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Code: 9A03101b

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

ENGINEERING DRAWING

(Common to CSE, CSSE & CE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) To construct a pentagon length of a side is 30 mm.
(b) To draw an arc passing through three points not in straight line.
(c) Construct a parabola, with the distance of the focus from the directrix as 50 mm, also draw normal and tangent to the curve at a point 40 from the directrix.

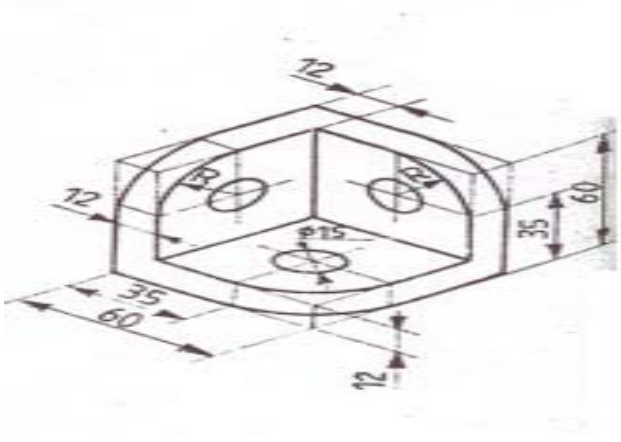
2 (a) A line PQ, 9 cm long is in the H.P and makes an angle of 30 degrees with the V.P its end P is 2.5 cm in front of the V.P. Draw its projections.
(b) A 100 mm long line is parallel to and 40 mm above the H.P. Its two ends are 25 mm and 50 mm in front of the V.P. respectively. Draw the projections of the line and determine its inclination with the V.P.

3 (a) A square lamina ABCD of 50 mm side is perpendicular to V.P and parallel to H.P. It is 20 mm above H.P and 30 mm in front of V.P. Draw its projections
(b) A square lamina of 40 mm side has a corner on H.P. and 20 mm In front of V.P. All sides are equally inclines to H.P and parallel to V.P.

4 (a) A square prism, side of base 35 mm and height of 50 mm rests with its base on H.P. such that one of its rectangular faces is inclined at an angle of 30^0 to V.P. Draw its projections.
(b) Draw the projections of a square pyramid having one of its triangular faces in the V.P. and the axis parallel to and 40 mm above the H.P. Base 30 mm side axis 75 mm long.

5 A cylinder, 65 mm diameter and 90 mm long have its axis parallel to the H.P. and inclined at 30^0 to the V.P. It is cut by a vertical section plane in such a way that the true shape of the section is an ellipse having the major axis 75 mm long. Draw its sectional front view and true shape of the section.

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



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7 Two equal prisms, whose ends are equilateral triangles of 40 mm side and axes 100 mm long, intersect at right angles. One face of each prism is on the ground. The axis of one of the prisms makes 30^0 with the V.P. Draw three views of the solids.

8 A circular lamina of diameter 50 cm is lying on the ground plane touching the picture plane. The station point is 50 cm above the ground plane, 60 cm in front of the picture plane and contained in the central plane which passes at a distance of 40 cm from the center of the circle. Draw the perspective projection of the circle.

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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 20 mm.

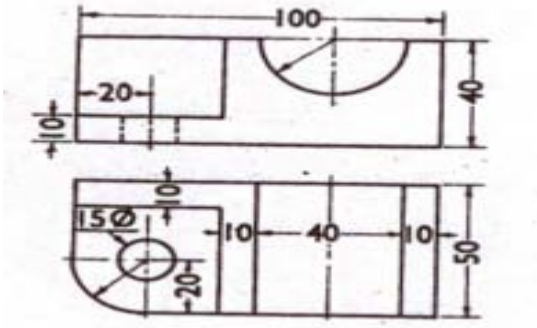
2 (a) Draw the projections of a line CD 30 mm long, parallel to HP and inclined to VP. The end C is 10 mm in front of VP and D is 20 mm in front of VP. The line is 15 mm above HP. Also find the traces.
(b) A line RS 40 mm long is parallel to both planes. It is 20 mm above HP and 15 mm in front of VP. Draw projections and its traces.

3 (a) A circular plate is parallel to H.P Its radius is 30 mm and center is 50 mm above and 20 mm in front of V.P. Draw its projections of planes.
(b) A regular pentagon of 25 mm side has one of its edges on V.P its plane is inclined at 45^0 to V.P. Draw its projections.

4 (a) Pentagonal prism base 30 mm side and axis 60 mm long has an edge of its base in H.P. axis is inclined at 45^0 ton ground and parallel to V.P.
(b) Projection of a cone, base 75 mm diameter and axis 100 mm long lying on H.P. with its axis parallel to V.P. and inclined at 30^0 to H.P.

5 A cube of 65 mm long edges has its vertical faces equally inclined to the V.P. it is cut by a section plane, perpendicular to the V.P., so that the true shape of the section is a regular hexagon. Determine the inclination of the cutting plane with the H.P. and draw the sectional top view and true shape of the section.

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



7 A cylinder of 60 mm diameter and 100 mm height stands on its base on the ground. It is penetrated centrally by a cylinder of 40 mm diameter and 100 mm long, whose axis is parallel to HP, but inclined at an angle of 30^0 to VP. Draw the projections showing the curves of intersection. Also draw the development of the penetrating cylinders.

8 A cylinder of base 50 mm diameter and axis 75 mm long has a coaxial square hole of 25 mm side. The cylinder is resting on the ground, with its base parallel to PP and 10 mm behind it. The faces of the hole are equally inclined to GP. The station point is 50 mm to the left of the axis of the solid, 45 mm in front of PP and 70 mm above GP. Draw the perspective projection of the solid.

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ENGINEERING DRAWING

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1 (a) Draw a hypo-cycloid of a circle of 40 diameters, which rolls inside another circle of 160 diameters, for one revolution counter clockwise.
(b) Draw the involute of a regular hexagon of side 20. Draw a tangent and normal to the curve at a distance of 100 from the center of the hexagon.

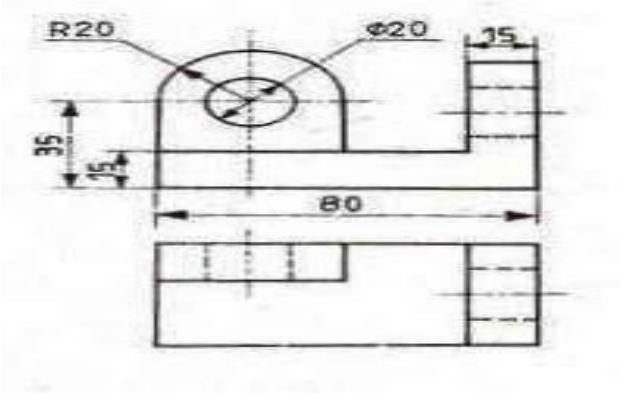
2 (a) A line AB, 75 mm long, is inclined at 45^0 to the H.P. and 30^0 to the V.P. its end B is in the H.P. and 40 mm in front of the V.P. Draw the projections.
(b) A line AB is 30 mm long and inclined at 30^0 to VP and parallel to HP. The end A of the line is 15 mm above HP and 20mm in front of VP. Draw the projections

3 (a) A square lamina of 50 mm side is inclined at 45^0 to V.P and parallel to H.P Draw it projections.
(b) An equilateral triangle lamina of side 30 mm parallel to H.P. and to V.P .One of its side is 20 mm in front of V.P. and 30 mm above H.P .Draw its projections.

4 (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) Draw the projections of a pentagonal pyramid axis 60 mm long, base 30 mm side having base on the ground and one of edges of base inclined at 45^0 to V.P.

5 A vertical hollow cylinder, outside diameter 60 mm, length 85 mm and thickness 9 mm is cut by two section planes which are normal to the V.P. and which intersect each other at the top end of the axis. The planes cut the cylinder on opposite sides of the axis and are inclined at 30^0 and 45^0 respectively to it. Draw the front view sectional top view and auxiliary sectional top views on planes parallel to the respective section planes.

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



7 A square prism of base 50 mm side and height 125 mm stands on the ground with its side of base inclined at an angle of 30^0 to VP. It is penetrated by a cylinder of diameter 50 mm and axis 125 mm long. The axis of the cylinder is parallel to both HP and VP and bisects the axis of the prism. Draw the projection showing fully the curves of intersection.

8 A man of 1.8m height stands at a distance of 5 m from a fight of four stone steps having a width of 2m, tread 0.3m and rise 0.2m. The flight makes an angle of 45^0 with the PP and touches the same at a distance of 2 m to the right of the center of vision. Draw the perspective projection of the flight.

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Answer any FIVE questions

All questions carry equal marks

*****

1 (a) A circle of diameter 40 mm rolls inside another circle of radius 60 mm. draw the hypo cycloid traced by a point on the rolling circle initially in contact with the directing circle for one revolution.

(b) A circle of 50 mm diameter rolls along a line for one revolution clock-wise. Draw the locus of the point on the circle, which is in contact with the line.

2 (a) A line AB of 70 long is parallel to and 25 mm in front of VP. it's one end is on HP while the other end is 40 mm above HP. Draw the projections of the line and determine the inclination with HP .

(b) A line AB is on HP and its one end A is 20 in front of VP. The line makes an angle of 45^0 with VP. And its front view is 60 long. Draw the projections of the line and determine the true length.

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 Draw the projections of cylinder of base 40 mm diameter, axis 50mm long, resting on ground on its base.

b Draw the projections of a hexagonal pyramid axis 60 mm long, base 30 mm side having base on the ground and one of edges of base inclined at 45^0 to V.P.

5 A square pyramid, base 50 mm side and axis 75 mm long, is resting on the H.P. on one of its triangular faces, the top view of the axis making an angle of 30^0 with the V.P. it is cut by a horizontal section plane, the V.T. of which intersects the axis at a point 6mm from the base. Draw the front view, sectional top view and the development of the sectioned pyramid.

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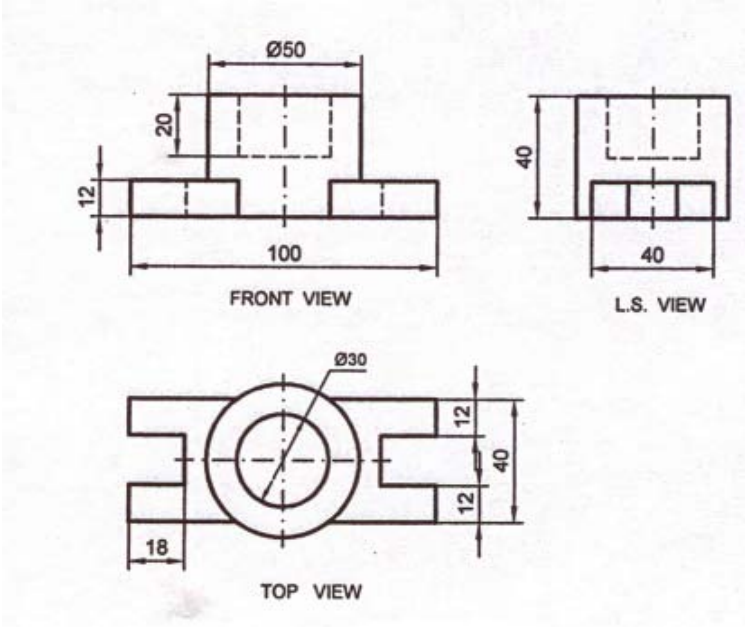
6 Three views of a machine part are shown below. Draw the isometric view of the part (dimensions are in mm)



7 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.

8 Draw the respective projection of a rectangular block of 3 m x 2 m x 1.5 m resting on a horizontal plane with one side of the rectangular plane making an angle of 45^0 with VP. The observer is at a distance of 6 m from the picture plane. Assume eye level as 1.5 m.

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