

# FACULTY OF ENGINEERING & INFORMATICS

**B.E. I Year (New) (Common to all Branches) (Main) Examination, June 2011**  
**ENGINEERING GRAPHICS**

**Time : 3 Hours ]**

**[ Max. Marks : 100**

**Note : Answer all questions from Part A, answer any five questions from Part B.**

## PART – A

**(35 Marks)**

1. Match the following :

**4**

1. Hyperbola can be drawn by	(a) Has six equal faces, all equal squares.
2. Tetrahedron	(b) Front view above XY and top view below XY
3. Diagonal scale	(c) Rectangle method
4. First angle Projection	(d) To represent 3 units of a number
	(e) Has four equal faces, each an equilateral triangle.

2. What data is required to construct a scale ? **2**
3. Use inscribe circle method to construct a pentagon of 30 mm side. **3**
4. What are solids of revolution ? Give three examples and their formation. **4**
5. A room of 1728 M<sup>3</sup> volume is shown by a cube of 216 cm<sup>2</sup> volume. Find R.F and construct a scale to measure upto 42 m. **4**
6. Differentiate between a section and a section at view. **2**
7. Explain the cutting plane method of drawing curves of interpenetration of solids. **4**
8. Draw the development of a tetrahedron of side 30 mm. **5**
9. Differentiate between an 'Isometric projection' and 'Isometric view' of an object. **4**
10. Draw an involute of a line of 10 mm for 5 turns. **3**

## PART – B

**(65 Marks)**

11. (a) Construct a hypocycloid for a rolling circle 50 mm diameter and directing circle 180 mm diameter. **6**
- (b) Construct a scale with R.F = 1/2.5 to show decimetres, centimetres and millimetres by a vernier and to measure upto 4 decimetres. Mark on it a distance of 1.48 dm, 0.48 dm and 2.64 dm. **7**

12. A line PQ is in the first quadrant. Its ends P and Q are 20 mm and 60 mm in front of the V.P respectively. The distance between the end projectors is 75 mm. The line is inclined at  $30^\circ$  to the V.P, with its end 'P' in H.P. Draw the projections of PQ and find its true length and the inclination with the H.P. Also locate its H.T. **13**
13. Draw the projections of a pentagonal plane, side 25 mm resting on the H.P on one of its edges. The plane of the pentagon is inclined at  $45^\circ$  to the H.P and the perpendicular drawn from the mid point of the resting edge makes an angle of  $30^\circ$  with the V.P. **13**
14. A square prism of base 40 mm is resting on HP with its base sides equally inclined to both H.P and V.P and its axis inclined at  $45^\circ$  to H.P. It is cut by a horizontal plane bisecting axis. Draw the true shape of the section, if the axis is 80 mm. **13**
15. Draw the projections of a rhombus, having diagonals 120 mm and 60 mm long, the smaller diagonal of which is parallel to both the principal planes, while the other is inclined at  $30^\circ$  to H.P. **13**
16. A vertical cone of base 60 mm dia and axis 70 mm long is penetrated by a cylinder of 40 mm dia, such that the axis of the cylinder is parallel to the axis of the cone, at a distance of 5 mm. Draw the projections, showing the curves of intersection when (a) the plane containing the axes of the solids is parallel to V.P and (b) when the plane containing the axes of the solids is inclined at  $60^\circ$  to V.P. **13**
17. A right circular cone of dia. 30 mm base and height 36 mm rests centrally on top of a square block of 48 mm side and 22 mm thick. Draw the isometric projection of the two solids. **13**