

Code No: 111AJ

**R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech I Year Examinations, May - 2016**

**ENGINEERING DRAWING**

**(Common to ME, IT, MCT, MMT, AME, MSNT)**

**Time: 3 hours**

**Max Marks: 75**

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

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- 1.a) A cricket ball thrown reaches a maximum height of 9 m and falls on the ground at a distance of 25 m from the point of projection. Draw the path of the ball. What is the angle of projection?
- b) Draw a vernier scale of metres when 1 mm represents 25 cm and mark on it a length of 24.4 cm and 23.1 mm. What is the RF? [7+8]

**OR**

2. A circle of 40 mm diameter rolls along a straight line without slipping. Draw the curve traced by a point on the circumference, for
- a) One complete revolution and
- b) One and a half revolutions of the circle. Name the curve. Draw a normal and tangent to the curve at a point 25 mm from the straight line. [7+8]

- 3.a) A line MN 50 mm long is parallel to VP and inclined at  $30^0$  to HP. The end M is 20 mm above HP and 10 mm in front of VP. Draw the projections of the line.
- b) An electric bulb is fixed centrally on a wall 50 cm from the ceiling. The wall is 4 m long and 3 m high. A switch for the bulb is located in a corner with the adjacent wall and is 1.5 m above the floor. Draw the projections of the centres of the bulb and the switch and find the true distance between them. Use suitable scale. [7+8]

**OR**

- 4.a) A line 75 mm long is inclined at  $50^0$  to VP and one of the ends is on it. It is parallel to HP and 40 mm below it. The line is behind VP. Draw its projections.
- b) Two pegs, A and B, are fixed on a wall. Peg A is 1.5 m above the floor while peg B is 3 m above the floor. If the distance between the two pegs measured parallel to the floor is 2 m, draw the projections of the pegs and find the true distance between the pegs. Use a suitable scale. [7+8]

- 5.a) A hexagonal pyramid, with 25 mm edge of base and 60 mm long slant edges has one of its triangular faces inclined at  $30^0$  to the VP while the edge of the base within that face is parallel to the VP and inclined at  $45^0$  to the HP. Draw its projections.

- b) A cube of 50 mm long edges is resting on the HP with a vertical face inclined at  $30^0$  to the VP. It is cut by a section plane, perpendicular to the VP, inclined at  $30^0$  to the HP and passing through a point on the axis, 38 mm above the HP. Draw the sectional top view, true shape of the section. [7+8]

**OR**

- 6.a) A frustum of a cone, 60 mm diameter at its base, 30 mm diameter at the top, and 50 mm high, has its axis inclined at  $30^\circ$  to the HP and the base inclined at  $45^\circ$  to the VP. Draw its projections.
- b) A cylinder, 65 mm diameter and 90 mm long, has its axis parallel to the H.P. and inclined at  $30^\circ$  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. [7+8]
- 7.a) Draw the development of the surface of the portion of the hexagonal prism having two faces perpendicular to the V.P., front view as shown below figure 1. Each block in the figure represents  $1\text{cm}^2$ .

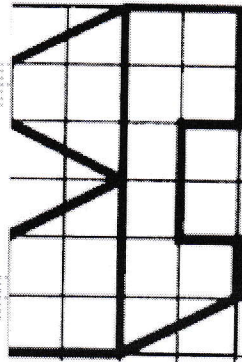


Figure: 1

- b) A vertical cylinder of diameter 120 mm is fully penetrated by a cylinder of diameter 90 mm, their axes intersecting each other. The axis of the penetrating cylinder is inclined at  $30^\circ$  to the HP and is parallel to the VP. Draw the top and front views of the cylinders and the curves of intersection. [7+8]

OR

8. A cone with 100 mm base diameter and a 100 mm long axis is resting on its base. A square hole with 35 mm sides is cut through the cone so that the axis of the hole is perpendicular to the VP, 25 mm above the base of the cone, and 10 mm away from the axis of the cone. Draw the development of the lateral surface of the cone if the side faces of the hole are equally inclined to the HP. [15]

9. Draw the isometric view of the following figure 2. All dimensions are in mm. [15]

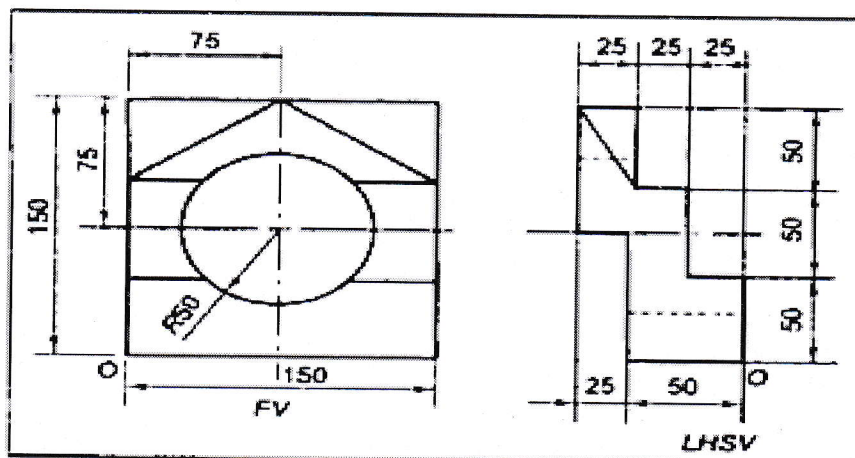


Figure: 2

OR

10. Draw the isometric view of the following figure 3. All dimensions are in mm [15]

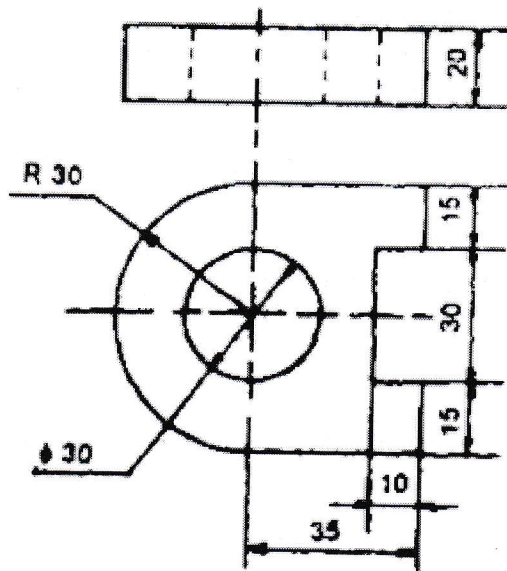


Figure: 3

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