



ROHINI COLLEGE OF ENGINEERING & TECHNOLOGY

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DEPARTMENT OF MECHANICAL ENGINEERING

UNIT IV

SECTION OF SOLIDS

1. A hexagonal prism of base side 30mm and axis length 70mm rests on one of its ends on HP with two of the base sides parallel to VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP. The cutting plane meets the axis at a distance of 30mm from one end. Draw the sectional top view, front view and true shape of the section.
2. A pentagonal prism of base side 30mm, axis length 70mm rests on the HP on one of its ends with a rectangular face perpendicular to VP. It is cut by a plane perpendicular to VP and inclined at 45° to HP and the shortest distance between the axis and cutting plane is 10mm. Draw sectional top view, front view and true shape of the section.
3. A hexagonal prism of base side 30mm and axis length 70mm rests on the HP on one of its rectangular faces with its axis perpendicular to VP. It is cut by a vertical plane inclined at 30° to the VP. The cutting plane meets the axis at a distance of 30mm from one end. Draw the top view, sectional front view and true shape of the section.
4. A hexagonal prism of base side 30mm and axis length is resting on HP on one of its rectangular faces with its axis perpendicular to VP. It is cut by a plane inclined at 45° to HP and perpendicular to VP and is 12mm away from the axis. Draw front view, sectional top view and true shape of the section.
5. A square pyramid of base side 25mm and altitude 40mm rests on HP on its base with its base edges equally inclined to the VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP meeting the axis at 20mm above the HP. Draw sectional top view and true shape of the section.
6. A pentagonal pyramid of base side 20mm and altitude 55mm is resting its base on HP with one of the base sides perpendicular to VP. It is cut by a plane inclined at 50° to the base. The cutting plane meets the axis at 15mm above the base. Draw front view, sectional top view and true shape of section.
7. A cylinder of diameter 40mm and height 60mm rests on its base on the HP. It is cut by a plane perpendicular to the VP and inclined at 30° to HP. The plane bisects the axis. Draw front view, sectional top view and true shape of the section.

8. A right circular cone of base diameter 50mm and axis length 60mm rests on its base on HP. It is cut by a plane perpendicular to the HP and inclined at 60° to VP. The shortest distance between the cutting plane and top view of the axis is 8mm. Draw top view, sectional front view and true shape of the section.

DEVELOPMENT OF SURFACES

1. A square prism, having base with a 30mm side and a 60mm axis, is resting on its base on the ground with a side of the base of the base inclined at 30° to VP. It is cut by a plane inclined at 45° with the HP and perpendicular to VP and is bisecting the axis. Draw the development of the remaining portion of the prism.

2. A hexagonal prism of base side 20mm and height 45mm is resting on one of its ends on the HP, with two of its lateral faces parallel to VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP. The plane meets the axis at a distance of 20mm above the base. Draw the development of the lateral surface of the lower portion of the prism.

3. Draw the development of the lateral portion of the right portion of the cylinder with 50mm base diameter and height 65mm is cut by a plane inclined at 60° to the base passing through the axis at a height of 40mm above the base.

4. A hexagonal prism of base side 30mm and height 65mm stands on one of its ends on the HP with two of the vertical faces parallel to VP. A circular hole of diameter 40mm is drilled completely through the prism in such a way that axis of the hole bisects the axis of the prism at right angles. The axis of the hole is perpendicular to the VP. Draw the development of the lateral surface of the prism showing the shapes of the holes formed on it.

5. A cone of base diameter 70mm and axis length 90mm is resting with its base on the HP. It is cut by a plane perpendicular to VP and inclined to the HP cuts the cone and passes through left extreme base point of the cone and the midpoint of the axis. Draw the development of the lateral surface of the truncated cone.

6. A pentagonal pyramid of base side 25mm and altitude 50mm rests on its base on HP with two of the sides of the base parallel to the VP. It is cut by a plane bisecting the axis. The cutting plane is inclined at 30° to the base and perpendicular to the VP. Draw the development of the lateral surfaces of the lower part of the cut pyramid.