

# 18MES101L – Engineering Graphics and Design

Exercise 6: Projection of Solids – II



## **CONTENTS**

- 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

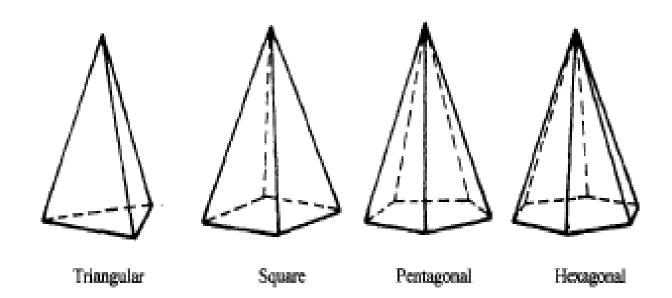
(A) Polyhedra

(B) Solids of revolution



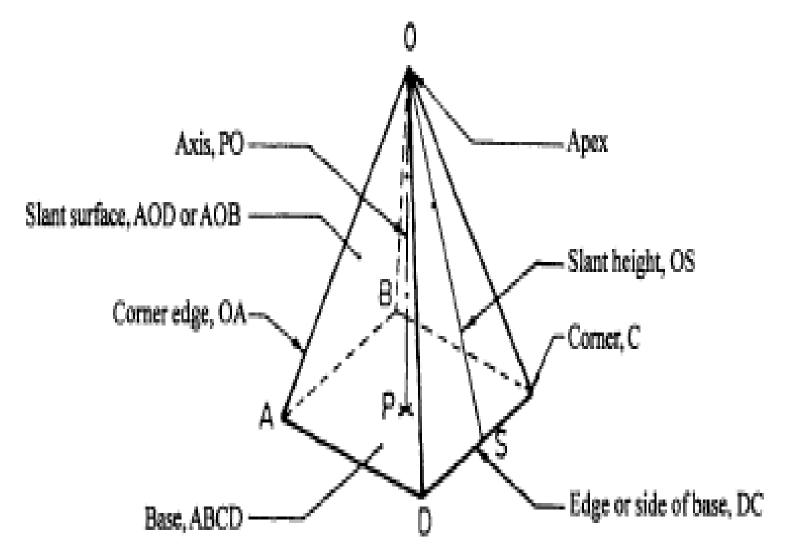
#### **Polyhedra** - (iii) Pyramids

- 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.





# **Polyhedra** - (iii) Pyramids



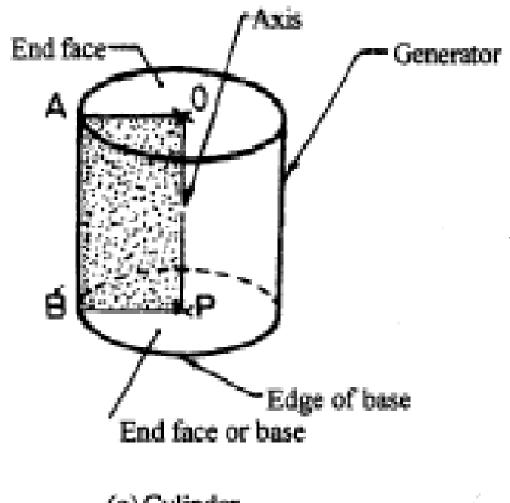


#### **Solids of Revolution**

- 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.



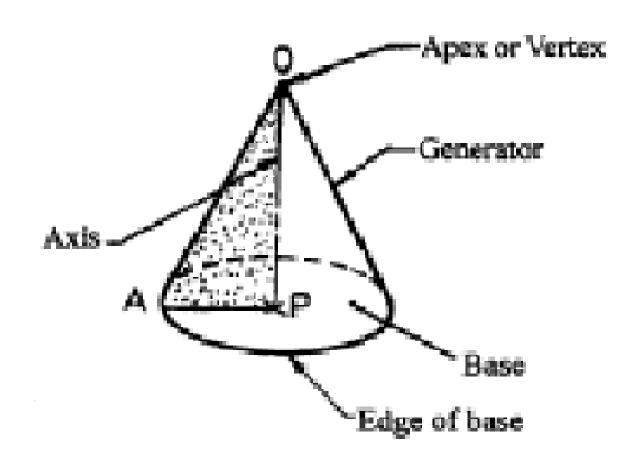
# **Solids of Revolution - Cylinder**



(a) Cylinder

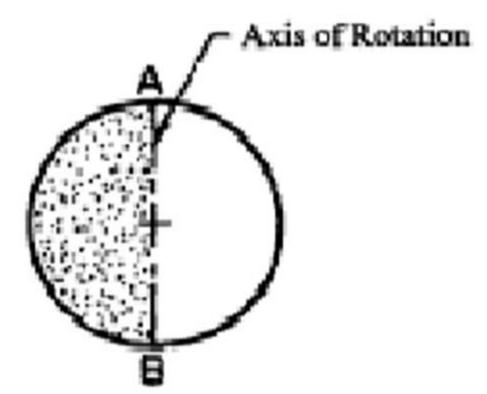


#### **Solids of Revolution - Cone**





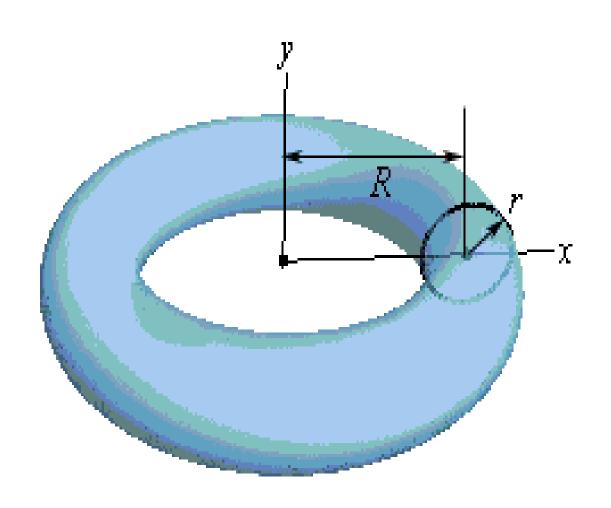
# **Solids of Revolution - Sphere**



(c) Sphere



#### **Solids of Revolution - Torus**



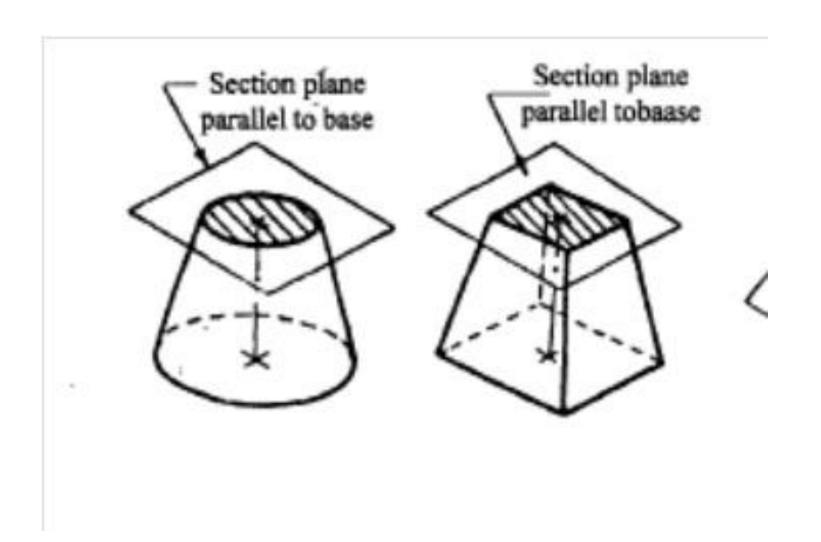


#### **Frustums of Truncated Solids**

• 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