



SEM 1 – 5 (RC 07-08)

**F.E. (Semester – I) (RC 2007-08) Examination, May/June 2016
ENGINEERING GRAPHICS**

Duration : 4 Hours

Max. Marks : 100

Instructions : i) Attempt **five full** questions with atleast **one** question from **each** Module.

ii) Missing data, if **any** may be suitably **assumed**.

MODULE – I

1. a) A circle of diameter 50 mm rolls without slipping on a horizontal surface for half revolution and then it rolls on vertical surface for another half revolution. Initially the point P is at the bottom of the circle. Trace the path of point P. **10**
- b) A line AB, 65 mm long has its end A 20 mm above the HP and 25 mm in front of VP. The end B is 40 mm above the HP and 65 mm in front of the VP. Draw the projections of A and B and measure the lengths of top and front views. **10**
2. a) On a cricket ground the ball thrown by a fielder reaches the wicket-keeper after travelling a distance of 70 m. The maximum height achieved by the ball above the ground is 30 m. Assuming the point of the throw and the point of the catch to be 1 m above the ground draw the path taken by the ball. Name the curve. **10**
- b) The front view and top view of a line AB are 65 mm and 56 mm long respectively. The midpoint of the line is 38 mm in front of VP and 30 mm above HP. End A is 10 mm in front of the VP and nearer to it. End B is nearer to the HP. Draw the projections of the line. Find its true length and true inclinations. **10**

MODULE – II

3. a) A rectangle of size 80 mm × 50 mm is seen as a square of 50 mm side in the top view. Draw the projections of the rectangle if one of the diagonals is parallel to the VP. Find the angle made by the lamina with the HP. **10**
- b) A cone, diameter of base 60 mm and height 90 mm, is resting on HP on a corner. Axis of cone makes 60° with the HP and 30° with the VP. Draw the projection of the cone, when the apex is nearer to VP. **10**

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4. a) A thin semicircular plate of diameter 60 mm has its edge in the VP and inclined at 40° to HP. The surface of the plate makes an angle of 30° with VP. Draw the projections of the plate. 10
- b) A square pyramid edge of base 50 mm and height 70 mm has its axis inclined at 45° to HP. Draw its projections if one of its base edges is on the HP and inclined at 60° to the VP. Assume that the apex of the pyramid is nearer to the VP. 10

MODULE – III

5. a) A hexagonal pyramid, 20 mm side of base and 50 mm high, resting with its base on HP such that an edge of the base is parallel to VP. The pyramid is cut by two section planes, both perpendicular to VP. One of the section plane is parallel to HP and bisects the axis. The other section plane is inclined at 30° to HP, bisects the axis and leans towards the base of the pyramid. Both section plane lie on either side of the axis. Draw the front view, sectional top view and true shape of the section. 10
- b) Draw the projections of a cone resting on the ground on its base and show on it, the shortest path by which a point P, starting from a point on the circumference of the base and moving around the cone will return to the same point. Base of the cone is 65 mm diameter and axis is 75 mm long. 10
6. A pentagonal pyramid edge of base 30 mm and height of axis 75 mm is resting on the ground on one its triangular faces, its axis being parallel to VP. It is cut by a section plane perpendicular to VP and inclined at 45° to the HP and passing through the mid-point of the axis, the apex portion being removed. Draw the sectional top view, front view and the true shape of the section. Develop the retained portion of the pyramid. 20

