

ENGINEERING DRAWING

(Common to IT & ME)

Time: 3 hours

Max. Marks: 70

(Answer all five units, 05 X 14 = 70 Marks)

UNIT – I

- 1 Construct an ellipse, with distance of the focus from the directrix as 50 mm and eccentricity as $\frac{2}{3}$. Also, draw normal and tangent to the curve at a point 40 mm from the directrix.

OR

- 2 Draw epicycloids of a rolling circle 40 mm diameter which rolls outside of the circle of 150 mm diameter for one complete revolution clockwise. Draw the tangent and normal at any point on the curve.

UNIT – II

- 3 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.
Draw the projections of the following points on the same reference line. Keeping the projectors 30 mm apart.

- (i) A, 30 mm above HP and 30 mm in front of VP.
- (ii) B, 40 mm above HP and 30 mm behind VP.
- (iii) C, 40 mm above HP and in VP.
- (iv) D, 25 mm in front of VP and in HP.

OR

- 4 (a) A line 1 cm long represents a length of 4 decameter. Draw a plain scale and mark a distance of 6.7 m on it. Find RF and length of the scale.
(b) Draw the projections of the following points on the same reference line. Keeping the projectors 40 mm apart.
- (i) A, 40 mm below HP and 30 mm in front of VP.
 - (ii) B, 45 mm below HP and 30 mm behind VP.
 - (iii) C, 45 mm below HP and in VP.
 - (iv) D, 20 mm behind VP and in HP.

UNIT – III

- 5 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.

OR

- 6 A regular hexagonal plane with a 40 mm side rests on a corner in the H.P., and its surface is inclined at 45° to the H.P. Draw its projections when the diagonal through the corner, which is on H.P., makes 30° with VP.

UNIT – IV

- 7 Draw projections of a cylinder of base 30 mm diameter and axis 40 mm long, which lies on HP., on a point of its rim, with its axis inclined at 30° to HP. Top view of the axis is perpendicular to VP.

OR

- 8 A Hexagonal prism edge of base 20 mm and axis 50 mm long rest with its base on HP such that one of its rectangular faces is parallel to VP. It is cut by a plane perpendicular to VP inclined at 45° to HP and passing through the right corner of the top face of the prism. Draw the sectional top view and develop the lateral surface of the truncated prism.

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UNIT - V

- 9 A sphere of radius 20 mm is kept on the top phase of the prism of side of base 40 mm and height 20 mm which is later placed on the top phase of the cylinder of 60 mm diameter and 25 mm height. All the three solids have the common axis. Draw the isometric view of combination of solids.

OR

- 10 Pictorial view of an object shown in figure below. Using first angle projection, draw its front view from the X - direction, top view and left side view.


