

B.E. I EXAMINATION March' 2023
Branch: Electronics & Telecommunication – 'A'
MER2C3
ENGINEERING DRAWING

Duration: 3 hrs.**Max. Marks: 60**

Note: All questions are compulsory. Attempt any two parts from Question 1 to 3. Assume suitable data wherever if necessary & mention it, Drawing should be Neat.

- Q.1.** (a) Construct a Vernier Scale to read metres, decimetres & centimetres and long enough to measure upto 5 metres when 1 metre is represented by 3 centimetres. Find R.F. and represent the distance 2.68, 1.29 and 3.11 metres. **06**
- (b) Draw hypocycloid generated by a rolling circle of 60 mm diameter for one complete revolution .The radius of the directing circle is 100 mm .draw a tangent and a normal to the hypocycloid at 50 mm from the centre of the directing circle . **06**
- (c) The major axis of an ellipse is 110 mm long and the foci are at a distance of 15 mm from its ends. Draw the ellipse, one – half of it by ‘concentric circles’ method and the other half by ‘rectangle’ method. Determine eccentricity of the ellipse. **06**
- Q.2.** (a) A straight line PQ has an end P at 20 mm above the H.P. and 30 mm in front of the V.P. and the end Q is 80 mm above the H.P. and 70 mm in front of the V.P. if the end projectors are 60 mm apart ,draw the projections of the line .Determine its true length and true inclinations with the reference planes by using trapezoid method . **06**
- (b) A 100 mm long line PQ is inclined at 30° to the H.P. and 45° to the V.P. Its mid point is 35 mm above the H.P. and 50 mm in front of V.P. Draw its projections. **06**
- (c) A circular plane with an 80 mm diameter has one of the ends of the diameter in the H.P. while the other end is in the V.P. The plane is inclined at 30° to the H.P. and 60° to the V.P. Draw its projections **06**
- Q.3.** (a) Explain the essential difference between the Ist angle projection and IIIrd angle projection. **06**
- (b) Draw Front, Side and Top View of the object Shown in *Figure 1* (all dimensions are in mm) with respect to direction of Front view (X) by First Angle Projection Method. **06**
- (c) Draw an isometric view of a circular lamina with a 40 mm diameter on all the horizontal plane and vertical plane using four centre method. **06**

- Q.4. A right cone with a 60 mm base diameter and a 70 mm axis is resting on its base in **12** the H.P. it is cut by an auxiliary inclined plane parallel to and 9 mm away from the extreme generator. Draw the development of lateral surface of the remaining solid.

OR

- A square prism, having a base with a 40 mm side and a 60 mm long axis, rest on its **12** base on the H.P. such that one of its rectangular faces makes an angle of 30^0 with the V.P. It is cut by a section plane perpendicular to the H.P. and inclined at 60^0 to the V.P. passing through the prism such that the face which makes 60^0 with the V.P. is bisected. Draw its sectional front view, top view and true shape of the section.

- Q.5. A square prism having a base with a 70 mm side is resting on its base on the H. P. **12** With a face inclined at 30^0 to V. P. It is completely penetrated by a horizontal cylinder with a 70 mm base diameter such that axes of the prism and the cylinder intersect each other at right angles. Draw the projections of the combination and show the curves of intersection.

OR

- A cylinder with a 70 mm base diameter is resting on its base on the H.P. it is **12** penetrated by another cylinder of 60 mm base diameter such that their axes intersect each other at right angles and their axes have a length of 100 mm. Draw the projections of the combinations and show the curves of intersection.

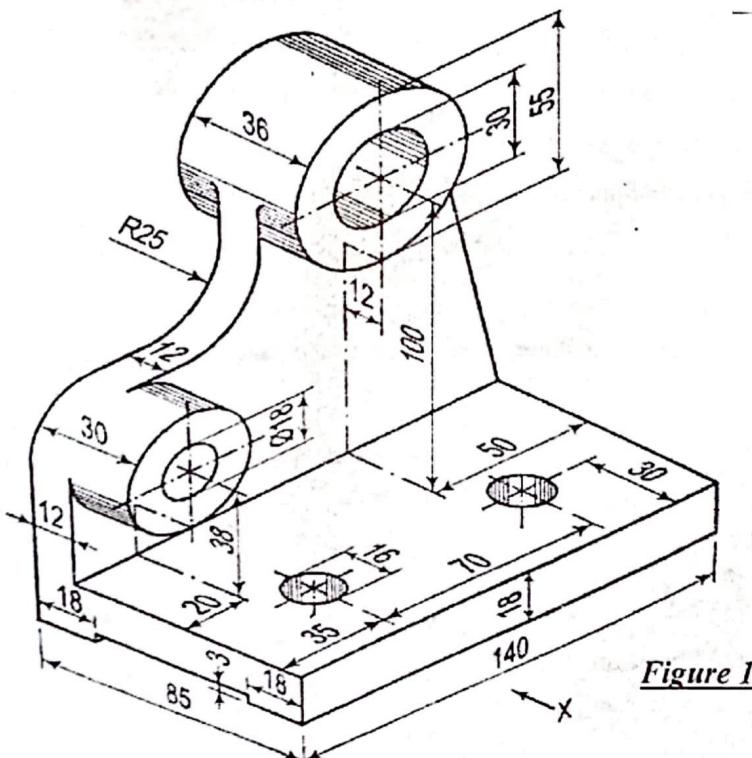


Figure 1