BT-2/M-23 42038

ENGINEERING GRAPHICS AND DESIGN
ES-109A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt any *Five* questions.

1. (a) Describe the principles of Engineering Graphics. **5**

    (b) Construct a diagonal scale of 1 : 50, to show metres, decimetres and centimetres and long enough to measure up to 6 metres. Also indicate on this scale a distance of 4 m, 5 dm and 4 cm. **10**

2. (a) Explain the principles of isometric projection. **5**

    (b) Discuss the general methods for generating Hyperbola. **6**

    (c) Define the following : **2×2=4**
        (i) Epicycloid
        (ii) Hypocycloid.

3. Draw the projections of the following points on a common reference line keeping the distance between their projectors 40 mm apart : **15**

    (a) Point A is 25 mm below the H.P. and in the V.P.

    (b) Point B is 35 mm in front of the V.P. and 25 mm below the H.P.

(c) Point C is 40 mm above the H.P. and 20 mm behind the V.P.

(d) Point D is 20 mm below the H.P. and 40 mm behind the V.P.

(e) Point E is both in H.P. and V.P.

4. A hexagonal prism has one of its rectangular faces parallel to the H.P. Its axis is perpendicular to the V.P. and 3.5 cm above the ground. Draw its projections when the nearer end is 2 cm in front of the V.P. Side of base is 2.5 cm long; axis 5 cm long. **15**

5. A pentagonal prism, base 28 mm side and height 65 mm has an edge of its base on the H.P. and axis parallel to the V.P. and inclined at 60° to the H.P. A section plane, H.T. having its H.T. perpendicular to xy, and the V.T. inclined at 60° to xy and passing through the highest corner, cuts the prism. Draw the sectional to view and true shape of the section. **15**

6. A right rectangular pentagonal pyramid, edge of base 40 mm and height 80 mm resting on its base on H.P. is cut by a section plane inclined to H.P. at 45° and meeting the axis at a distance of 20 mm from its top end. Develop the frustum of the prism. **15**

7. (a) What is the use of isometric scale in isometric views ?

(b) What are the principles of isometric projection ?

(c) Explain the projections of solids inclined with both the planes. **3×5=15**

8. Draw the front view, top view and side view in first angle projections of figure given below : **15**