

Roll No.

Total Pages : 03

BT-2/M-19

32040

ENGINEERING GRAPHICS AND DESIGN
ES-109A (Option II)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Unless stated otherwise, the symbols have their usual meaning in context with the subject. Assume suitably and state, additional data required, if any.

Unit I

1. Draw an epicycloid, given the radii of rolling and directing circles as $r = 30$ mm and $R = 120$ mm, respectively. Also draw a normal and a tangent at any point Q on the curve.

15

2. Draw the involute of a circular arc which subtends an angle $\theta = 90^\circ$ at the centre of the circle of $\phi = 120$ mm.

15

Unit II

3. A line PQ is the first quadrant. Its ends P and Q are 15 mm and 45 mm in front of the VP, respectively. The distance between the end projectors is 55 mm. The line is inclined at 30° to the HP and its HT is 8 mm above the XY line. Draw the projections of the line PQ and find its TL and locate its VT.

15

4. A regular hexagonal lamina, 20 mm, rests on HP on one of its sides such that it is perpendicular to the HP and inclined to VP at 30° . Draw its projections, in first angle, when the corner nearest to the VP is 15 mm away from it.

15

Unit III

5. A right regular pentagonal prism, edge of base 25 mm and height 55 mm, rests on an edge of its base in HP such that its axis is parallel to VP and (i) its base makes an angle 45° to HP, (ii) one of its rectangular faces is perpendicular to VP and inclined to HP at 45° . Draw the projections of the prism held in the given position.

15

6. A right circular cone, diameter of base 45 mm and height 52 mm, rests in HP on its base rim such that its axis is parallel to the VP and its base inclined to the HP at 45° .
Draw its projections by change of position of the solid

15

Unit IV

7. A cube, 25 mm edge, is placed centrally on the top of another square block, of 40 mm edge and 15 mm thick.
Draw the isometric drawing of the solids.
8. Draw an isometric view of the object whose projections are given as :

15

