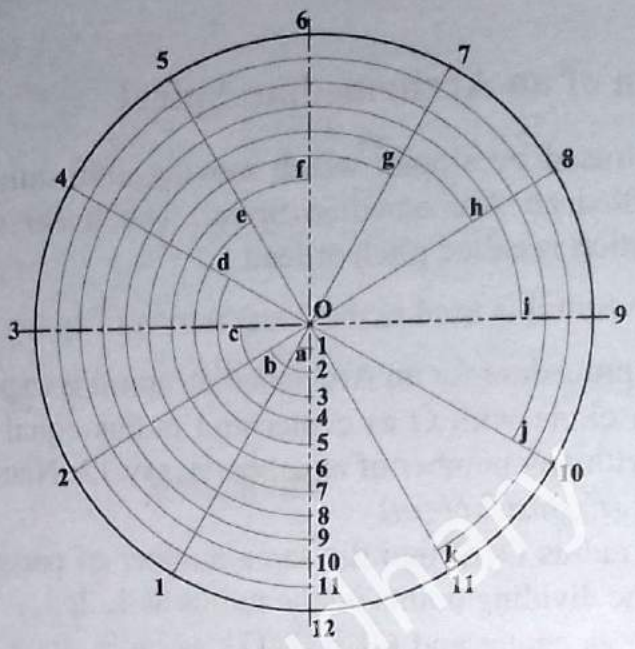

Figure 2.60(c)

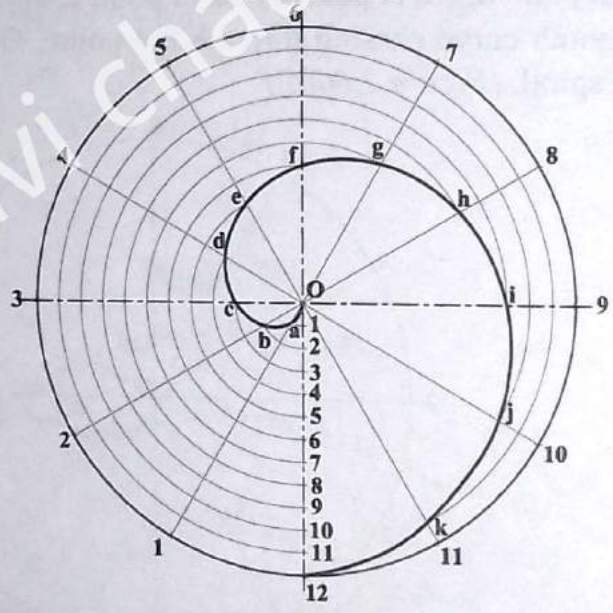

Figure 2.60(d)

2.5.4 Construction of a Helix

The space curve traced by a point that revolves around the surface of a right circular cylinder in such a way that its axial advancement on the surface of the cylinder is uniform is called a helix. The distance that the generating point travels parallel to the axis in one revolution is called the pitch or lead of the helix.

Helical profiles are commonly used in screw threads, springs, spiral staircase, conveyers, etc. The construction procedure for a helix is explained below.

- Draw a circle with diameter equal to diameter of the cylinder as its top view and a rectangle with its height equal to the given pitch as the front view of the cylinder. *(Figure 2.61(a))*
- Divide the circle with any number of equal parts, say 12. Name the dividing points as 1, 2, 3, ..., 12. *(Figure 2.61(b))*

- Divide the height of the cylinder (pitch) into the same number of parts as that of the circle and again name the dividing points on the radius as 1, 2, 3, ….., 12. *(Figure 2.61(c))*
- Draw vertical lines from each point on the circumference of the circle and horizontal lines from each point one the pitch. *(Figure 2.61(d))*
- Mark the intersection points of horizontal and vertical lines passing through 1 and 1, 2 and 2, 3 and 3, and so on. *(Figure 2.61(e))*
- Draw smooth curve passing through each points. Half portion of the curve will not be visible from the front and therefore drawn as hidden line. *(Figure 2.61(f))*

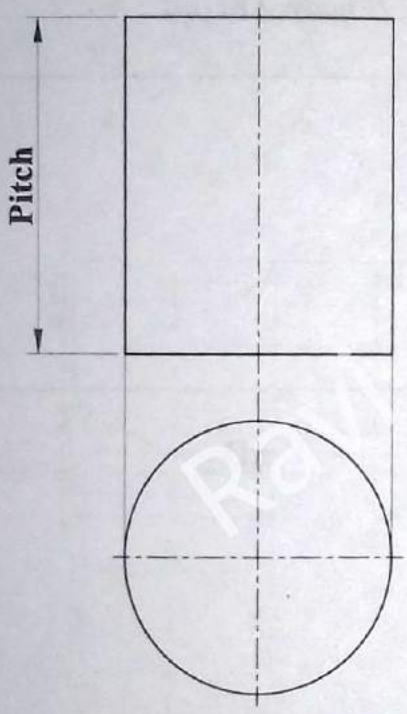

Figure 2.61(a)

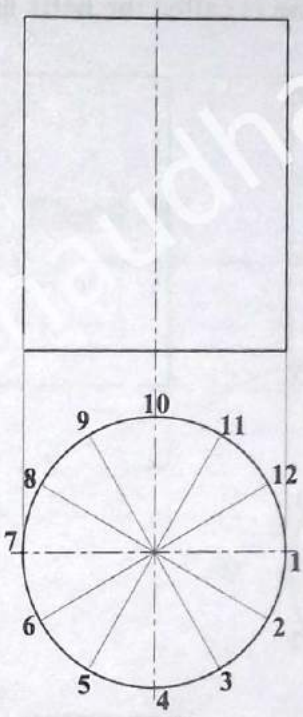

Figure 2.61(b)

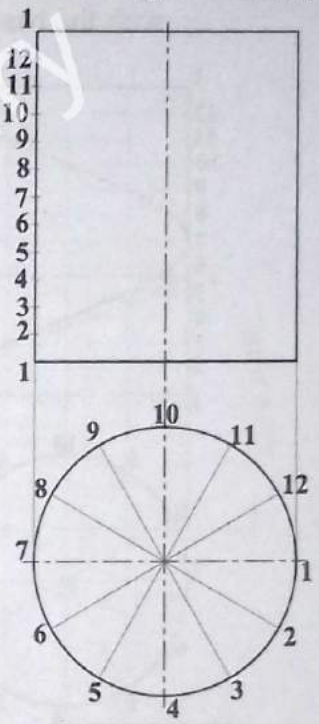

Figure 2.61(c)

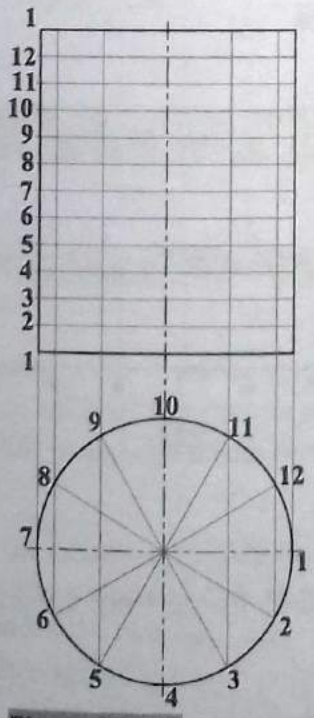

Figure 2.61(d)

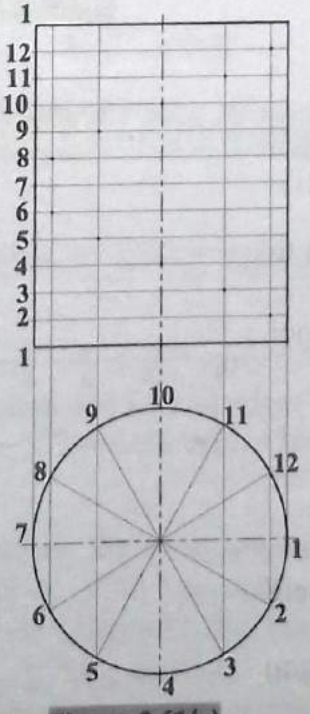

Figure 2.61(e)

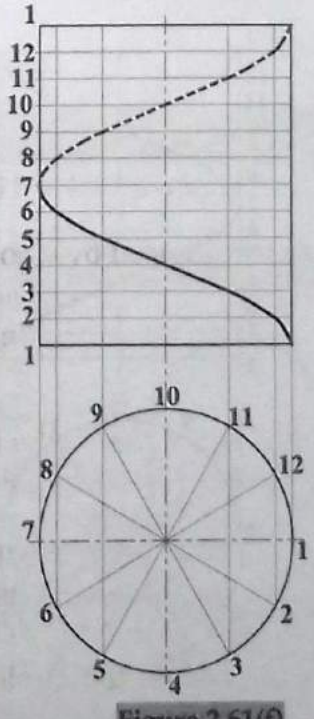

Figure 2.61(f)