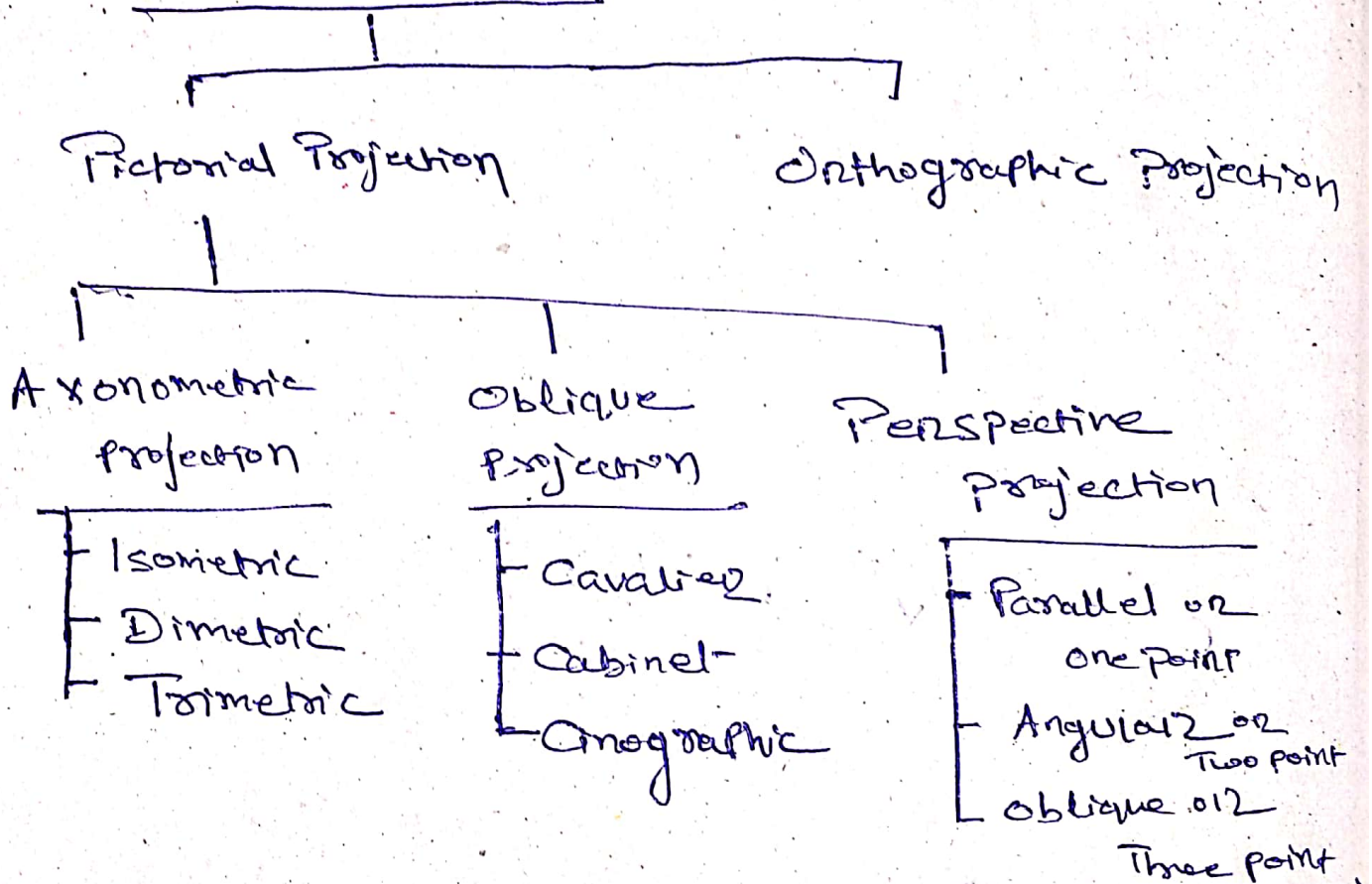


# PRINCIPLE OF PROJECTION :-

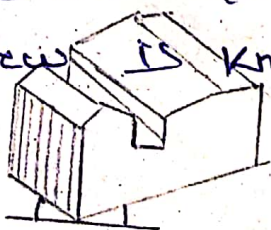
If straight lines are drawn from the various point on the contour of an object to meet a plane the figure obtained on the plane is called the projection of an object :

## Type of projection



## Pictorial Projection

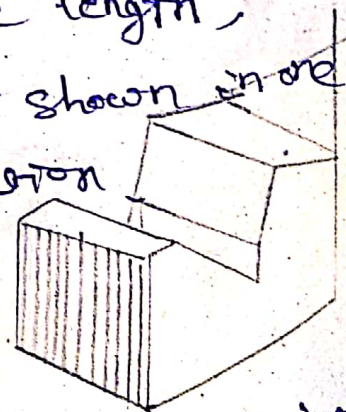
The projection in which the length, breadth and height of an object is shown in one view is known as pictorial projection



Axonometric Projection



Oblique Projection



Perspective projection



## Axonometric Projection

The projection obtained on a plane of paper when the projectors are perpendicular to the plane and parallel to each other is known as axonometric projection.

## Oblique Projection

The projection of an object on a plane of projection when one face of the object is parallel but the other adjacent face is inclined at an angle of  $45^\circ$  to the plane of projection is known as oblique projection.

## Perspective Projection

The projection obtained on a plane when the projectors converge to a point is known as perspective projection.

It does not represent the true size of the object.



## ORTHOGRAPHIC PROJECTION

The projection or view obtained on a plane of projection when the projectors are parallel to each other but perpendicular to the plane of projection, is known as orthographic projection.

### Plane of Projection

#### - Reference Plane:

The plane which is used for the purpose of projection. These planes intersect at right angle to each other.

#### - Vertical Plane (V.P.):

The plane which is vertical is called vertical plane and is denoted by V.P.

Front view is projected on this plane.

#### - Horizontal Plane (H.P.):

The plane which is horizontal but at right angle to the V.P. is called horizontal plane.

#### - Auxiliary Plane (A.P.):

Any other plane placed at any angles to the reference or principle plane is called auxiliary plane.



### - Profile Plane (P.P)

The plane which is at right angles to the two principle planes is called auxiliary vertical plane (A.V.P) or Profile plane (P.P).

### - Ground line:

The line of intersection of two principle planes of projection i.e, VP & HP is called reference or intersection or ground line and is denoted by x-y line.

### - Front view or Elevation:

The projection of the object on vertical plane (VP) is known as front view or elevation.

### - Top view or Plan:

The projection of the object on the horizontal plane is known as top view or Plan.

### - Side view / side elevation / Profile view:

The projection of the object on an auxiliary plane (A.V.P) or profile plane is known as side view or end view.

### - Auxiliary view:

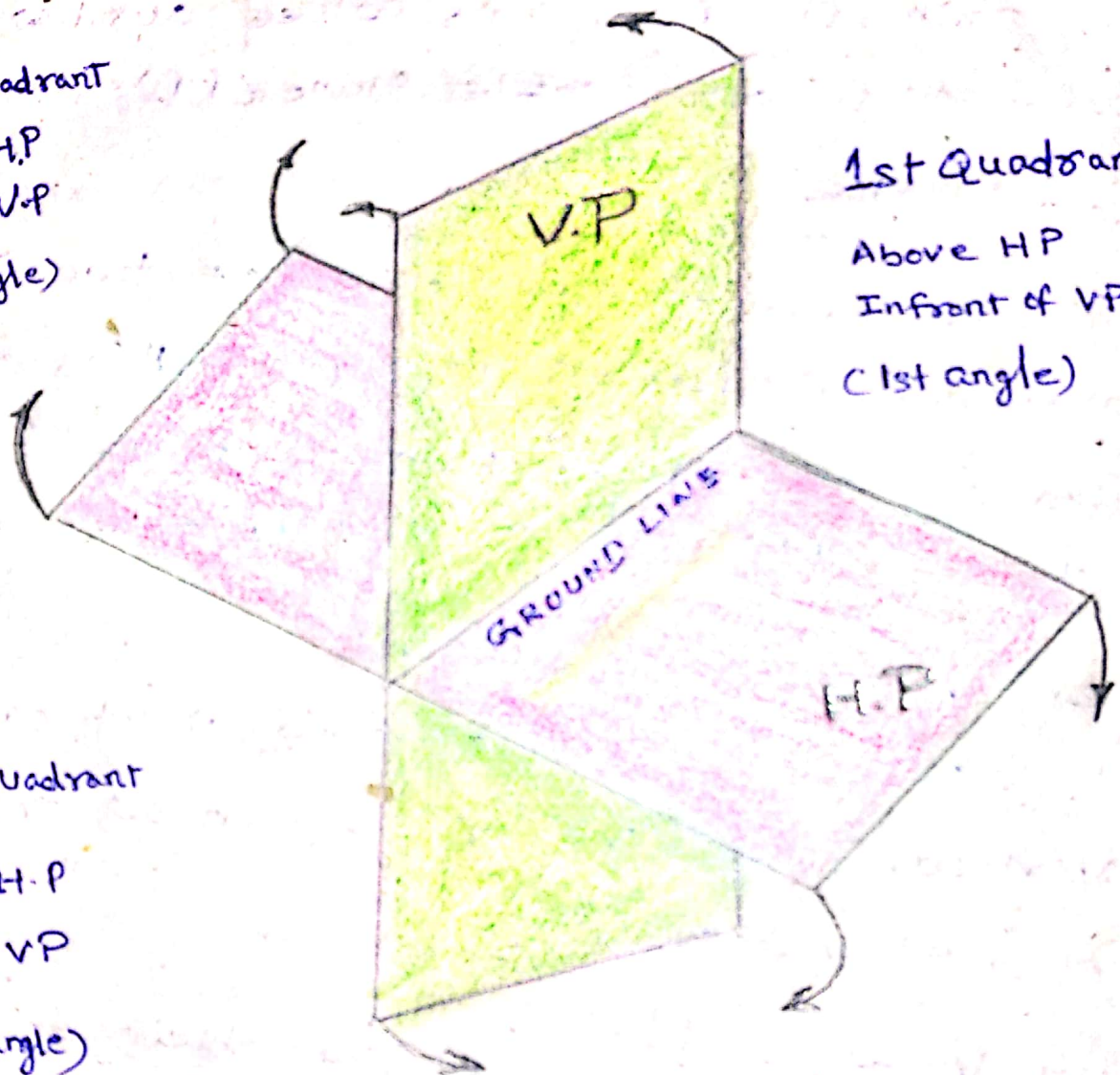
The projection of the object on an auxiliary plane is called auxiliary view.



# Four Quadrants :

2nd Quadrant  
Above H.P  
Behind V.P  
(2nd angle)

1st Quadrant  
Above H.P  
Infront of V.P  
(1st angle)



3rd Quadrant  
Below H.P  
Behind V.P  
(3rd angle)

4th Quadrant  
Below H.P  
Infront of V.P  
(4th angle)

## Rotation of Planes :-

When the projection of an object have been made on the various planes, they are brought together on a single sheet of paper by rotating the planes.

Keep the V.P fixed and to rotate H.P. and P.P away from the object so that they may come in line with V.P.

## Type of orthographic Projection

1) First Angle Projection

2) Third angle Projection.

## First angle projection :-

In first angle projection the object is assumed to be situated in the 1st quadrant.

ie, in front of V.P and  
Above H.P.

Symbol

