

18MES101L – Engineering Graphics and Design

Exercise 6: Projection of Solids – II

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- **Definition of Solid**
- **Classification of Solids**
- **Terms used in Projection of Solid**
- **Pyramid, Solid of revolution and Frustum**

Definition of Solid

- A solid is a three dimensional object having length, breadth and thickness. It is completely bounded by a surface or surfaces which may be curved or plane.
- The shape of the solid is described by drawing its two orthographic views usually on the two principle planes i.e. Floor and wall
- For some complicated solids, in addition to the above principle views, side view is also required.

Classification of Solids

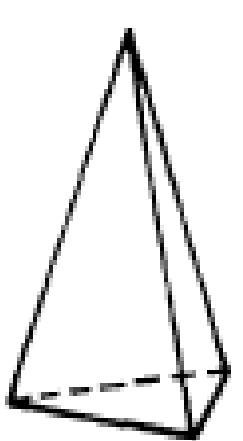
-Solids may be divided into two main groups

(A) Polyhedra

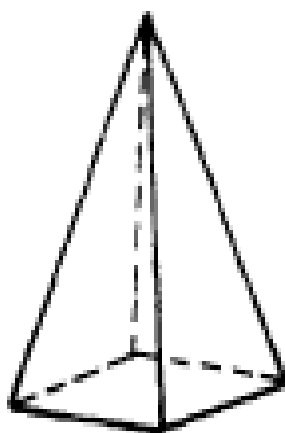
(B) Solids of revolution

Polyhedra - (iii) Pyramids

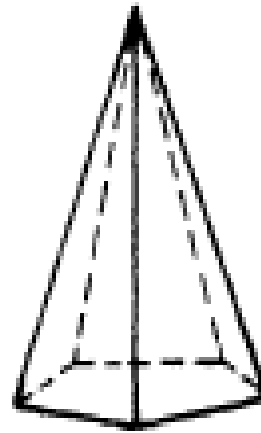
- A pyramid is a polyhedron having one base, with a number of isosceles triangular faces, meeting at a point called the apex. The imaginary line passing through the centre of the base and the apex is called the axis of the pyramid.
- The pyramid is named after the shape of the base. Thus, a square pyramid has a square base and pentagonal pyramid has pentagonal base.



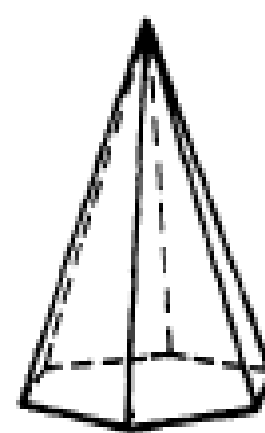
Triangular



Square

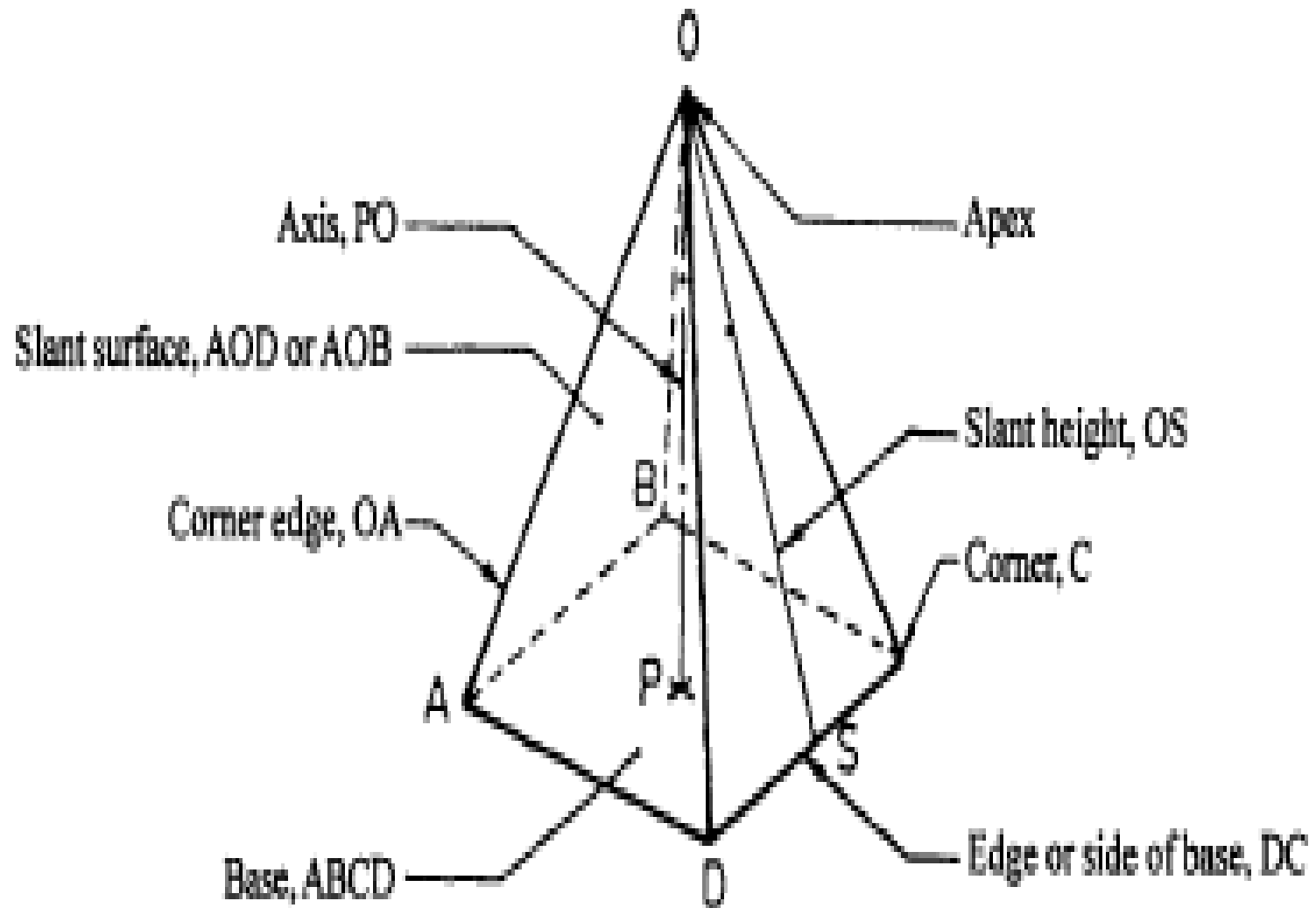


Pentagonal



Hexagonal

Polyhedra - (iii) Pyramids

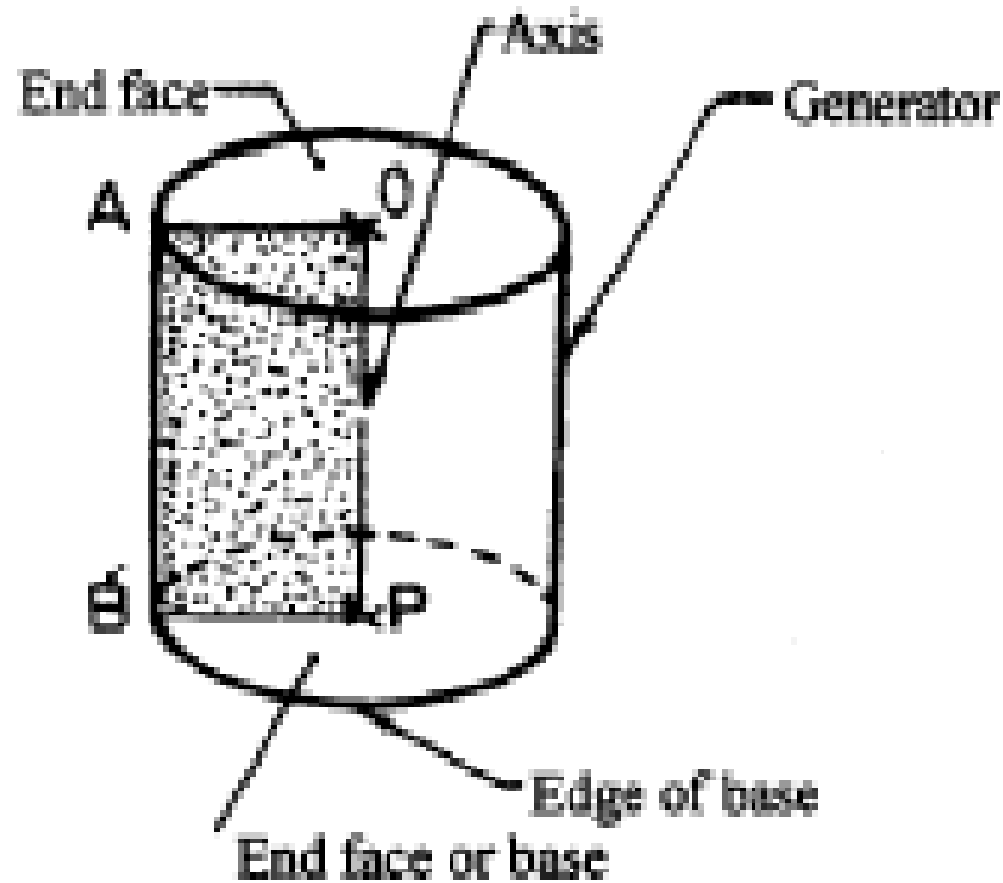


Solids of Revolution

- If a plane surface is revolved about one of its edges, the solid generated is called a solid of revolution. The examples are

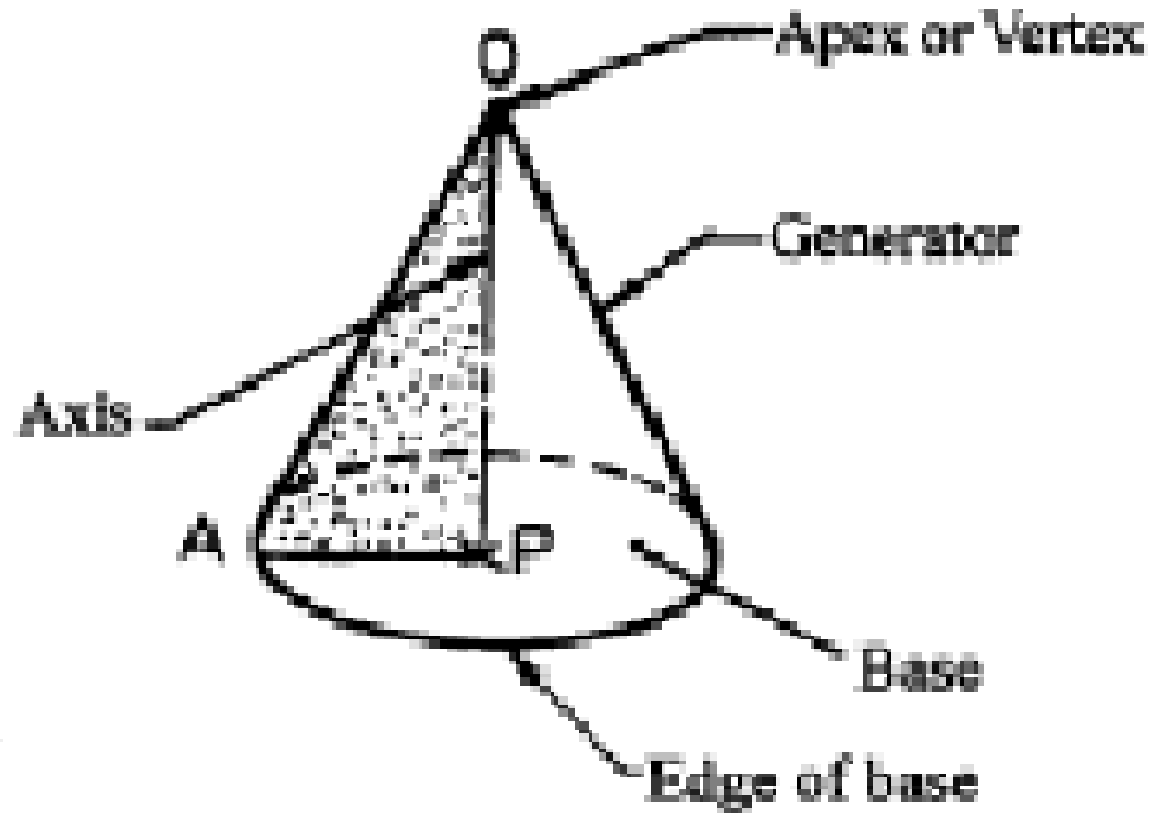
- (i) Cylinder,
- (ii) Cone,
- (iii) Sphere,
- (iv) Torus.

Solids of Revolution - Cylinder



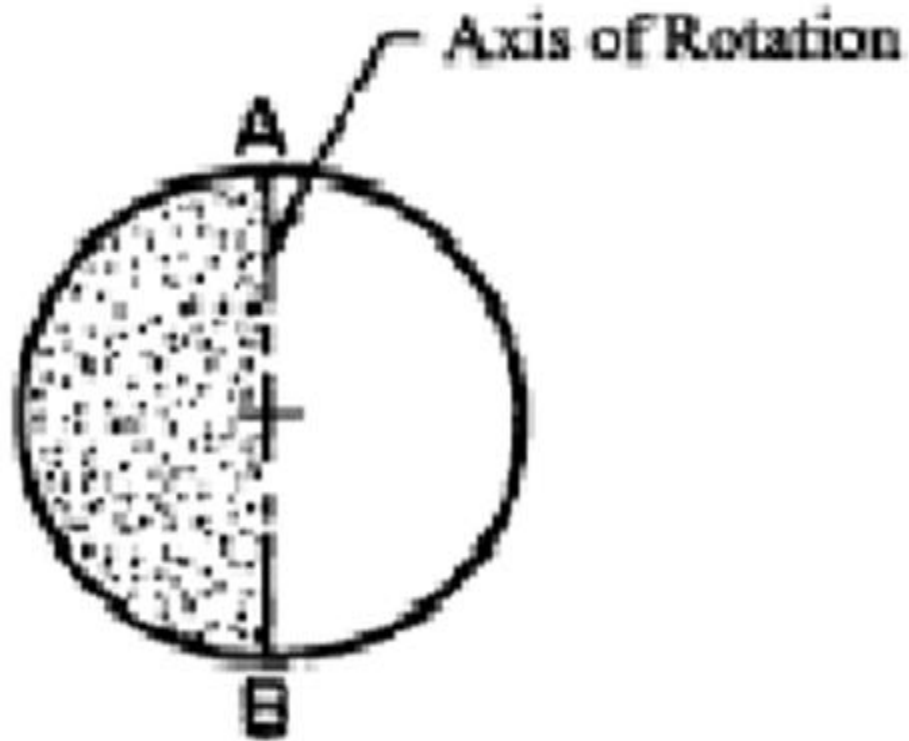
(a) Cylinder

Solids of Revolution - Cone



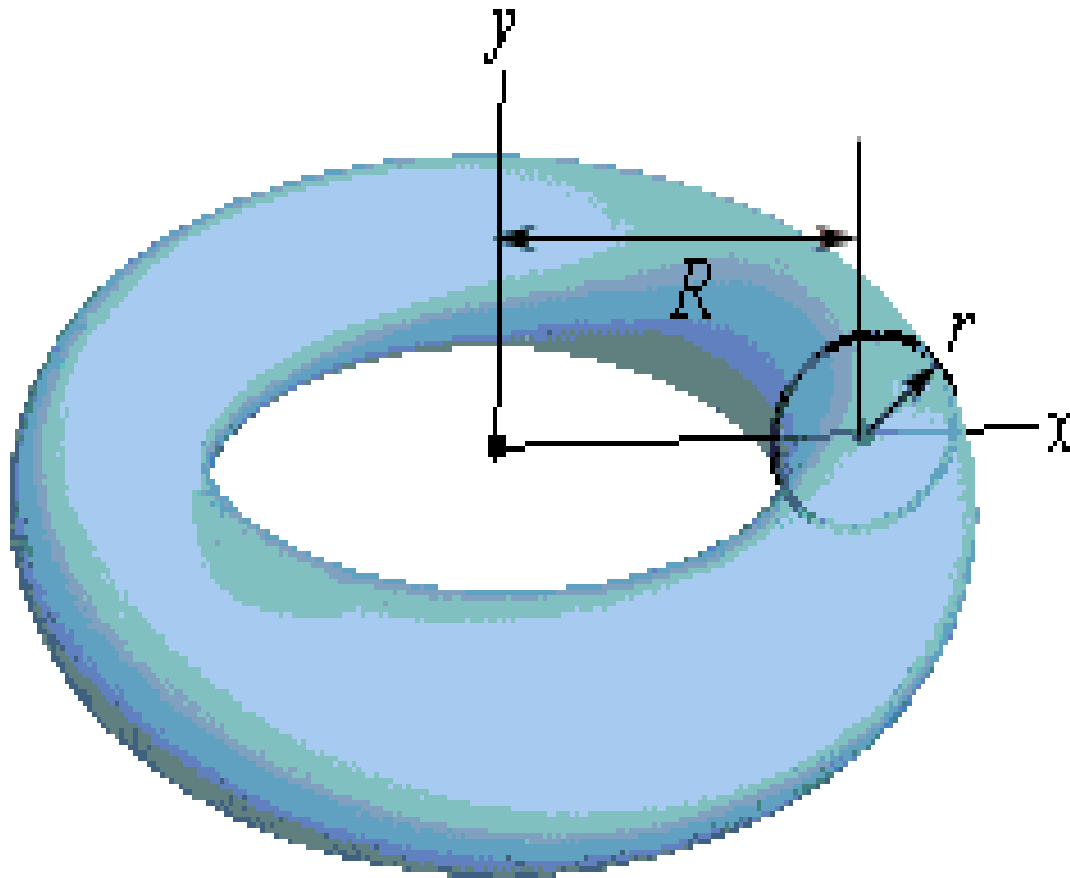
(b) Cone

Solids of Revolution - Sphere



(c) Sphere

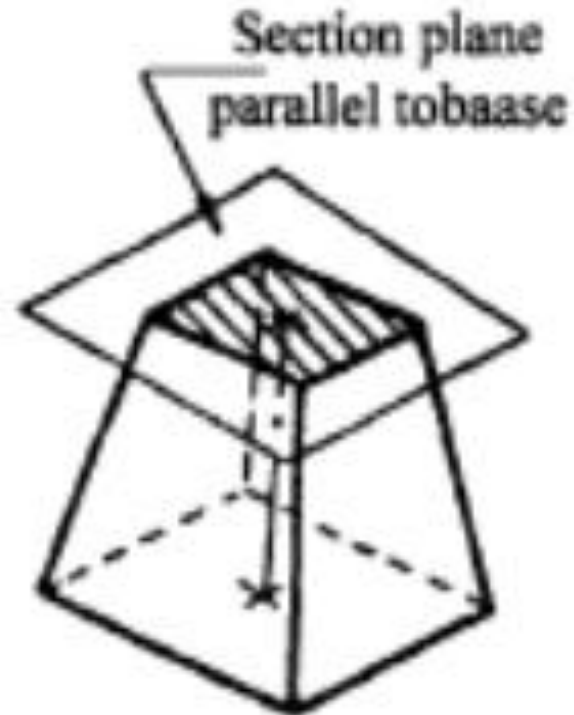
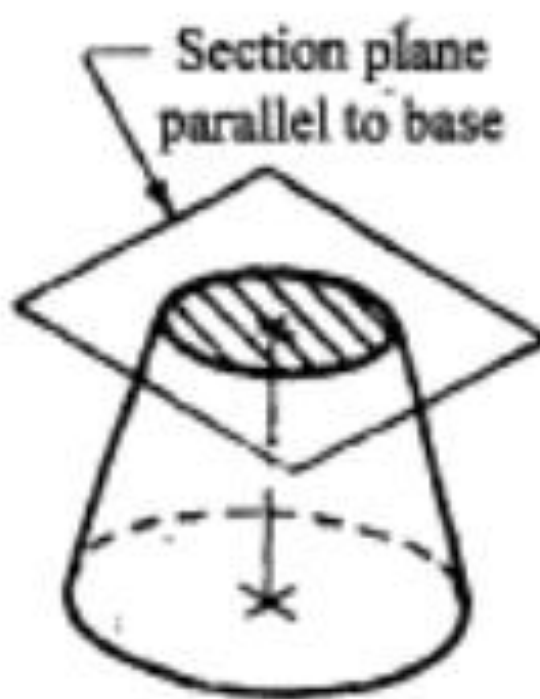
Solids of Revolution - Torus



Frustums of Truncated Solids

- If a cone or pyramid is cut by a section plane parallel to its base and the portion containing the apex or vertex is removed, the remaining portion is called frustum of a cone or pyramid.

Frustums of Truncated Solids



Thank You