

I B. Tech I Semester Regular Examinations, January 2015**ENGINEERING GRAPHICS – I****(Mechanical Engineering)****Time: 3 Hours****Max. Marks: 60****Note: Answer any Five Questions.****5 × 12 = 60M**

1. a) Circumscribe a regular hexagon about a circle of 60mm diameter with one side vertical. **(5M)**
b) Draw a vernier scale of R.F=1/20 to read centimeter up to 3m and on it show length representing 2.39m and 0.58m. **(7M)**
2. The focus of an ellipse is 50mm away from its directrix. If the eccentricity is $\frac{2}{3}$, draw the curve and measure its major and minor axes. A point P is located 45mm from the second vertex, draw tangent and normal to the curve at that point.
3. a) A line AB is 60mm long inclined at 30° to H.P and parallel to V.P. The end A is 15mm above H.P and 20mm in front of V.P. Draw the projections. **(6M)**
b) A line CD is parallel to V.P and inclined at 40° to H.P. 'C' is in H.P and 25mm in front of V.P. Top view is 50mm long. Find its true length. **(6M)**
4. The distance between the projectors of two points A and B is 70mm. Point A is 10mm above H.P. and 15mm in front of V.P. Point B is 50mm above H.P and 40mm in front of V.P. Find the shortest distance between A and B. Measure the true inclination of the line AB with V.P & H.P.
5. A semi-circular lamina of 60mm diameter has its straight edge in VP and inclined at an angle of 45° to HP. The surface of the lamina makes an angle of 30° with VP. Draw the projections.
6. Draw an isosceles triangle a b c of base 40 and altitude 75 with 'a' in XY and ab inclined at 45 degrees to XY. The figure is the top view of a triangle whose corners A, B and C are respectively 75mm, 25mm and 50mm above the HP. Determine the true shape of the triangle and the inclination of the side AB with the planes.
7. A circle of diameter 50 mm, rolls inside a circle of diameter 180 mm for one revolution. Name the curve. Also draw a tangent and a normal to the curve at a point 50 mm from the centre of the directing circle.
8. A line PQ inclined at 30° to the V.P has the end P 15 mm above the H.P. Its FV measures 70 mm and is inclined at 45° to reference line. The V.T. of the line is 25 mm below the H.P. Draw the projections of the line PQ and determine its true length and H.T.