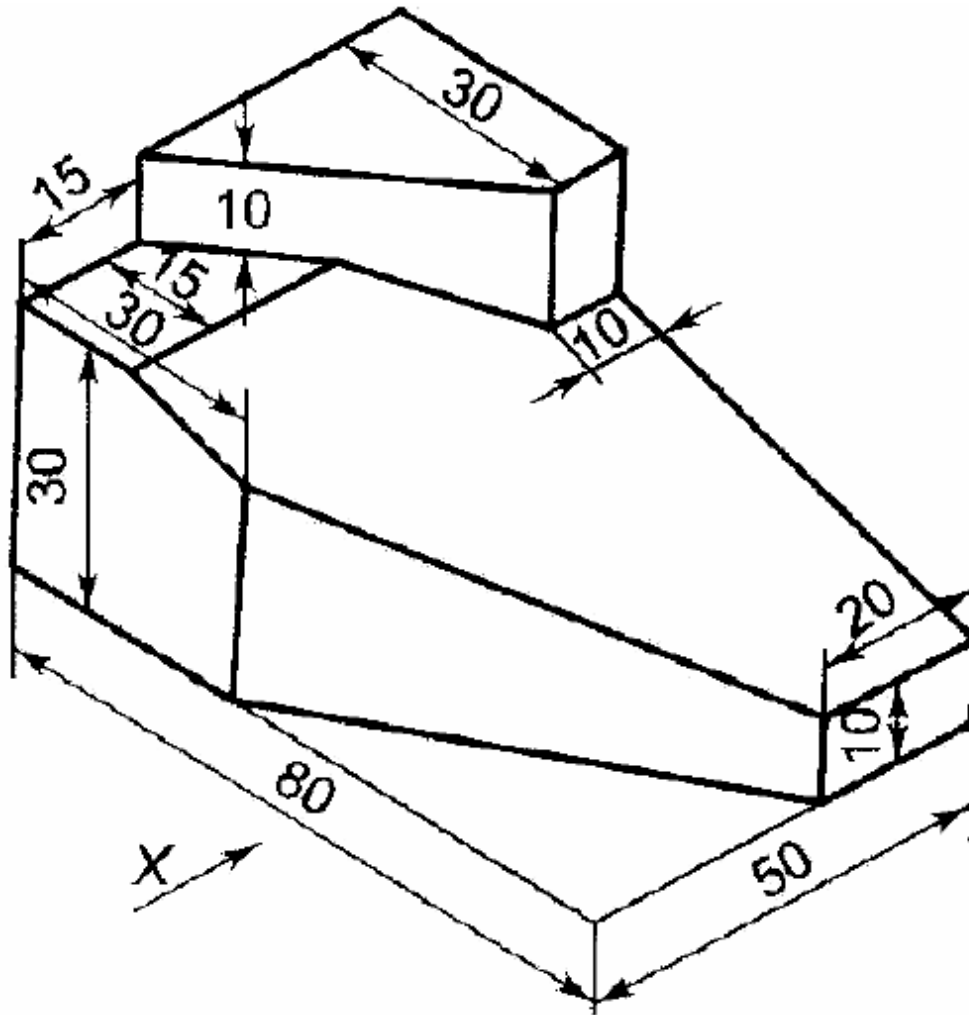**B. Tech I Year Examinations, December/January -2011-12**
**ENGINEERING DRAWING**
**(Common to Electronics & Communication Engineering and Aeronautical Engineering)**

Time: 3 hours                                                                                    Max. Marks: 75

**Answer any five questions**
**All questions carry equal marks**
**---**

1. a)   Construct a diagonal scale of 1:25 to read metres, decimeters and centimeters and long enough to measure 4m.  Mark on it a distance of 2.47m.
   b)   Draw a parabola in the parallelogram of sides 120 mm and 80 mm, take the longer side as horizontal base. Consider one of the included angles between the sides as 60 degrees.
                                                                                                                [15]

2.   A 70 mm long line PQ is inclined at $45^0$ to the H.P., and its top view measures 50 mm.  The end P is 15 mm above the H.P. while the V.T. of the line is 20 mm below the H.P.  Draw its projections and determine its inclination with the V.P.  Also, locate its H.T.                                                                                       [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 to the H.P. Draw its projections when the lamina is perpendicular to the V.P. Measure the distance of the top most corner from the H.P.                                                           [15]

4.   A square prism with a base having 40 mm sides and height 60 mm is kept  on its  base on the H.P. such that one of its rectangular faces makes an angle of $30^0$ with V.P. It   is   cut by a section plane parallel to V.P. such that the true shape of the section is a rectangle with 30 mm and 60 mm sides. Draw its sectional front view and top view.         [15]

5.   A vertical cylinder 80mm diameter is penetrated by another cylinder of the same size and its axis is parallel to both HP and VP. Axis of vertical cylinder is intersecting the axis of horizontal cylinder. Draw the projections showing curves of intersection.         [15]

6.   Draw an isometric projection of a frustum of the pentagonal pyramid with a 40 mm base side, 20 mm top side and 35 mm height resting on its   base in the H.P.         [15]

7.   Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm.                                                                          [15]

8.    A rectangular prism of base 30 mm $\times$ 40 mm rests on the GP on its base with a    corner of the base touching the PPP.  The longer base edge is on the right and inclined at $30^0$    to the PPP.  The station point is 50mm in front of the PPP and 75 mm above the GP.  If the central plane is 20 mm on the left of the axis of the pyramid. Draw a perspective projection of the pyramid.                                                                                                        [15]
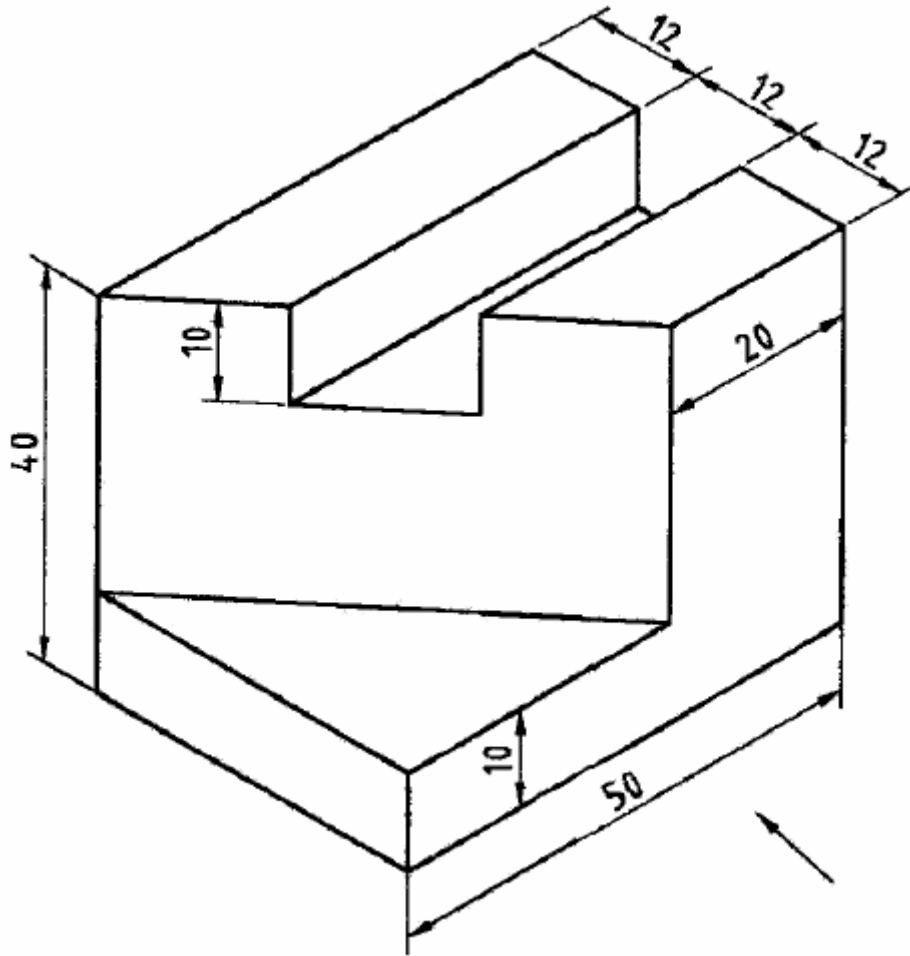
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2

**B. Tech I Year Examinations, December/January -2011-12**
**ENGINEERING DRAWING**
**(Common to Electronics & Communication Engineering and Aeronautical Engineering)**

Time: 3 hours                                  Max. Marks: 75

**Answer any five questions**
**All questions carry equal marks**
**---**

1. a) A room of 1728 m$^3$ volume is shown by a cube of 4 cm side. Find the R.F. and construct a scale to measure up to 50 m. Also indicate a distance of 37.6 m on the scale.

   b) Draw a parabola when span is 80 mm and rise is 30 mm using tangent method.     [15]

2. A 120 mm long line PQ has its ends P and Q 10 mm and 60 mm below the H.P., respectively. The end projectors are 50 mm apart. The mid-point of PQ is 60 mm in front of the V.P. Draw the projections and find the angles with both the reference planes.
                                                                  [15]

3. An equilateral triangle with an 60 mm long edge rests on a corner in the V.P. such that the edge opposite to that corner is perpendicular to the H. P. The surface of the plane is inclined at 45 to the V.P. Draw its projections.          [15]

4. A cylinder with a 50 mm base diameter and a 90 mm long axis, rests on its base in the H.P. It is cut by an auxiliary inclined plane such that the true shape of the section is a semi-ellipse which has a 70 mm long semi-major axis. Draw its projections. Also, determine true shape of section and inclination of the cutting plane with H.P.    [15]

5. A horizontal cylinder 40 mm diameter and axis length 75 mm centrally penetrates vertical cylinder 50 mm as base diameter. Draw the plan and elevation, showing curves of intersection. Assume the axis of the horizontal cylinder is parallel to VP.     [15]

6. A hexagonal prism with a 30 mm base and 45 mm axis has an axial hole with a 30 mm diameter. Draw its isometric projection. When its axis is perpendicular to H.P. and two rectangular faces are parallel to V.P.          [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm.                     [15]

8.  A circular plate of 60mm diameter is lying on the GP with its centre 42 mm behind the PPP. The station point is 85mm in front of the PPP and 60 mm above the GP. Draw the perspective projection of the plate if the CP is 35 mm to the left of the centre of the plate.
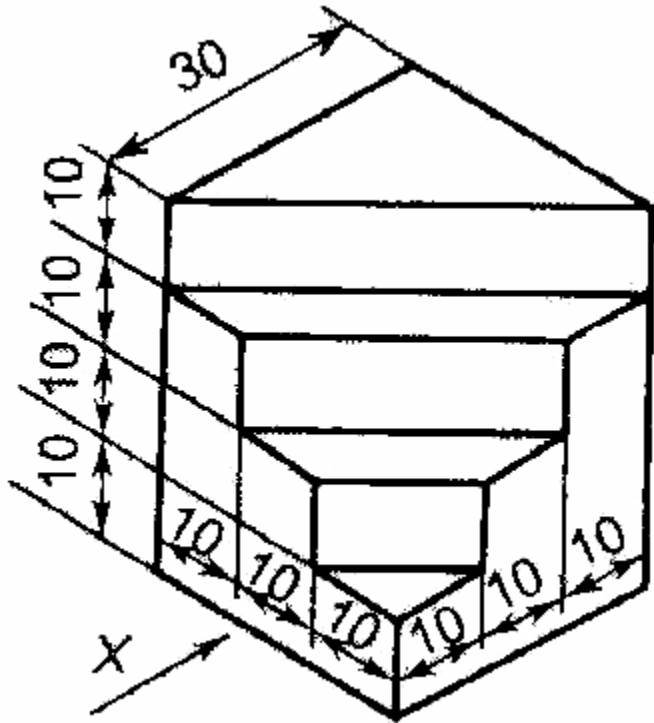
[15]

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4

**B. Tech I Year Examinations, December/January -2011-12**
**ENGINEERING DRAWING**
**(Common to Electronics & Communication Engineering and Aeronautical Engineering)**

Time: 3 hours                                                      Max. Marks: 75

**Answer any five questions**
**All questions carry equal marks**
**---**

1. a) An area of 400 $cm^2$ on a map represents an area of $25m^2$ on a field. Construct a scale to measure up to 5 km and capable to show a distance of 3.56 km. Indicate this distance on the scale.

   b) Draw a parabola when span and rise are 100 mm and 80 mm respectively. Draw the curve using rectangle method. [15]

2. A line PQ is inclined at $30^0$ to the H.P. The end P is 15 mm in front of the V.P. and the mid-point of the line is 40 mm above the H.P. The front view measures 60 mm and is inclined at $45^0$ with the reference line. Draw the projections of the line and determine its true length and inclination with V.P. Also, locate its traces. [15]

3. A pentagonal plane with a 25 mm side rests on the H.P., on one of its corners with its surface perpendicular to the V.P. and inclined at $30^0$ to the H.P. Draw its projections when the side opposite to the corner on which it is resting is parallel to the H.P. [15]

4. A cone with base circle diameter 50mm and 60mm height is resting on the base in HP. 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 horizontal cylinder of 50 mm diameter penetrates a vertical cylinder of 75 mm diameters resting on HP. The two axes are coplanar. The axis of the horizontal cylinder is 50 mm above the HP. Draw the projection showing the curves of intersection. [15]

6. A square prism, side of base 4 cm and 8 cm long rests centrally on a cylindrical slab 6 cm diameter and 3 cm thick. Draw the isometric projection of the solid. [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. [15]

8.   A rectangular pyramid of sides of 30 x 20 mm and height 35 mm rests with its base on ground such that one of the longer base edge is parallel to picture plane and 30 mm behind it. The station point is 50 mm in front of picture plane, 30 mm to the left of the axis of the pyramid and 50 mm above the ground. Draw the perspective view of the pyramid.                                                                                    [15]

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**B. Tech I Year Examinations, December/January -2011-12**
**ENGINEERING DRAWING**
**(Common to Electronics & Communication Engineering and Aeronautical Engineering)**

**Time: 3 hours**                                                **Max. Marks: 75**

**Answer any five questions**
**All questions carry equal marks**
**---**

1. a) The distance between two points on a map is 15 cm. The real distance between them is 20 km. Draw a diagonal scale to measure up to 25 km and show a distance of 13.6 km on it.

   b) Draw a path of a ball which is thrown from ground level which reaches a height of 30 m and a horizontal distance of 60 m before return to the ground. Name the curve.    [15]

2. The front view of a line AB makes an angle of 30 with the xy line. The H.T. of the line is 45 mm in front of the V.P. while its V.T. is 30 mm below the H.P. The end A is 12 mm above the H.P. and end B is 105 mm in front of the V.P. Draw the projections of the line and find its true length, and inclinations with the H.P. and the V.P.    [15]

3. A thin hexagonal plane with a 25 mm side rests on a corner in the H.P., such that its surface is perpendicular to the H.P. and inclined at $45^0$ to the V.P. Draw its projections when two sides of the plane are perpendicular to the H.P.

4. A cone with base circle diameter 50mm and height 60mm is resting on the base in HP. It is cut by a plane perpendicular to VP and 45 degrees inclined to HP and cutting the axis of the solid 15mm from top. Draw development of lateral surface of the bottom part of the solid.    [15]

5. A vertical cylinder of 60 mm diameter and 80 mm height is penetrated by a horizontal cylinder 40 mm diameter and 80 mm long. The axis of the penetrating cylinder is parallel to VP and 6 mm in front of the axis of the vertical cylinder. Draw the projections and show the intersection curve.    [15]

6. A cone of base diameter 30 mm and height 40 mm rests centrally over a cube of sides 50 mm. Draw the isometric projection of the combination of solids.    [15]

7. Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. [15]
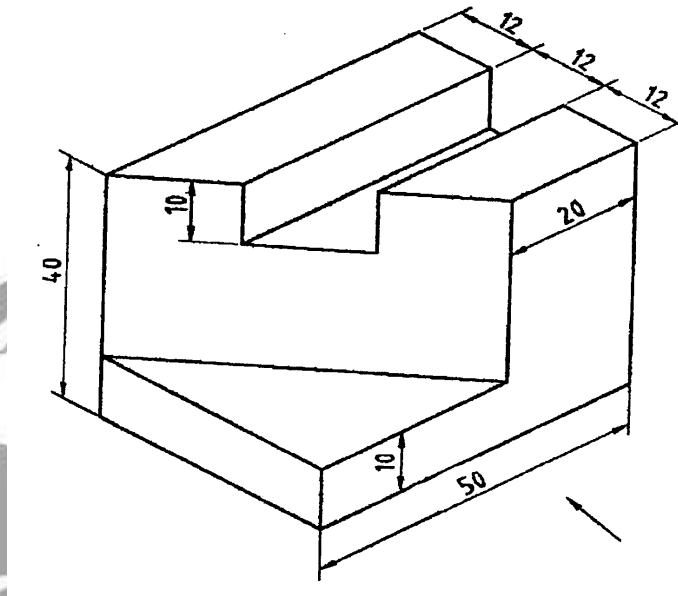


8. Draw the perspective view of a square pyramid of base side 50 mm and height 80 mm resting on GP with the nearest edge of base parallel to PP and 30 mm behind it. The station point is situated at a distance of 120 mm from PP, 50 mm above GP and 80 mm to the right of the apex of the pyramid. [15]

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