

Roll No. ....

Total Pages : 03

**BT-I/D-21**

**41041**

ENGINEERING GRAPHICS & DESIGN

(ODD)

ES-109A

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. Assume any missing data.

### Unit I

1. Draw an epicycloid generated by a point P on the circumference of a rolling circle of 50 mm diameter when it rolls outside a directing circle of 150 mm diameter for one complete revolution. Draw a normal and tangent to the curve at any point on the curve. **15**
2. The distance between Vadodara and Surat is 130 km. A train covers this distance in 2.5 hours. Construct a plain scale to measure time upto a single minute. The R.F. of the scale is  $\frac{1}{260000}$ . Find the distance covered by the train in 45 minutes. **15**

## Unit II

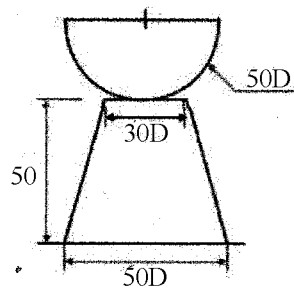
3. A straight line CD has its end point C 10 mm in front of the VP and 15 mm above the HP. The line is inclined at  $45^\circ$  to the VP and its top view measures 40 mm. Draw the projections of the line CD if it is 50 mm long, and is in first quadrant. **15**
4. A square pyramid having 25 mm edges at its base and an axis 70 mm long has its axis parallel to the VP and inclined at  $60^\circ$  to the HP. Draw its projections if one of its base edges is inclined at  $30^\circ$  to the VP and the apex is on the HP and 40 mm away from VP. **15**

## Unit III

5. A cube, with 25 mm edges, is resting on its base with two side faces incline at  $30^\circ$  to the VP. It is cut by a section plane parallel to the VP and 10 mm from the axis. Draw the sectional front view and the top view of the cube. **15**
6. A pentagonal prism of base side 30 mm and axis height 75 mm is resting on its base on HP with two of its lateral surfaces parallel to VP. It is cut by plane perpendicular to VP and inclined at  $45^\circ$  to HP, bisecting the axis. Draw the development of lateral surfaces of the lower portion of the prism. **15**

### Unit IV

7. Draw the isometric view of the given orthographic projection of the objects. **15**



8. Draw the front view, looking in the direction of arrow X, side view and the top view of the object given below : **15**

