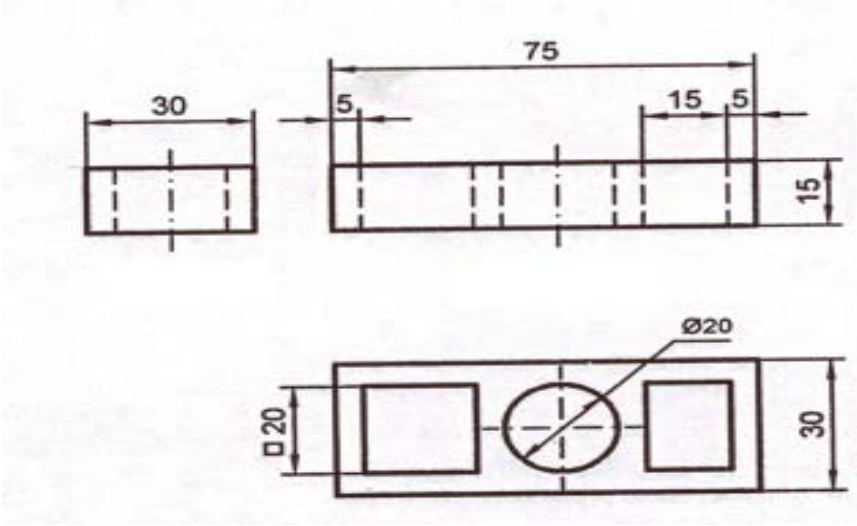
6 Three views of a model are given below. Draw the isometric view of the model (dimensions are in mm)



7 A right circular cylinder of 75 mm diameter penetrates another of 100 mm diameter, their axes being at right angles to each other but 10 mm apart. Draw the projections of the curves of intersection on a plane parallel to the axes of the cylinders.

8 Draw a perspective view of a pyramid having base with a 50 mm side and a 70 mm long axis, resting on its base in the GP with its axis at a distance of 40 mm behind the PP and all the edges of the base equally inclined to it. The station point is 55 mm in front of PP, 70 mm above GP and lies in a CP which is 40 mm towards right of the axis.

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