Chapter 3. PROJECTION OF SOLIDS   (7M)

1. A hexagonal prism side of base 25 mm and axis 50 mm long rests with one of its base corner on H.P. Such that base makes an angle of 60° to H.P. and axis parallel to V.P. Draw the projections

2. A pentagonal pyramid side of base 25 mm and axis 55 mm long, lies with one of its slant edges on H.P. axis parallel to V.P. Draw the projections.

3. Draw the projections of cone, base 30 mm diameter and axis50 mm long resting on H.P. on a point of circumference of base circle. Axis inclined to H.P. at 45° and parallel to V.P.

4. A cylinder of base diameter 50mm and axis length 60mm is kept on VP. On a point of its base circle such that its axis is inclined to VP. At 300 and parallel to HP. Draw the projection of cylinder.

Chapter 4   INTERSECTIONS OF SOLIDS   (8 M)

1. A vertical square prism, base 60mm side is completely penetrated by a horizontal square prism, base 40mm side so that their axes are 8mm apart.
The axis of the horizontal prism is parallel to VP. While the faces of both prisms are equally inclined to VP.Draw the projections showing lines of intersection.

2. A vertical square prism base 60mm side and axis height 105mm has a rear rectangular face inclined at 30degree to VP. It is completely penetrated by a horizontal square prism of 45mm edge of base and 105mm long, faces of which are equally inclined to HP. Axis of two prisms are parallel to VP and bisect each other at right angles. Draw the projections of solids showing lines of intersection.

3. A pentagonal prism side of base 60mm and height 100 mm long is lying on the HP on its pentagonal base, such that and edge of base is parallel to VP. And nearer to it. The axis of the prism is parallel to VP. And perpendicular to HP. This prism is completely penetrated by a horizontal cylinder of base diameter 70mm and length 120mm such that the axis of both the prism and the cylinder bisect each other at right angle. Draw the projection of solids showing the curves of intersection.

4. A vertical square prism of 50mm edge of the base and 100mm axis is resting on its base on the HP in such a way that one of the edges of the base makes an angle of 30 degree with the VP. The prism is completely penetrated by a cylinder with axis parallel to HP and VP. The diameter of the cylinder is 60mm and axis is 15mm in front of the axis of the prism and is

50mm away from the HP.Draw three views of the arrangement showing the curves of intersection.

5. A vertical cylinder of 75mm diameter is completely penetrated by another cylinder of 50mm diameter, the axis of which is parallel to both the HP and VP. The two axes are 9mm apart. Draw the projections of two cylinders showing curves of intersection assume suitable lengths for both the cylinders.

6. A vertical cylinder of 60mm diameter is completely penetrated by another cylinder of the same size the axis of penetrating cylinder is parallel to both the HP and VP and is 10mm away from the axis of the vertical cylinder. Draw the projections of two cylinders showing curves of intersection. Assume the length of vertical cylinder as 90mm and horizontal cylinder with length of 100mm.

7. A cone with base diameter 70mm and axis height 65mm is kept on the HP on its base. It is completely penetrated by the horizontal cylinder of diameter 35mm with its axis parallel to VP and intersecting the axis of the cone at a distance of 20mm above the base of the cone. Draw the projections of solids showing curves of intersection by cutting plane method.

8. A cone with base diameter 70mm and axis height 65mm is kept on the HP on its base. It is completely penetrated by the horizontal cylinder of diameter 35mm with its axis parallel to VP and intersecting the axis of the cone at a distance of 20mm above the base of the cone. Draw the projections of solids showing curves of intersection by line method.

Chapter 5   DEVELOPMENTS OF SURFACES   (7M)

SQUARE PRISM

1. A square prism of base side 40 mm and height 80 mm rests on HP with all faces equally inclined to VP. It is cut by a plane perpendicular to VP and 60° inclined to HP passing through a point on axis 55 mm from base. Draw development of lateral surface of the prism.

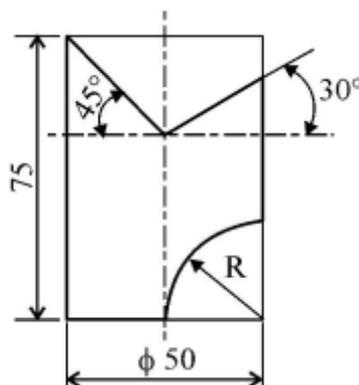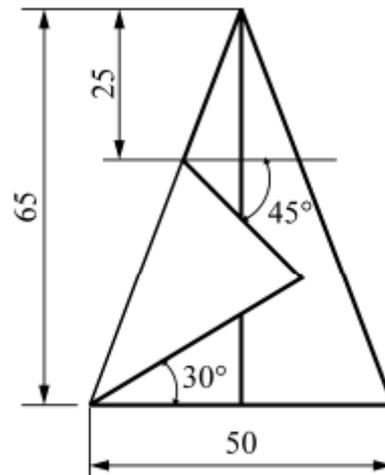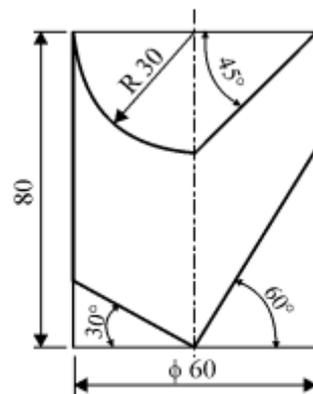2. Draw the development of the lateral surface of the cylinder having a diameter of 50 mm

Figure 1

3. Figure – 2 shows the F.V. of a square pyramid. Draw its development of lateral surface.

Figure 2

4. **Draw the development of the lateral surface of the cylinder shown in Fig. No. 3.**

Fig. No. 3