

Code: 9A03101c

1

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

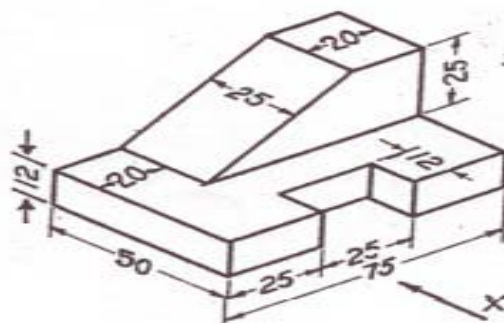
**ENGINEERING DRAWING**  
(Common to EEE, ECM & AE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks  
\*\*\*\*\*

- 1 (a) Draw a cycloid formed by a rolling circle 50 mm in diameter. Use 12 divisions. Draw a tangent and a normal at a point 30mm above the directing line.  
(b) A point P is 30 mm and 50 mm respectively from two straight lines which are at right angles to each other. Draw the rectangular hyperbola from P within 10 mm distance from each line.
- 2 The front view of a 125 mm long line PQ measures 75 mm and its top view measures 100 mm. Its end Q and the mid-point M are in the projections of a line PQ.
- 3 (a) A square of 30 mm side has one side on HP. Its plane is inclined at  $60^\circ$  to HP and perpendicular to VP. Draw the projections.  
(b) A square lamina of 45 mm side has a corner on H.P and 25 mm in front of VP. All the sides of the square are equally inclined to HP and parallel to VP. Draw the front and top views
- 4 (a) A square prism side of base 30 mm and axis 50 mm long, has an edge of its base in H.P. its axis is inclined at  $60^\circ$  to H.P. and parallel to V.P. Draw its projections.  
(b) A square prism side of base 40 mm and axis 60 mm long, rests with one of its base corners on H.P. its base makes an angle of  $45^\circ$  to H.P and its axis is parallel to V.P. Draw its projections.
- 5 (a) A hexagonal pyramid side of the base 30 mm and altitude 70 mm rests with its base on HP and with a side of the parallel to VP. It is cut by a cutting plane inclined at  $35^\circ$  to HP and perpendicular to VP and is bisecting the axis. Draw the sectional plan of the pyramid and the true shape of the section.  
(b) A cylinder of base diameter 45 mm and height 65 mm rests on its base on HP. It is cut by a plane perpendicular to VP and inclined at  $30^\circ$  to HP and meets the axis at a distance 30 mm from base. Draw the front view, sectional top view, and the true shape of section.
- 6 Draw the elevation, plan and left and right side views of the part shown in the picture below (dimensions in mm).



- 7 A vertical cylinder with a 60 mm base diameter rests on its base on the H.P. It is penetrated by a horizontal cylinder of same diameter such that their axes bisect each other at right angles. Draw their three views and show the curves of intersection.
- 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.

\*\*\*\*\*

Code: 9A03101c

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

**ENGINEERING DRAWING**

(Common to EEE, ECM &amp; AE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

\*\*\*\*\*

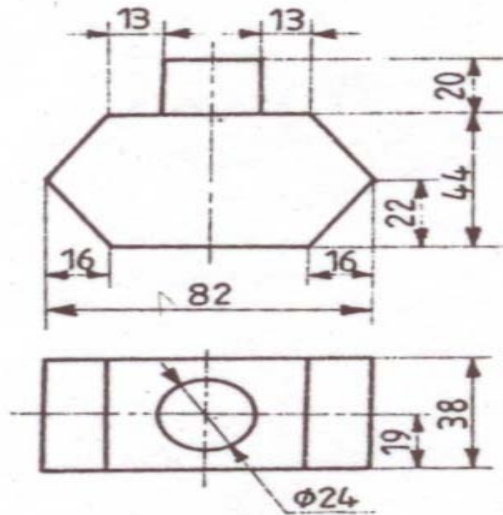
- 1 (a) A circle of 40mm diameter rolls on a straight line without slipping. In the initial position, the diameter PQ of the circle is parallel to the line on which it rolls. Draw the locus of the points P and Q for one complete revolution of the circle.  
(b) Draw the curve traced out by the end of the thick wire unwound from an equilateral triangle of side 20 mm, the wire being kept tight.
- 2 The end A of a line AB is in the H.P. and 25 mm behind the V.P. The end B is in the V.P. and 50 mm above the H.P. The distance between the end projectors is 75 mm. Draw the projections of AB and determine the true length, inclinations with two planes.
- 3 (a) Draw the projections of regular pentagon of 40 mm side, having its surface inclined at  $30^\circ$  to VP and the side on which it rests on VP, makes an angle of  $60^\circ$  with HP.  
(b) Draw the orthographic views of a regular hexagonal lamina of 25 mm side, resting on HP on one of its sides with its plane perpendicular to HP and inclined at  $45^\circ$  to VP. Take the nearest corner point 25 mm away from VP.
- 4 (a) A hexagonal pyramid, side of base 25 mm and axis 50 mm long, rests with one of the edges of its base on H.P and its axis is inclined at  $30^\circ$  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  $30^\circ$  to H.P. and its axis is parallel to V.P. Draw its projections.
- 5 (a) A cone of base diameter 50 mm and axis length 75 mm in resting on HP on its base is cut by a plane inclined at  $45^\circ$  to HP and perpendicular to VP and is bisecting the axis. Draw the front view and sectional top view and true shape of this section.  
(b) A pentagonal prism of base side 30 mm and axis length 60 mm is resting on HP on one of its rectangular faces, with its axis is perpendicular to VP. It is cut by a plane inclined at  $40^\circ$  to VP and perpendicular to HP and passing through a point 25 mm from rear base of the prism. Draw its top view, sectional front view and true shape of section.

Contd. in Page 2

Code: 9A03101c

Page 2

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



- 7 A cylinder 30 mm diameters and axis 40 mm long is lying on the ground plane with its axis perpendicular to the picture plane. The nearest point of contact with the ground is 60 mm on the left of the station point and 10 mm from the picture plane. The station point is 40 mm above the ground and 60 mm in front of the PP. Draw the perspective projection of the cylinder.
- 8 Draw the perspective view of a pentagonal plane with a 30 mm long side perpendicular to the PP. It placed on GP with its centre 50 mm behind PP. The station point is 50 mm in front of the PP, 65 mm above GP and lies in a CP which is 50 mm to the right of the centre of the pentagon.

\*\*\*\*\*

Code: 9A03101c

3

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

**ENGINEERING DRAWING**

(Common to EEE, ECM &amp; AE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

\*\*\*\*\*

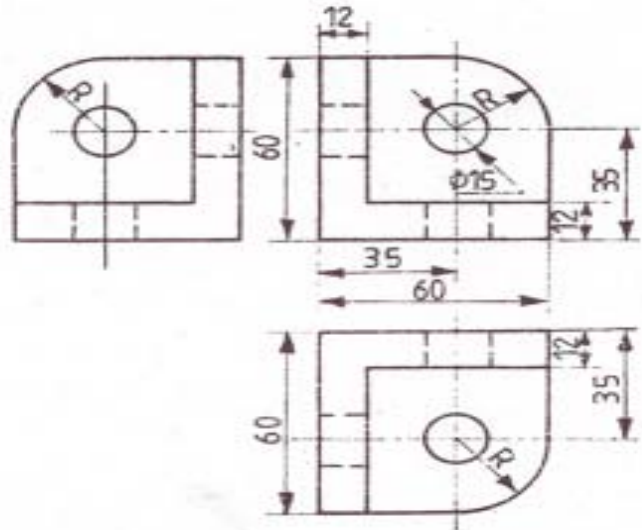
- 1 (a) A circle of 75 mm diameter rolls on another circle of 115 mm diameter with internal contact. Draw the locus of a point on the circumference of the rolling circle for its one complete revolution.  
(b) Draw the involute of an equilateral triangular of side 20 mm.
- 2 A line LM 70 mm long has its end L 10 mm above Hp and 15 mm in front of VP. The top and front views measure 60 mm and 40 mm respectively. Draw projections of the line. Find its inclinations with HP and VP.
- 3 (a) A circular lamina of 42 mm diameter has its surface parallel to HP and perpendicular to VP. Its center is above 15 mm HP and 30 mm in front of VP. Draw its projections.  
(b) An equilateral triangular lamina of side 50 mm is perpendicular to both planes. Draw its projections.
- 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  $20^\circ$  to V.P. Draw the top and front views of the pyramid.
- 5 (a) A cone of base diameter 50 mm and axis length 60 mm is resting on HP on its base. It is cut by a plane inclined at  $40^\circ$  to VP and perpendicular to HP that cuts the cone at distance 10 mm from the axis and in front of it. Draw its top view, sectional front view and true shape of section.  
(b) A square pyramid of base side 30 mm and axis length 60 mm is resting on HP on its base with a side is inclined at  $30^\circ$  to VP. It is cut by a plane perpendicular to both HP and VP and is 10 mm away from the axis. Draw its top view, front view and sectional side view.

Contd. in Page 2

Code: 9A03101c

Page 2

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



- 7 A vertical square prism, base 50 mm side has its faces equally inclined to the V.P. It is completely penetrated by another square prism of base 30 mm side, the axis of which is parallel to both the planes and is 6 mm away from the axis of the vertical prism. The faces of the horizontal prism also are equally inclined to the V.P. Draw the projections of the solids showing lines of intersection.
- 8 Draw the perspective projection of a cube of side 45 mm resting on the ground plane on its base with all the vertical faces equally inclined to the picture plane. One vertical edge is touching the picture plane and is 15mm to the left of the station point which is 70 mm above the ground and 55 mm in front of the picture plane.

\*\*\*\*\*

Code: 9A03101c

4

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

**ENGINEERING DRAWING**

(Common to EEE, ECM &amp; AE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

\*\*\*\*\*

- 1 (a) Draw a hypo-cycloid of a circle of 40 mm diameter, which rolls inside another circle of 160 mm diameter, for one revolution counter clockwise.  
(b) Draw the involute of a regular hexagon of side 20 mm. Draw a tangent and normal to the curve at a distance of 100 mm from the center of the hexagon.
- 2 (a) A line CD measures 80mm is inclined at an angle of  $30^{\circ}$  to HP and  $45^{\circ}$  to VP. The point C is 20 mm above HP and 30 mm in front of VP. Draw the projections of the line.  
(b) Draw the projections of a line JK 70 mm long and touching both HP and VP. It is inclined at  $40^{\circ}$  to HP and  $35^{\circ}$  to VP.
- 3 Draw the projections regular pentagon of 40 mm side, having its surface inclined  $30^{\circ}$  to HP and a side parallel to the HP. And inclined at angle of  $60^{\circ}$  to VP.
- 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  $30^{\circ}$  to V.P.
- 5 (a) A cone of base diameter 50 mm and axis length 60 mm is resting on HP on its base. It is cut by a perpendicular to HP and parallel to VP and 15 mm in front of the axis. Draw its top view, sectional front view.  
(b) A pentagonal pyramid of base side 30 mm and axis length 50 mm lies on one of its triangular faces on HP and with its axis parallel to VP. It is cut by a horizontal section plane whose VT passes through the centre of the base on the pyramid. Draw the sectional plan.

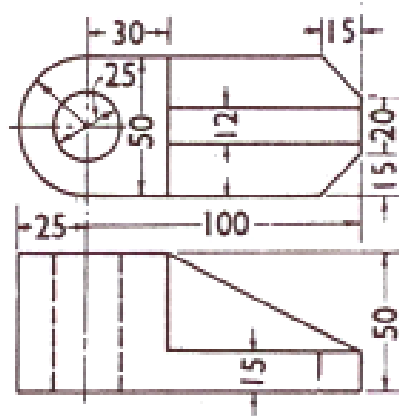
Contd. in Page 2

Code: 9A03101c

4

Page 2

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



- 7 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  $45^\circ$  to HP. Draw the projections of the shaft when an imaginary plane containing the two axes is parallel to VP.
- 8 A man stands at a distance of 5 m from a flight of four stone steps having a width of 2 m, tread 0.3 m and rise 0.2 m. The flight makes an angle of  $30^\circ$  with the picture plane and touches the same at a distance of 2 m to the right of the center of vision. Take horizon level to be 1.5 m above the ground level. Draw the perspective projection of the flight.

\*\*\*\*\*