EC/EEE 124 (R-22)

Total No. of Questions : 10] [Total No.of Pages : 03

I/IV B. Tech. DEGREE EXAMINATIONS, AUGUST - 2024

Second Semester

EC / EEE

ENGINEERING GRAPHICS

Time : **Three Hours** Maximum : **70** Marks

Answer ONE Question from each Unit.

All Questions carry equal marks. 5x14=70 M

UNIT - I

1. a) Draw the hyperbola given by the equation : $\frac{x^2}{36} - \frac{y^2}{9} = 1$, and label the vertices.

   Determine whether the transverse axis is horizontal or vertical.

   b) A coil is unwound from a drum of 30 mm diameter. Draw the locus of the free end of the coil for unwinding through an angle of 360^o. Draw also a normal and tangent at any point on the curve.

(OR)

2. Draw a cycloid for one complete revolution of a circle having a 50 mm diameter. Draw tangent and a normal to the curve at a distance 35 mm above the base line.

UNIT - II

3. A straight line AB of true length 100 mm has its end A 20 mm above HP and 30 mm in front of VP. The top view of the line is 80 mm and front view is 70 mm. Draw the projections (Top View and Front View) of the line AB and obtain the true inclinations of the line AB with HP and VP.

(OR)

4. a) The front view of a line makes an angle of 30^o with xy. 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. One end of the line is 10 mm above the H.P. and the other end is 100 mm in front of the V.P. Draw the projections of the line and determine its true length and its inclinations with the H.P. and V.P. ?

   b) A line AB is inclined at 30^o to HP and its ends A and B are at 25 mm and 60 mm in front of VP respectively. The length of the top view is 65 mm and its VT is 15 mm above HP. Draw the projections of the line and draw its HT.

P.T.O.

UNIT - III

5. a) A pentagonal prism has height 60 mm and the side of a base 30 mm. The prism rests on one of its sides of the base on the H.P. and makes an angle of 45 degrees with the V.P. Draw its projections.

   b) A cone of diameter of base 60 mm and axis length equal to 100 mm rests on one of its slant generators on H.P. such that its axis is inclined at an angle of 65^o with the V.P. Keep its apex near to the V.P. and draw the projections.

(OR)

6. A tetrahedron of 50 mm long edges is resting on one edge in the HP, while one triangular face containing this edge is vertical and is inclined at 45^o to VP. Draw its projections.

UNIT - IV

7. A pentagonal pyramid of 30 mm side of base and height of 45 mm stands on its base with an edge of the base paralle to VP. A section plane making an angle of 45^o to HP cuts the pyramid at a distance of 15mm from apex. Draw its top view and front view.

(OR)

8. A cylinder of diameter 50 mm and axis height 60 mm is resting on its base on H.P. as shown in figure 1. One square hole of size 25 mm is cut through the cylinder such that the axis of the square hole is parallel to H.P. perpendicular to V.P. and in the center of the vertical axis of the cylinder. The sides of the square hole are equally inclined with the H.P. Develop the lateral surface of the cylinder.

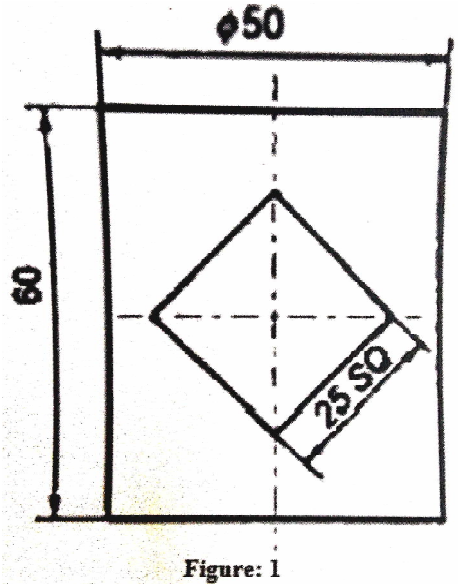
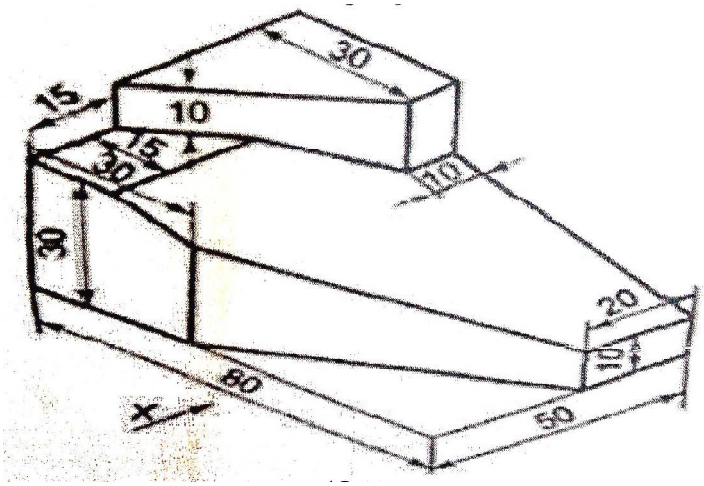


Figure: 1

UNIT - V

9. A sphere of 60 mm diameter is placed centrally on the top of a frustum of a square pyramid. The base of the frustum is 60 square, top is 40 square, and its height 50 mm. Draw the isometric projection of the arrangement.

(OR)

10. Draw the orthographic view of the following figure 2. All dimensions are in mm.