



SECTION OF SOLIDS:

The hidden or internal parts of an object are shown by sectional views in technical drawings. The sectional view of an object is obtained by cutting through the object by a suitable plane known as the section plane or cutting plane and removing the portion lying between the plane and the observer. The surface produced by cutting the object is called the section and its projection is called a sectional plan or sectional elevation. The section is indicated by thin section lines uniformly spaced and inclined at 45° .

A sectional view of an object is obtained by projecting the retained portion of the object which is left behind when object is cut by an imaginary section plane and the portion of the object between the section plane and the observer is assumed as removed.

The object is cut by a section plane AA. The front half of the object between the Section plane and the observer are removed. The view of the retained portion of the object is projection VP. The top view is projected for the whole uncut object.

TYPES OF SECTIONAL VIEWS OF SOLIDS:

By using the five different types of perpendicular section planes we obtain the following five types of sectional views of solids:

1. Section of solids obtained by horizontal planes as shown in Fig 4.1.

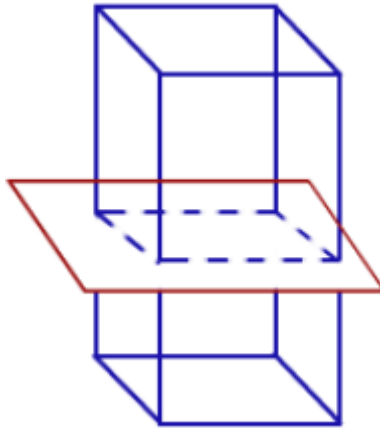


Fig.4.1



2. Section of solids obtained by vertical planes as shown in Fig 4.2.

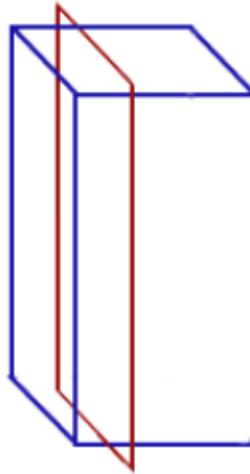


Fig.4.2

PROBLEMS

1. A cone of base diameter 40mm and axis length 50mm is resting on HP on its base. It is cut by a plane perpendicular to HP and parallel to VP and 10mm in front of the axis. Draw the top view and sectional front view.

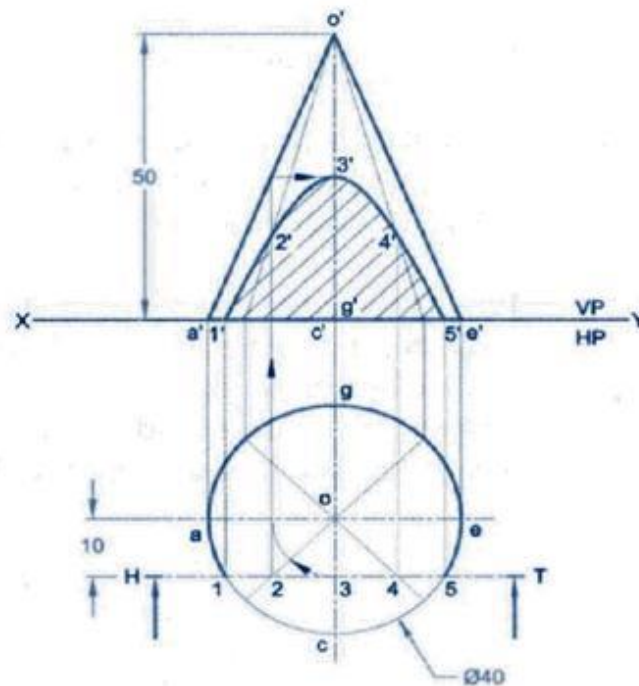


Fig.4.3

STEPS

To draw the cutting plane top view and sectional front view

1. Draw the projection of the cone and HT of the cutting plane at the distance 10mm from the axis in top view as shown in Fig 4.3.
2. Then the new points 1, 2, etc and project them to the front view to get 1', 2', etc in the respective generators.
3. Join them and hatching line to show the sectional front view. Note that the true of the section is obtained in front view because the cutting plane is parallel to VP.