



Reg. No. : .....

Name : .....

Combined First and Second Semester B.Tech. Degree Examination,  
December 2015  
(2013 Scheme)

13.104 – ENGINEERING GRAPHICS  
(ABCEFHMNPRSTU)

John Cox Memorial CSI Institute of Technology  
Kannammoola, Thiruvananthapuram  
695011

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Choose suitable scale and dimension the drawing properly.  
2) Retain **all** construction lines.  
3) Answer **one** question each from Module I and II and **two** questions **each** from Module III and IV

MODULE – I



Answer **one** question **each** question carries **16** marks.

- Two points A and B are 50 mm apart. Draw the curve traced out by a point P moving in such a way that the difference between its distances from A and B is always constant and equal to 20 mm. Name the curve, draw a tangent and normal to the curve.
- A point P moves radially outward from the centre C of the circular disc to its periphery when the disc complete two revolution. Radial movement of the point P and the circular motion of the disc are considered to be uniform. If the diameter of the disc is 100 mm draw the locus of the point and name the curve.

MODULE – II

Answer **one** question **each** question carries **16** marks.

- A room 6 m × 5 m × 3.5 m high. An electric bracket light is above the centre of the longer wall and 1 m below the ceiling. The bulb is 0.3 m away from the wall. The switch for the light is on an adjacent wall, 1.5 m above the floor and 1 m away from the other longer wall. Find graphically the shortest distance between the bulb and the switch.



4. A pentagonal pyramid has an edge of the base in the V.P. and inclined at  $30^\circ$  to the H.P., while the triangular face containing that edge makes an angle of  $45^\circ$  with the V.P. Draw three views of the pyramid. Length of the side of the base is 30 mm, while that of the axis is 80 mm.

### MODULE – III

Answer **any two** questions **each** question carries **17** marks.

5. A cylinder of diameter 60 mm and height 75 mm is lying on the H.P. with axis parallel to H.P. and inclined  $45^\circ$  to V.P. Find the inclination of the section plane with V.P. which cuts the cylinder making a full ellipse with maximum possible major axis. Also get the true section.
6. A funnel is a combination of a frustum of a cone base diameter 12 cm, top face diameter 3 cm and height 10 cm and a cylinder diameter 3 cm and height 10 cm which is made from G.I. sheet. Draw the shape of the sheet prepared for making the funnel.
7. A right regular hexagonal prism, edge of base 30 mm and height 80 mm, is resting on HP on one of its base edges, such that the base edge is perpendicular to VP, the axis is parallel to VP and inclined at  $60^\circ$  to the HP. Draw an auxiliary front view on a plane perpendicular to the HP and inclined to the VP at  $45^\circ$ .

### MODULE – IV

Answer **any two** questions **each** question carries **17** marks.

8. Draw the isometric projection of a hemisphere of diameter 50 mm kept centrally flat surface upwards on the frustum of a cone of base diameter 90 mm top face diameter 40 mm and height 50 mm.
9. A cone 90 mm diameter of base and axis 110 mm long stands on the ground and is completely penetrated by a cylinder 50 mm diameter and 110 mm long. The axis of the cylinder is horizontal, parallel to the V.P. and passes through the axis of the cone, 75 mm from the apex. Draw the projections of both curves of intersection.
10. Draw the perspective view of a pentagonal prism, lying on the ground plane on one of its rectangular faces, the axis being inclined at  $30^\circ$  to the picture plane, and a corner of base touching the picture plane. The station point is 6.5 cm in front of the picture plane and lies in a central plane which bisects the axis. The horizon is at the level of the top edge of the prism.