

Code No: 09A10291

R09

SET-1

B. Tech I Year Examinations, December/January -2011-12

ENGINEERING DRAWING

(Common to Electrical & Electronics Engineering, Electronics & Instrumentation Engineering and Electronics & Computer Engineering)

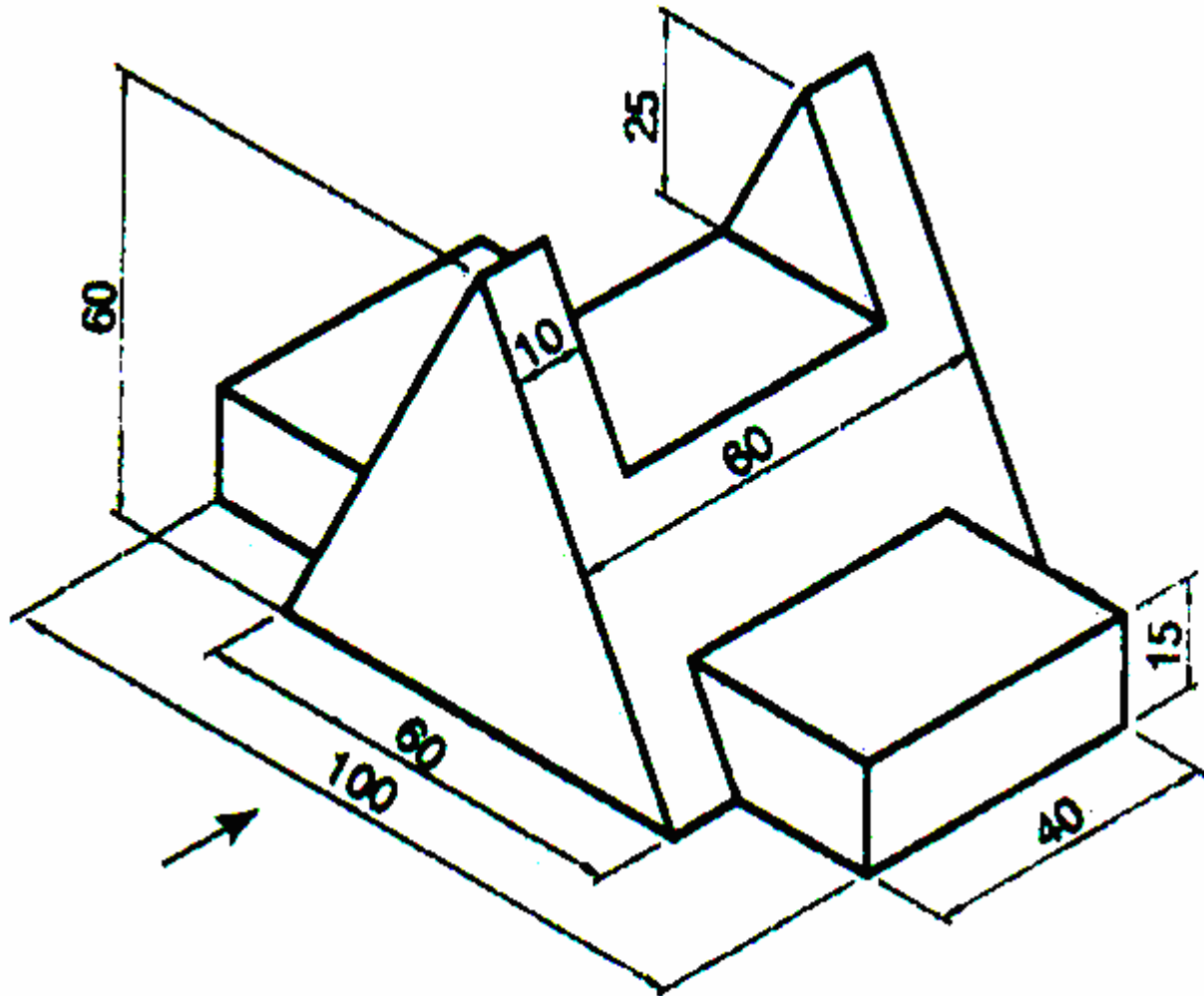
Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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1. a) Draw a plain scale of RF 1:40 to read Metres and Decimetres and long enough to measure up to 8m. Show lengths of 4.3m and 6.2m on this scale.  
b) Draw the hyperbola when the focus and the vertex are 25 mm apart. Consider eccentricity as  $\frac{3}{2}$ . Draw a tangent and normal to the curve at a point that is 35 mm from the focus. [15]
2. A 75 mm long line PQ is inclined at  $45^\circ$  to the H.P. The end P is 15 mm above the H.P. and 25 mm in front of the V.P. A vertical plane containing line PQ makes an angle of  $45^\circ$  with the V.P. Draw the projections of the line and determine its inclination with V.P. Also, locate its traces. [15]
3. A square ABCD with a 40 mm side is suspended from a point O, which is on side AB, 15 mm from A. The plane is parallel to and 25 mm in front of the V.P. Draw its projections and locate the traces. [15]
4. A cylinder, with a 60 mm base diameter and a 70 mm long axis, is lying on a generator on the H.P with its axis parallel to the V.P. A vertical section plane, the H.T. of which makes an angle of  $30^\circ$  with the V.P. and passes through a point distant 25 mm on the axis from one of its ends, cuts the cylinder. Draw its sectional front view and obtain the true shape of the section. [15]
5. A vertical cylinder 80mm diameter is penetrated by another cylinder of 40mm diameter and its axis is parallel VP and inclined at 30 degrees to HP. Axis of vertical cylinder is intersecting the axis of inclined cylinder. Draw the projections showing curves of intersection. [15]
6. A vertical cylinder of base diameter 50 mm and height 70 mm is cut by a plane inclined at  $55^\circ$  to HP and perpendicular to VP, which meets the axis at a distance of 20 mm from top base. Draw the isometric view of the remaining portion of the cylinder. [15]
7. Draw the following views for the object shown in figure. All dimensions are in mm.
  - a) Front view
  - b) Top view
  - c) Left Side view. [15]



8. A cylinder measuring 50 mm in diameter and 100 mm in height stands on its base on the ground plane. The axis of the cylinder is 30 mm behind the picture plane and 10 mm on the right of the observer. The observer is 120 mm in front of the PPP and 30 mm above the ground plane. Draw the perspective projection of the cylinder. [15]

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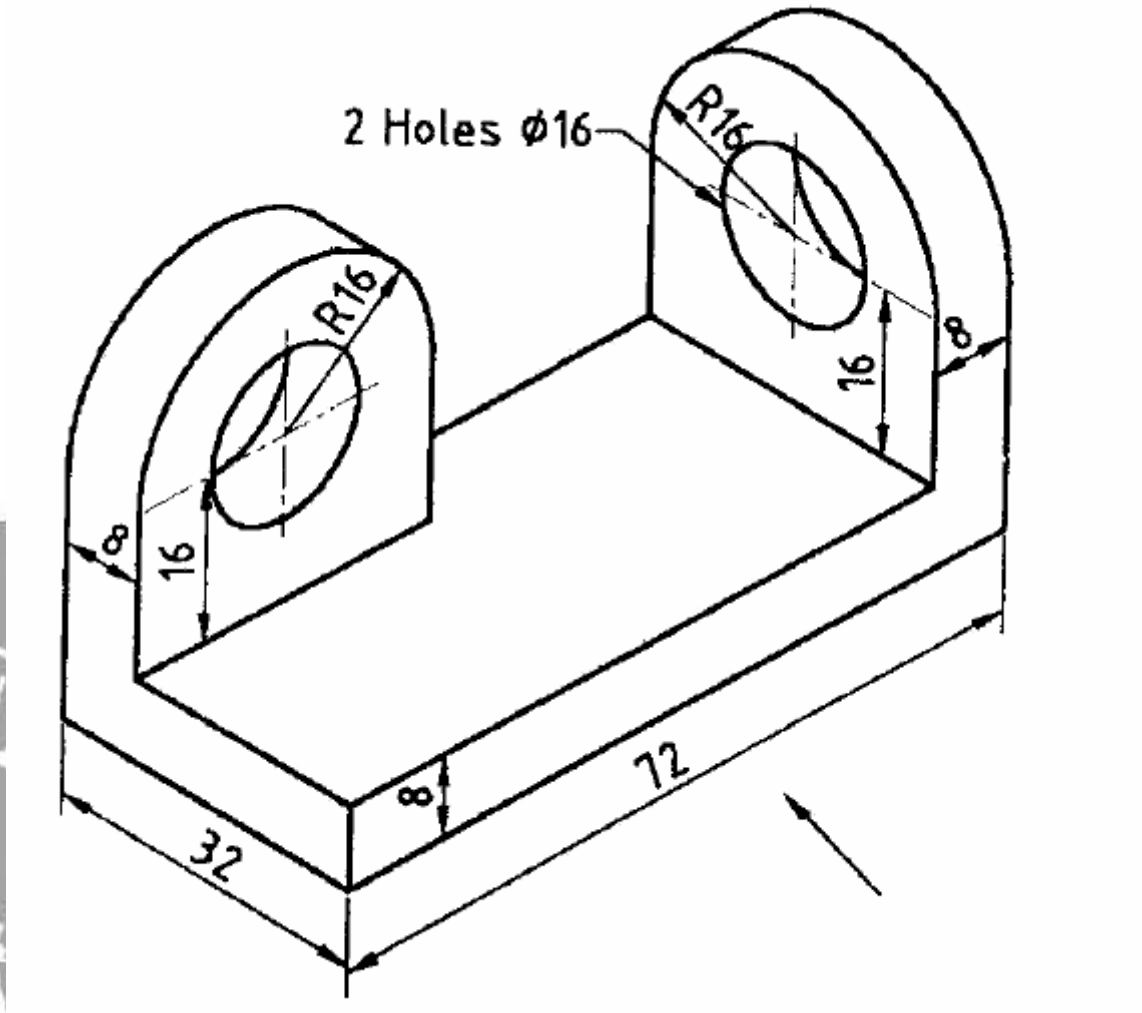
Time: 3 hours

Max. Marks: 75

Answer any five questions  
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1. a) The R.F. of a scale is  $1/400$ . Construct the scale to measure a maximum distance of 50 m and show a distance of 37.6 m on it. Name the scale and find length of the scale.  
b) The major axis of an ellipse is 120 mm long and the foci are at a distance of 20 mm from its ends. Draw the ellipse using one-half of it by concentric circles method and the other half by rectangle method. [15]
2. A line PQ has its end projectors 50 mm apart. The end P is 20 mm above the H.P. and 15 mm in front of the V.P., while the end Q is 60 mm above the H.P. and 70 mm in front of the V.P. Draw the projections of the line and determine its true length and inclinations with the principal planes. Also locate its traces. [15]
3. A pentagonal plane with a 35 mm long side has its corner on the H.P., and the side opposite to this corner is parallel to the H.P. The plane is parallel to and 20 mm in front of the V.P. Draw its projections and locate its traces. [15]
4. A square prism, with a base having a 40 mm side and a 70 mm axis, is lying on one of its bases on the H.P. with edges of the base equally inclined to the V.P. It is cut by an A.I.P. in such a manner that the true shape of the section is the rhombus with a 80 mm major diagonal. Draw front view, sectional top view and true shape of the section. [15]
5. A vertical cylinder 70mm diameter is penetrated by another cylinder of diameter 40mm with its axis is parallel to VP and 30 degrees inclined to HP. Axis of vertical cylinder is 10mm away from the axis of inclined cylinder. Draw the projections showing curves of intersection. [15]
6. A square pyramid having a side of 50 mm base and 75 mm as axis height stands centrally on circular block of 100 mm diameter and 50 mm thick. The base edges of the pyramid are parallel to VP. Draw the isometric projection of the two objects. [15]
7. Draw the following views for the object shown in figure. All dimensions are in mm.
  - a) Front view
  - b) Top view
  - c) Left Side view. [15]



8. A rectangular prism with a base of  $20 \text{ mm} \times 40 \text{ mm}$  and an axis of  $50 \text{ mm}$  is resting on its base on the GP with its side faces equally inclined to the PPP and one vertical edge touching the PPP. The longer base edge is on the right and the station point is  $50 \text{ mm}$  in front of the PPP and  $65 \text{ mm}$  above the GP. The central plane is  $10 \text{ mm}$  on the left of the axis of the prism. Draw a perspective view of the prism. [15]

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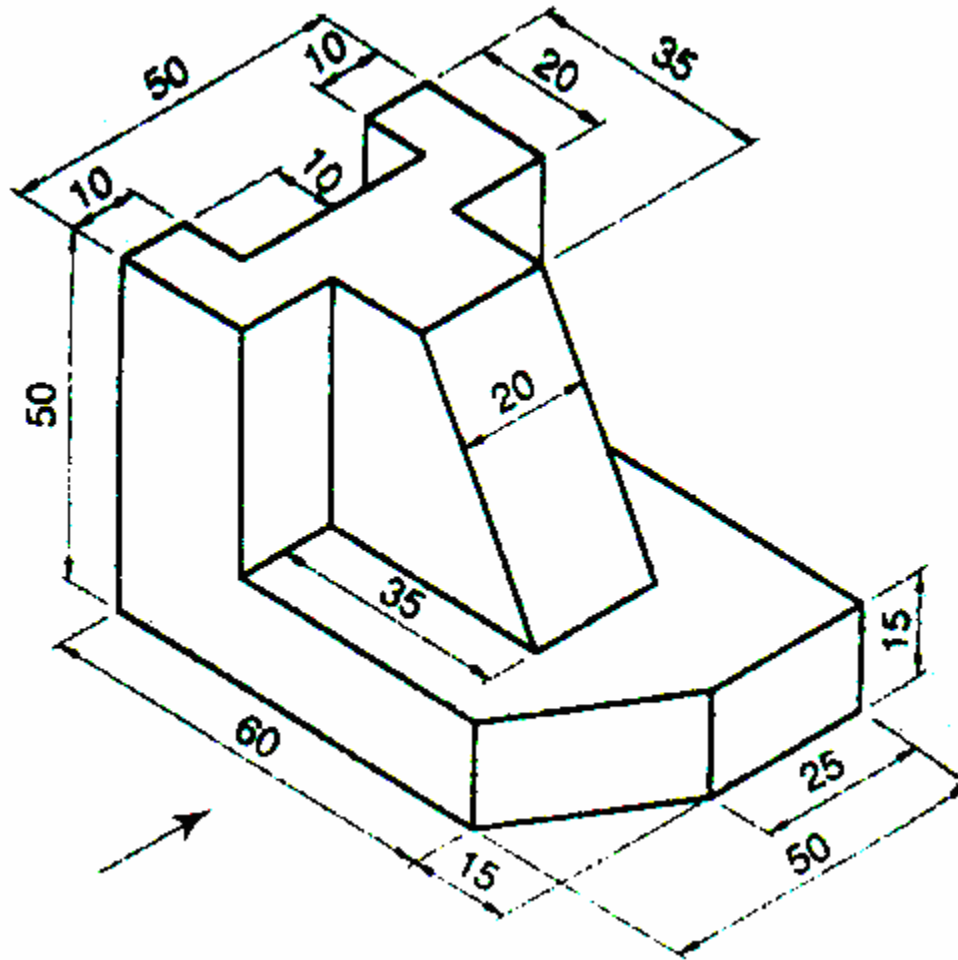
Time: 3 hours

Max. Marks: 75

Answer any five questions  
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1. a) The distance between two stations by road is 200 km and it is represented on a certain map by a 5 cm long line. Find the R. F. and construct a diagonal scale showing a single kilometer and long enough to measure up to 600 km. Show a distance of 467 km on this scale.  
b) Draw an ellipse when the distance of its focus from the directrix is 60 mm and eccentricity is  $2/3$ . Draw tangent and normal to the curve at a point 40 mm from focus. [15]
2. A 120 mm long line PQ is inclined at  $45^{\circ}$  to the H.P. and  $30^{\circ}$  to the V.P. Its mid-point is 50 above the H.P. and 40 mm in front of the V.P. Draw its projections. [15]
3. A pentagonal plane with a 30 mm long side is resting on one of its edge in the H.P., with its surface perpendicular to the V.P. The corner opposite to that edge is 40 mm above the H.P. Draw the projections of the plane and determine its inclination with the H.P. [15]
4. A hexagonal prism, having a base with a 20mm side and 60mm height is resting on the base in HP such that one of the rectangular faces is parallel to the VP. It is cut by a plane perpendicular to VP and 60 degrees inclined to HP and cutting the midpoint of the axis of the solid. Draw development of lateral surface of the bottom part of the solid. [15]
5. A cylinder of diameter 50 mm penetrates fully into a cone of base diameter 80 mm altitude 110 mm, which is resting on its base on HP. The axis of the cylinder intersects the axis of the cone at right angles at a height of 30 mm above the base of the cone. The axis of cylinder is parallel to both the planes. Draw the projections of the solids showing the curves of intersection. [15]
6. A pentagonal pyramid of base of side 30 mm rests on the top of a pentagonal prism of side 30 mm, with their sides coinciding with each other. The solid stands on HP with one of the sides of the base perpendicular to the VP. The height of prism = 40 mm. The height of pyramid = 50 mm. Draw the isometric projection of the solid. [15]
7. Draw the following views for the object shown in figure. All dimensions are in mm.
  - a) Front view
  - b) Top view
  - c) Left Side view. [15]



8. A circular plate of 30mm diameter rests on one of the points of its rim on the ground plane (GP). It is parallel to and 25 mm behind the picture plane for the perspective projection (PPP). The station point is 50mm in front of the PPP and 60 mm above the GP. Draw a perspective projection of the plate if the CP is 10 mm to the left of the centre of the circular plate. [15]

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Time: 3 hours

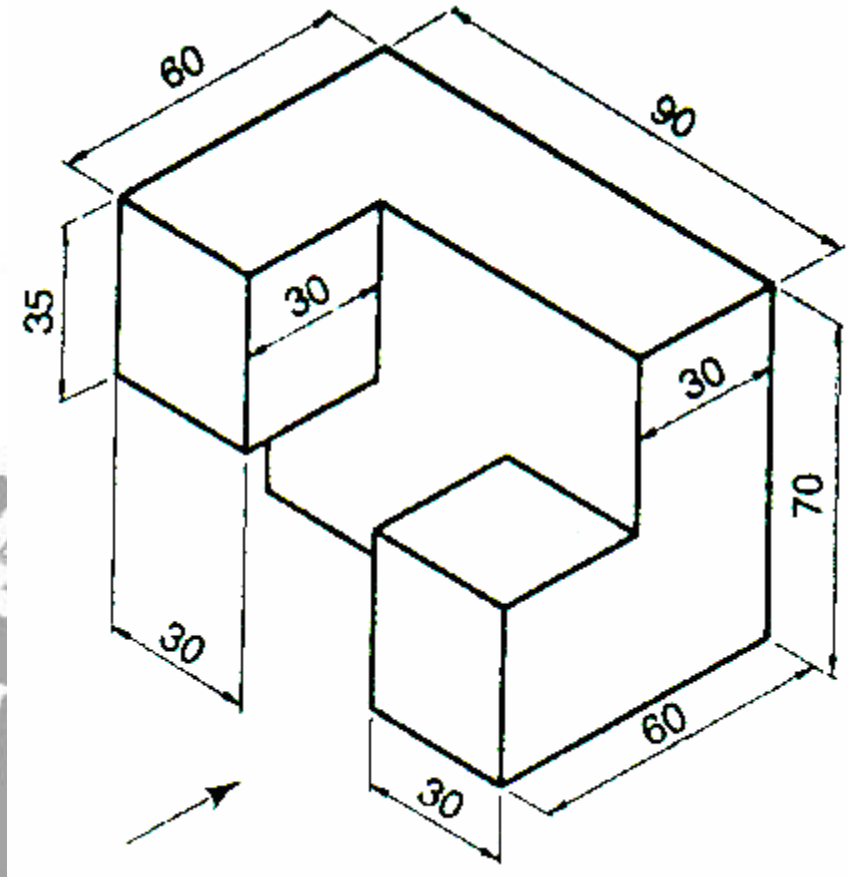
Max. Marks: 75

Answer any five questions

All questions carry equal marks

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1. a) Construct and name the scale of R.F. 1: 250 to show decimeter and long enough to measure up to 30 m. Indicate a distance of 28.9 m on it.  
b) Construct an ellipse of major diameter 120mm and minor diameter 80mm using concentric circle method. [15]
2. A 120 mm long line PQ is inclined at  $45^{\circ}$  to the H.P. and  $30^{\circ}$  to the V.P. A point M lies on the line at a distance of 40 mm from P and its front view is 50 mm above the xy line and the top view is 35 mm below the xy line. Draw its projections. [15]
3. A square lamina with a 50 mm side rests on the H.P., on one of its corners, such that the diagonal through that corner is parallel to the V.P. and inclined at  $30^{\circ}$  to the H.P. Draw its projections when the lamina is perpendicular to the V.P. Measure the distance of the topmost corner from the H.P. [15]
4. A square prism, having a base with a 30mm side and 60mm height is resting on the base in HP such that one of the rectangular faces is parallel to the VP. It is cut by a plane perpendicular to VP and 60 degrees inclined to HP and bisecting the axis of the solid. Draw development of lateral surface of the bottom part of the solid. [15]
5. A cylinder of diameter 44 mm pierces through a vertical cylinder of diameter 44 mm. The axis of the piercing cylinder is parallel to both the HP and VP. The axes are separated by distance of 6 mm, the axis of the horizontal cylinder being nearer to the observer. Draw the curves of intersection. [15]
6. A frustum of a cone 30 mm as top diameter, 50 mm as bottom diameter and 60 mm long is placed vertically on a square slab of side 70 mm and 30 mm thick, such that both the solids have the common axis. Draw the isometric projection of the combination of solids. [15]
7. Draw the following views for the object shown in figure. All dimensions are in mm.
  - a) Front view
  - b) Top view
  - c) Left Side view. [15]



8. A hexagonal prism of base edge 30 mm and axis 60 mm long rests on its base on the ground plane with two side faces inclined at  $30^\circ$  to the PPP and a vertical edge nearest to the PPP at 18mm behind it. The station point is 55mm in front of the picture plane PPP and 85mm above the ground plane. The CP is 18mm to the left of the axis of the prism. Draw the perspective projection of the prism. [15]

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