

Code: 9A03101d

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

ENGINEERING DRAWING

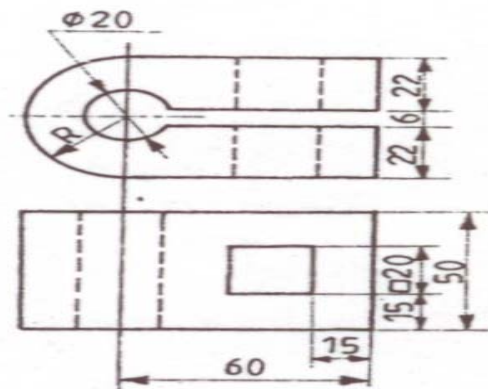
(Common to EIE, IT & ME)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Draw the involute of a circle 40 mm diameter. Draw a tangent and normal to the curve at a point 95 mm from the center of the circle.
- (b) Draw the involute of a regular hexagon of side 25. Draw a tangent and normal to the curve at a distance of 100 from the center of the hexagon.
- 2 A line PQ 40 mm 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 An equilateral triangle of 50 side, has its plane parallel to H.P and 30 away from it. Draw the projections when one of its sides is (i) perpendicular to V.P (ii) parallel to VP (iii) inclined to VP at angle of 45° .
- 4 (a) A triangular prism, 40 mm of base and 60 mm of length of axis, has its axis perpendicular to VP. Draw the projections if one of the rectangular faces parallel to the HP.
- (b) A triangular prism, 40 mm of base and 60 mm of length of axis, has its axis perpendicular to VP. Draw the projections if one of the rectangular face 45° to the HP.
- 5 A cone, base 75 mm diameter and axis 75 mm long, has its axis parallel to the V.P. and inclined at 45° to the H.P. A horizontal section plane cuts the cone through the mid-point of the axis. Draw the front view, sectional top view and an auxiliary top view on a plane parallel to the axis.
- 6 Two views of a casting are shown below. Draw the isometric projection of the casting (dimensions are in mm)



- 7 A triangular prism, having base with a 80 mm side and 100 mm long axis, is resting on its base on the H.P. with a side of the base parallel to the V.P. it is penetrated by another triangular prism having base with a 40 mm side and a 100 mm long axis having a face parallel to the H.P. The axes of the prisms bisect each other at right angles. Draw the projections of the combination and show the lines of intersection.
- 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° 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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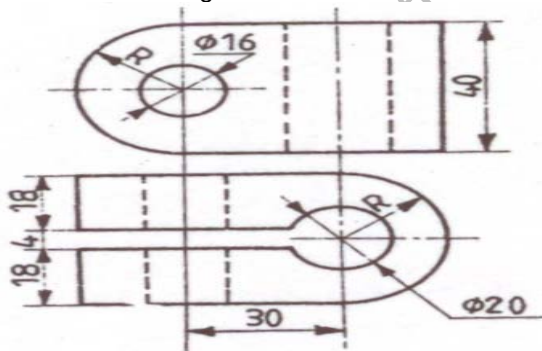
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Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) A circle of 40 diameter rolls along a line for one revolution clockwise. Draw a locus of a point on the circle, which is in contact with the line. Also draw a tangent and a normal to the curve at a point 35 from the directing line.
(b) Draw an involute of a circle of 30 mm diameter for one complete revolution.
- 2 (a) A point M is 35 mm above HP and 40 mm in front of VP. Draw its projections.
(b) A point B is 45 mm above HP and 60 mm behind VP. Draw the projections.
(c) Draw the projections of a point B lying on HP and 55 mm in front of VP.
(d) A point M is 60 mm below HP and 45 mm in front of VP. draw the projections
- 3 Draw the projections of regular pentagon of 25 mm side having its surface inclined at 30° to H.P. and side parallel to H.P. and inclined at an angle of 60° to V.P.
- 4 (a) A square prism, 40 mm of base and 60 mm of length of axis, has its axis perpendicular to HP and one of the rectangular faces parallel to the VP. Draw the projection if the base is 10 mm above the HP.
(b) A square prism, 40 mm of base and 60 mm of length of axis, has its axis perpendicular to HP and one of the rectangular face 60° to the VP. Draw the projection if the base is 10 mm above the HP.
- 5 A hexagonal pyramid, base 50 mm side and axis 100 mm long, is lying on the H.P. on one of its triangular faces with the axis parallel to the V.P. A vertical section plane the H.T. of which makes an angle of 30° with the reference line passes through the centre of the base and cuts the pyramid, the apex being retained. Draw the top view, sectional front view, true shape of the section and the development of the surface of the cut-pyramid.
- 6 Two views of a casting are shown below. Draw the isometric view of the casting (dimensions are in mm).



- 7 A square prism, having base with a 60 mm side and a 100 mm long axis is resting on its base on the H.P. with the faces equally inclined to the V.P. It is penetrated by another square prism of the same dimensions having its axis parallel to both the reference planes and 15 mm away from the axis of the first prism. Draw the projections of the combination and show lines of intersection when the faces of the penetrating prism are equally inclined to the H.P.
- 8 A square pyramid of side of base 30 mm and axis 40 mm long rests with its base on the ground plane such that one of its base sides is parallel to the picture plane and 10 mm in front of it. The station point is 50 mm in front of the picture plane, 25 mm to the left of the axis of the pyramid and 55 mm above the ground. Draw the perspective projection.

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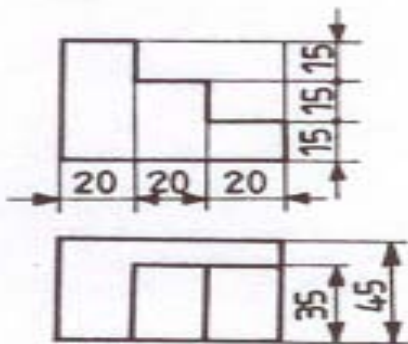
ENGINEERING DRAWING
(Common to EIE, IT & ME)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
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- 1 (a) Draw the involute of an equilateral triangle of side 20 mm.
(b) A tread of length 165 mm is wound round a circle of 40 mm diameter. Trace the path of end point of the tread.
- 2 An Ornamental light O is placed 10 m above the floor and in the center of an auditorium 40 m * 50 m * 35 m high. Determine graphically its distance from one of the corners between the roof and two adjacent walls.
- 3 (a) A rectangular lamina of sides 30 mm X 40 mm is perpendicular to HP and inclined at 30° to VP. Draw its projections.
(b) A square lamina ABCD of side 40 mm is perpendicular to HP and parallel to VP. Draw its projections.
- 4 A pentagonal pyramid of edge of base 30 mm and length of axis 65 mm is resting on a corner of the base on the HP. The triangular face opposite to the corner on the HP is inclined to the HP at 45° with its shorter edge inclined to the VP at 60° . Draw its projections
- 5 A cube of 50 mm long edges is resting on the H.P. with a vertical face inclined at 30° to the V.P. It is cut by a section plane, perpendicular to the V.P. inclined at 30° 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 Two views of a model are shown below. Draw the isometric projection of the model (dimensions are in mm).



- 7 A square prism, having base with a 50 mm side and a 90 mm long axis, rests on its base on the ground with a face inclined at 30° to the V.P. It is penetrated by a horizontal cylinder with a 40 mm diameter. Their axes bisect each other at right angles. Draw three views of the combination and show the curves of intersection.
- 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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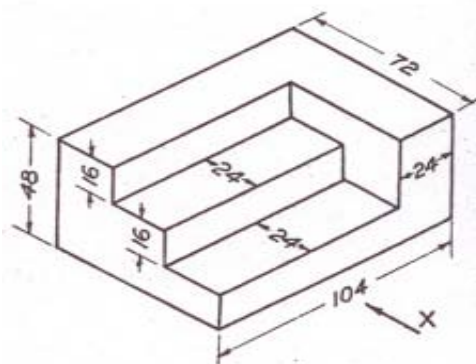
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Answer any FIVE questions
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- 1 A circle of 60 mm diameter rolls without slipping on the outside of another circle of diameter 150 mm. Show the path of a point on the periphery of the (generating)rolling circle, diametrically opposite to the initial point of contact between the circle
- 2 (a) Draw the projections of a point A lying on HP and 50 mm in front of VP.
(b) Draw the projections of a point A lying on VP and 55 mm above HP.
(c) A point D is 35 mm below HP and 35 mm behind VP. Draw the projections.
(d) A point S is 35mm above HP and 55mm behind VP. Draw the projections.
- 3 (a) A pentagonal plate of 35 mm side is perpendicular to V.P and parallel to H.P One of its edges is perpendicular to V.P. Draw its projections.
(b) A square lamina of side 40 mm is perpendicular to VP and parallels to HP. Draw its projections.
- 4 (a) Draw the projections of a cube of 30 mm edge ,resting in the H.P .on one of its corners with a solid diagonal parallel to both H.P and V.P.
(b) A cone of base 50 mm diameter and axis 65 mm long, lies with one of its generators on H.P and its axis parallel to V.P Draw its projections.
- 5 (a) A hexagonal prism of side of side of base 25 mm axis 60 long is freely suspended from a corner of the base. Draw the projections.
(b) A square pyramid of base 35 mm side and axis 50 mm long is resting on one of its triangular faces on HP, with the edges of the base containing that faces inclined at 45° to VP. Draw the projections of the pyramid. Follow the auxiliary plane method.
- 6 Draw the elevation, plan and left and right views of the step model shown in the picture below (dimensions in mm).



- 7 A cylinder resting on its base on the H.P. is penetrated by another cylinder with their axes bisecting at right angles. Draw the projections of the combination and show the curves of intersection. Consider vertical cylinder having a 60 mm base diameter while the penetrating cylinder has a 50 mm diameter.
- 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° with the PP. The station point is 60 mm in front of PP, 75 mm 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.
