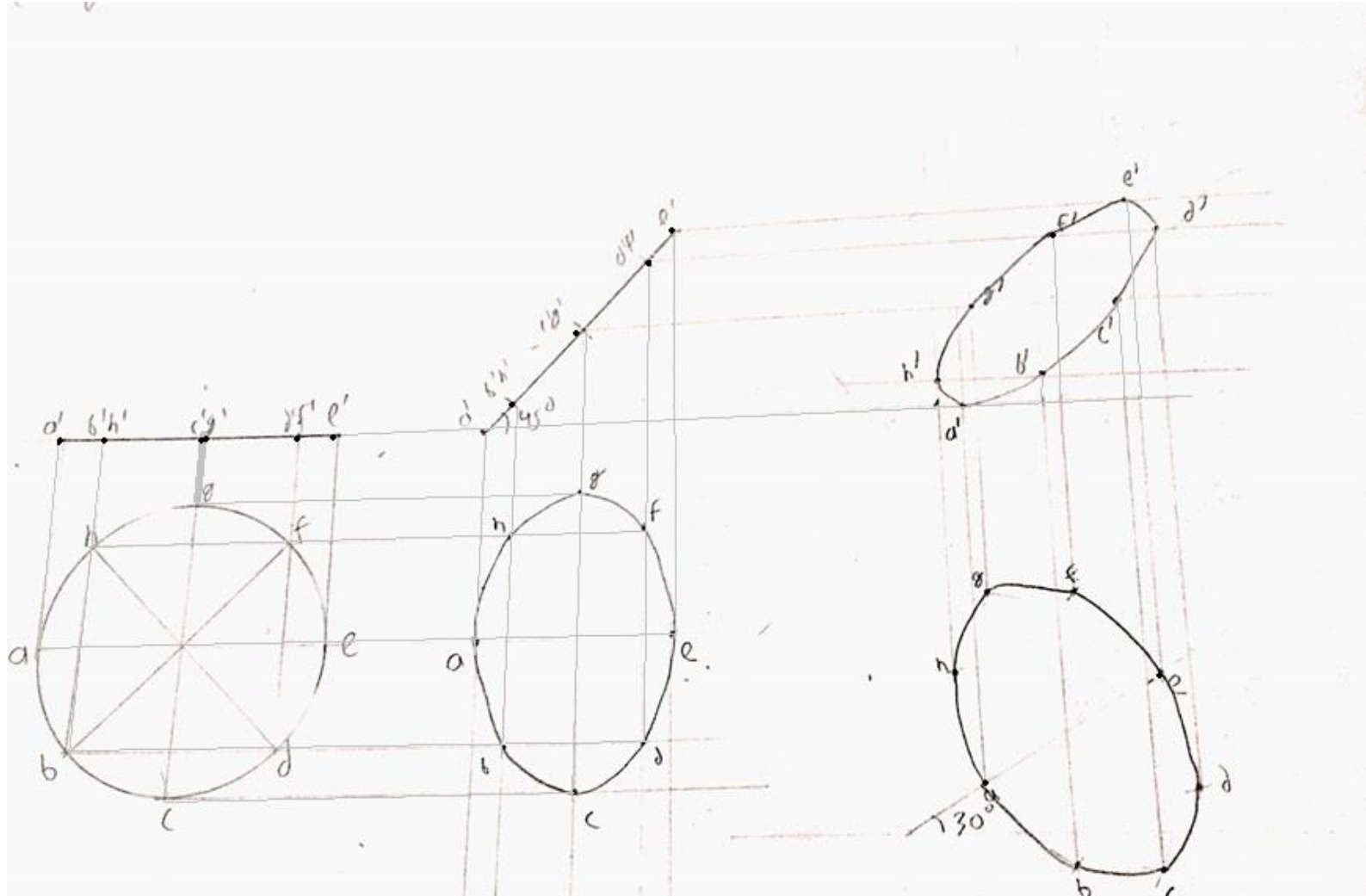


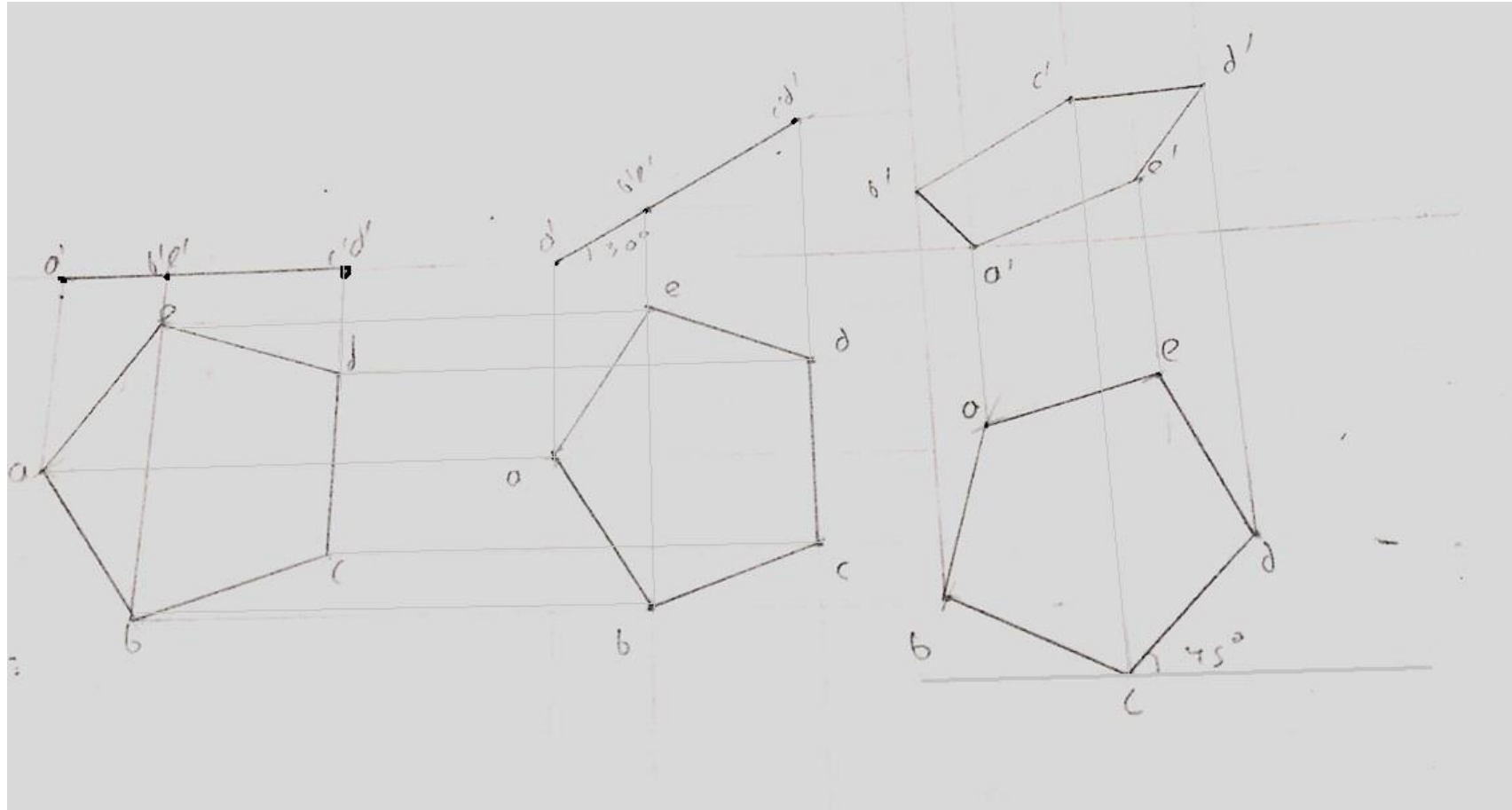
EG

# Projections of Planes

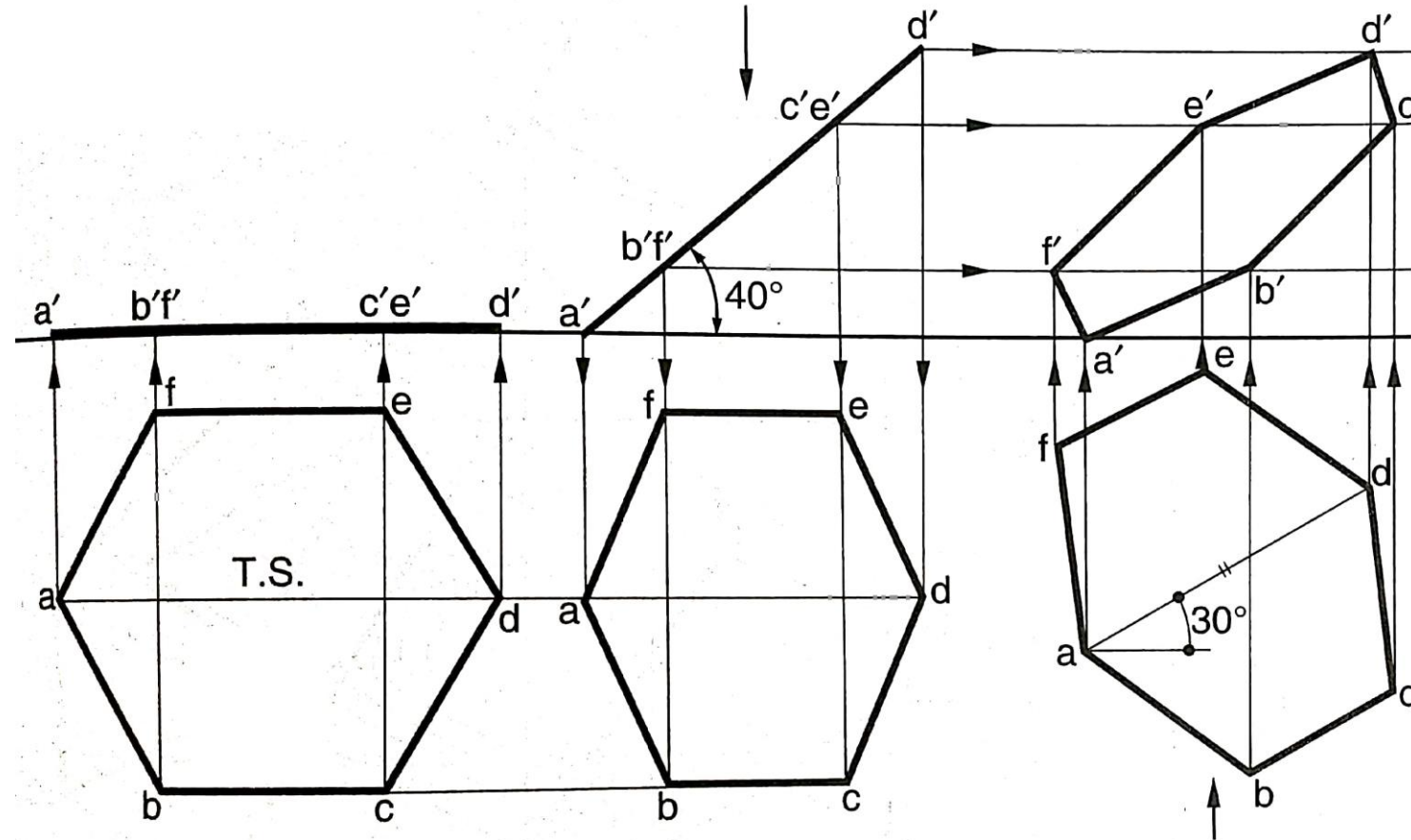
Ex-1. A circular lamina of 66 mm diameter is resting on H.P. on a point A of the circumference, with its plane inclined at  $45^\circ$  to H.P. and the top view of the diameter through point A makes  $30^\circ$  with V.P. Draw projections of the lamina.



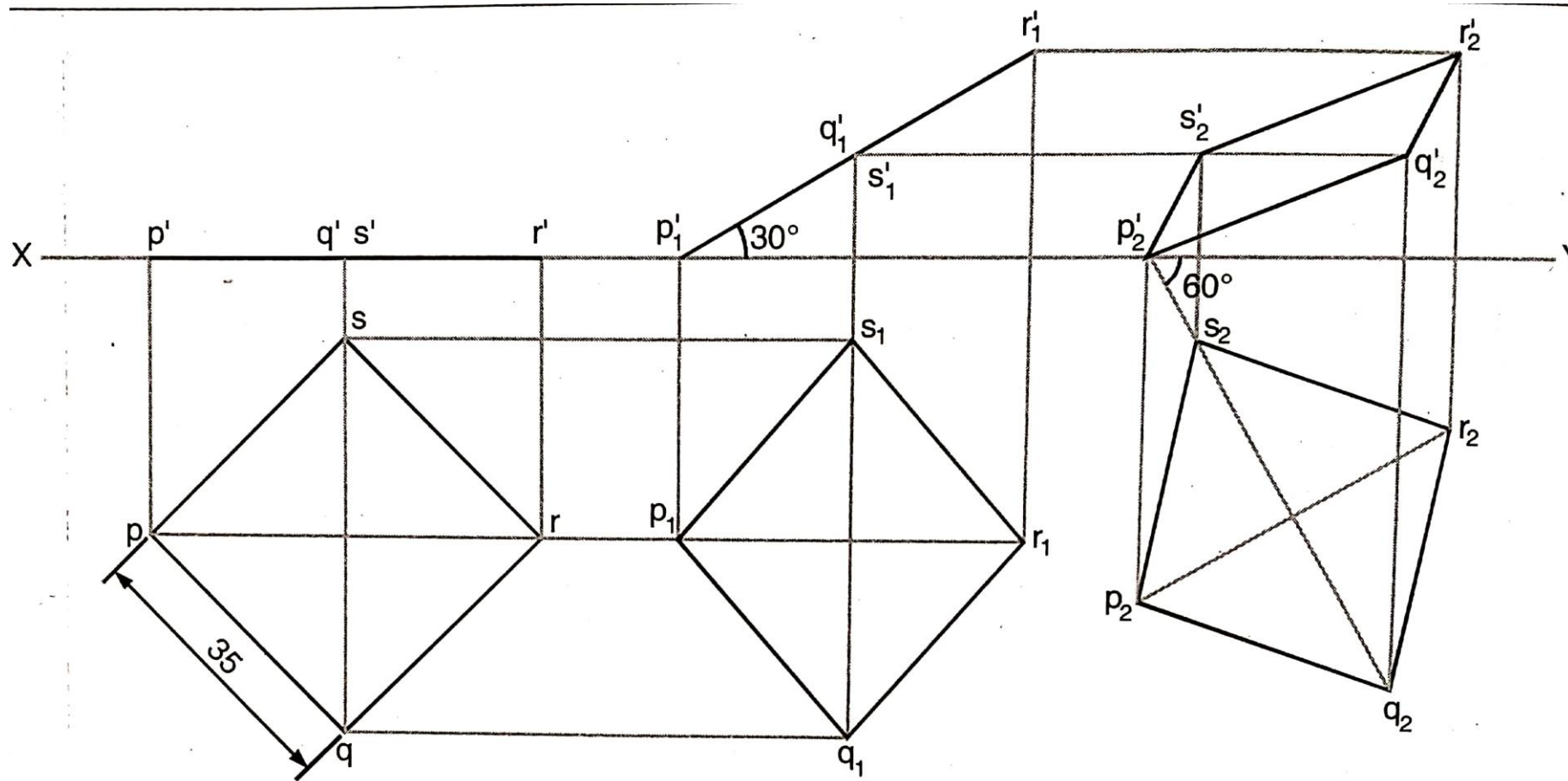
**Ex.2** A regular pentagonal plate, of 35 mm sides, has one of its corners in H.P. The plane of the pentagon is inclined at  $30^\circ$  to the H.P. The side of the pentagon which is opposite to the corner, which is on H.P. is inclined at  $45^\circ$  to V.P. Draw the projections of the plate.



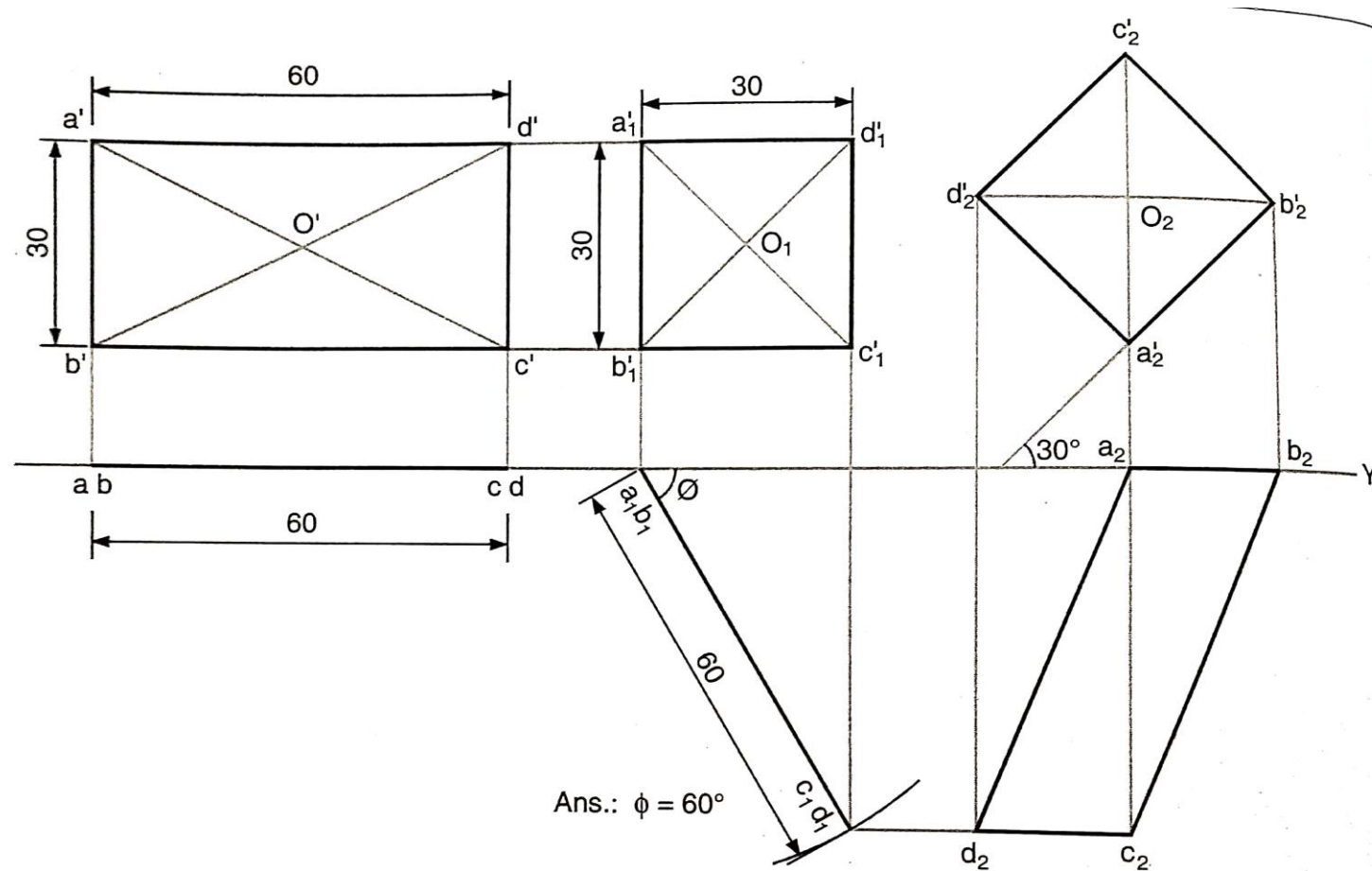
Ex.3 A regular hexagonal plate 35 mm side is resting on one of its corners in H.P. The diagonal through that corner is inclined at  $40^\circ$  to H.P. and plan of diagonal is inclined at  $30^\circ$  to V.P. Draw the projection of Hexagonal plate.



**Ex. 4** A square plate PQRS of side 35 mm is resting on corner P with diagonal PR making  $30^\circ$  with H.P. and diagonal QS inclined to V.P. by  $60^\circ$  and parallel to H.P. Draw projections of the square plate.

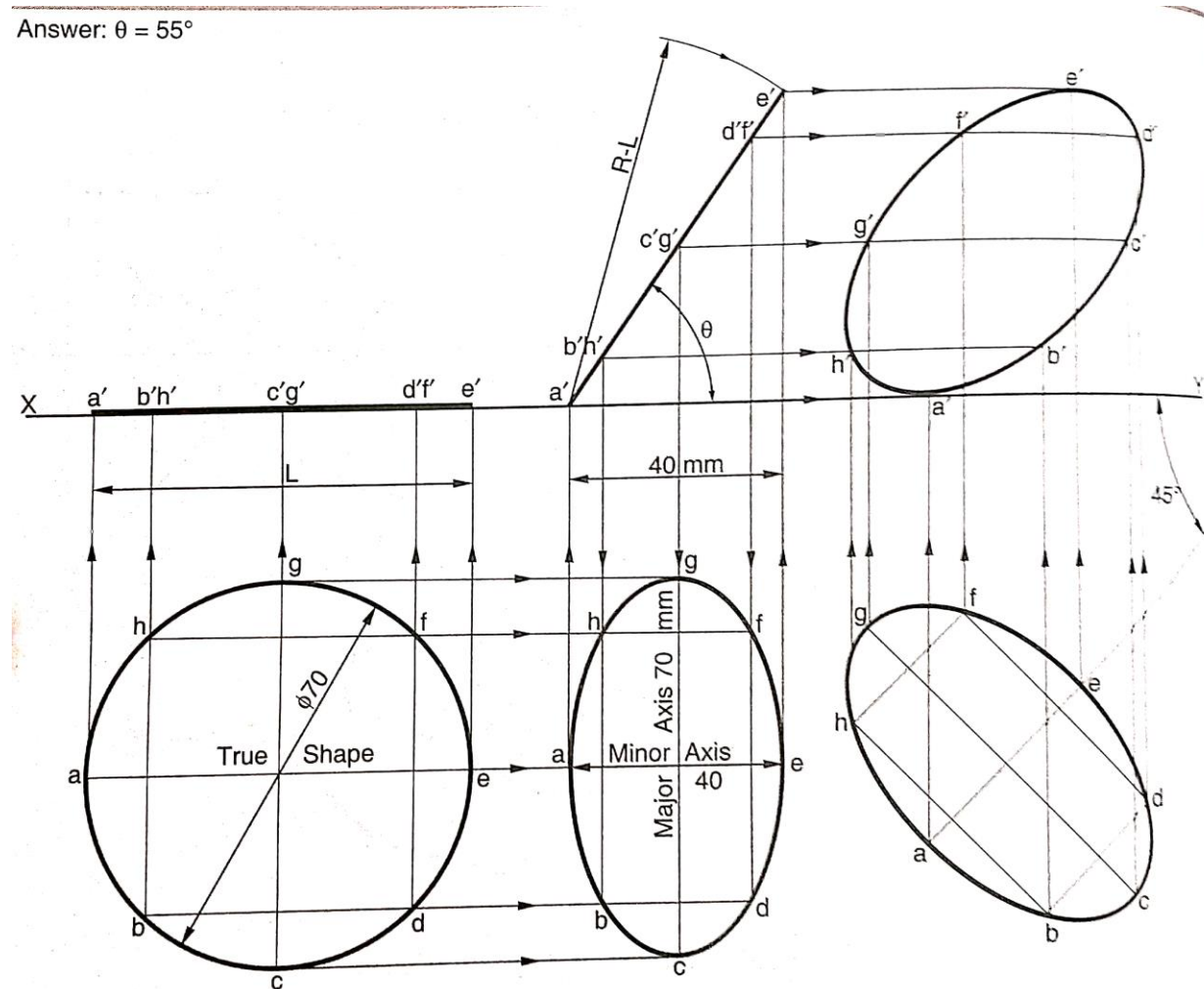


**Ex. 5** A thin rectangular plate of having sides 60 mm and 30 mm resting on its shortest side on V.P. and inclined at  $30^\circ$  to H.P. project its top view, if its front view is square of 30 mm long sides.



**Ex. 6** Draw the projection of a circle of 70 mm diameter resting on H.P. on a point A of the circumference. Plane is inclined to H.P. such that the plan of it is an ellipse of minor axis 40 mm. The plan of the diameter, through the point A, is making an angle of  $45^\circ$  with the V.P. measure the angle of the plane with the H.P.

Answer:  $\theta = 55^\circ$



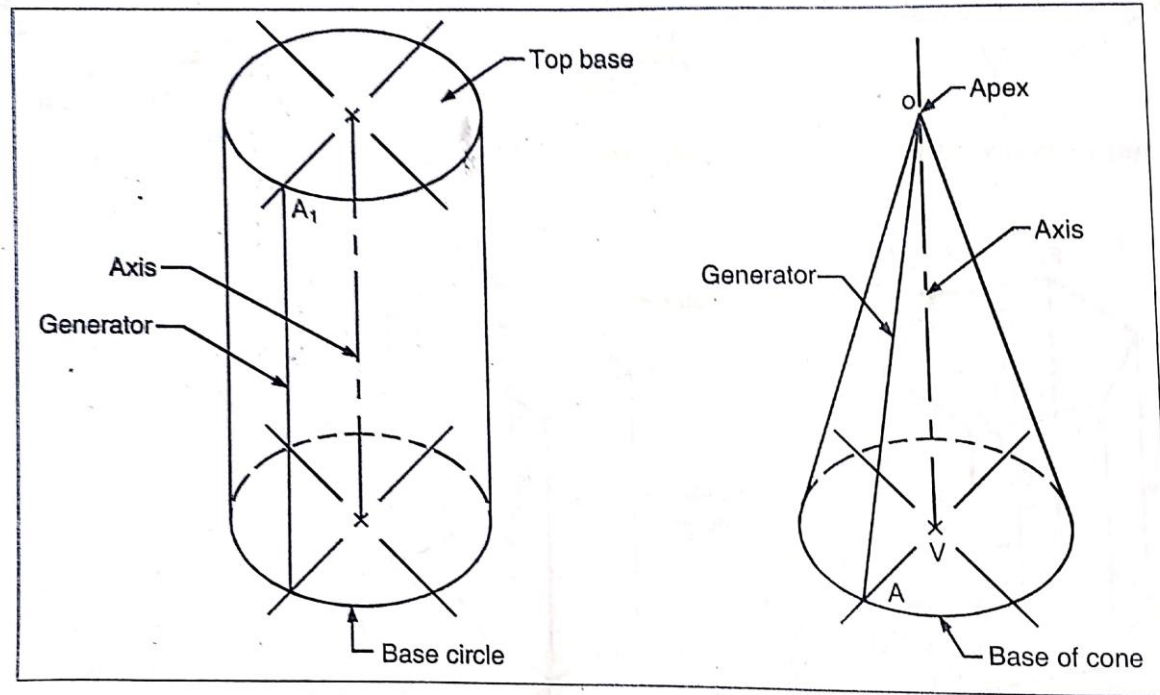
# PROJECTIONS OF SOLID



### Cylinders and Cones -

A right circular **cylinder** is a solid generated by the revolution of a rectangle about one of its sides which is fixed. It has two circular faces top face and bottom face. Axis of the cylinder is the line joining the centers of top face and bottom face. Axis is perpendicular to base.

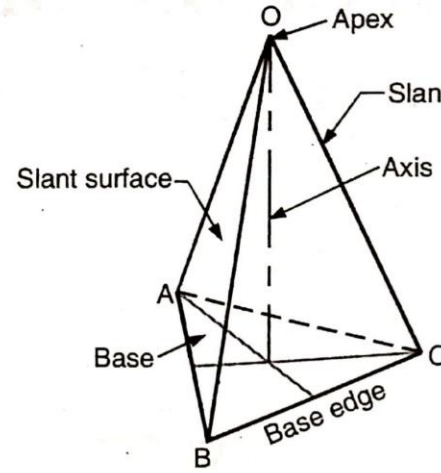
A right **cone** is a solid generated by the revolution of a right angle triangle about one of its perpendicular sides which is fixed. Cone has a circular base and top of the cone is called apex. Axis is the line joining the apex to the center of base.



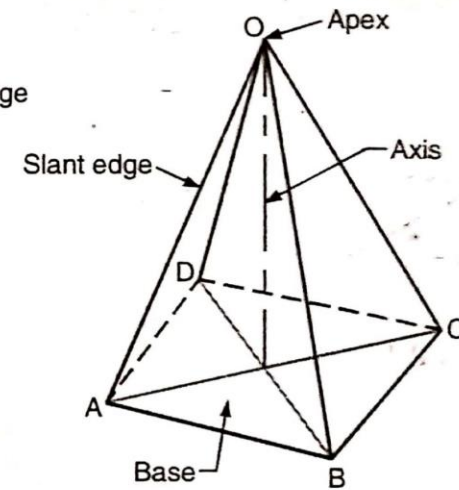
## PRISMS AND PYRAMIDS

**Pyramid** is a polyhedra having plane surface as a base and a number of triangular faces meeting at a point called the Vertex or Apex. The imaginary line joining the Apex with the Centre of the base is called Axis of pyramid. According to the shape of its base, pyramid can be sub classified as shown in Figure

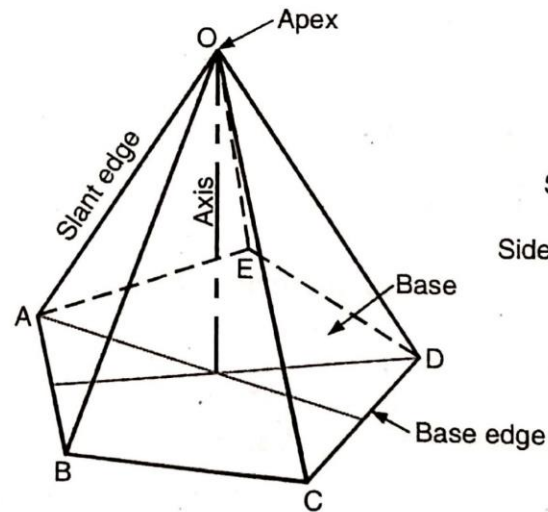
- (a) Triangular pyramid,
- (b) Square pyramid
- (c) Pentagonal pyramid
- (d) Hexagonal pyramid.



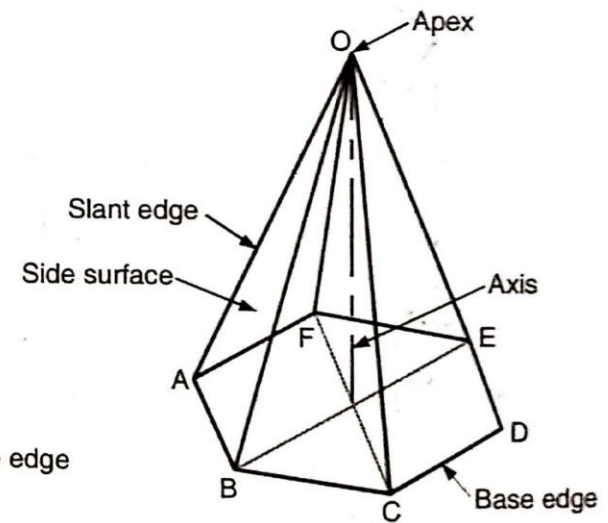
(a) Triangular Pyramid



(b) Square Pyramid



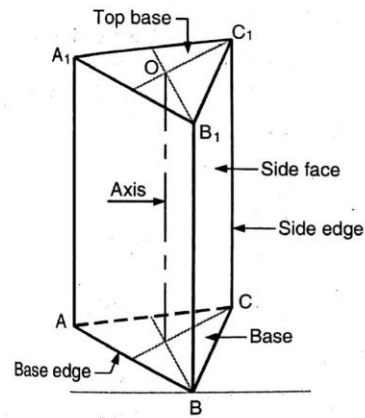
(c) Pentagonal Pyramid



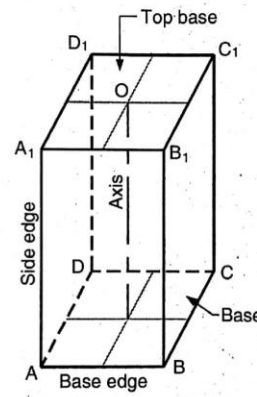
(d) Hexagonal Pyramid

**Prism** is a polyhedra having two equal and similar faces called its ends or bases, parallel to each other and joined by other faces which are rectangles. The imaginary line joining the centers of the bases or faces is called Axis of Prism. According to the shape of its base, prism can be sub classified as shown in Figure

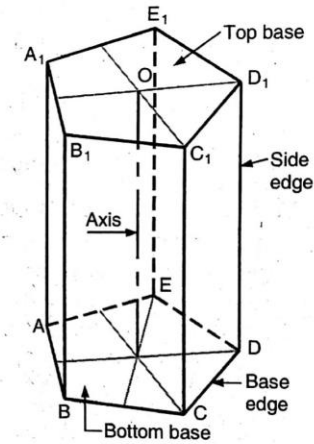
- (a) Triangular prism
- (b) Square prism
- (c) Pentagonal prism
- (d) Hexagonal prism
- (e) Rectangular prism.



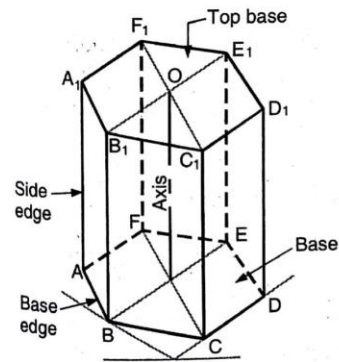
(a) Triangular prism



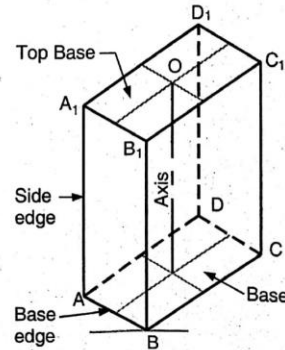
(b) Square prism



(c) Pentagonal prism

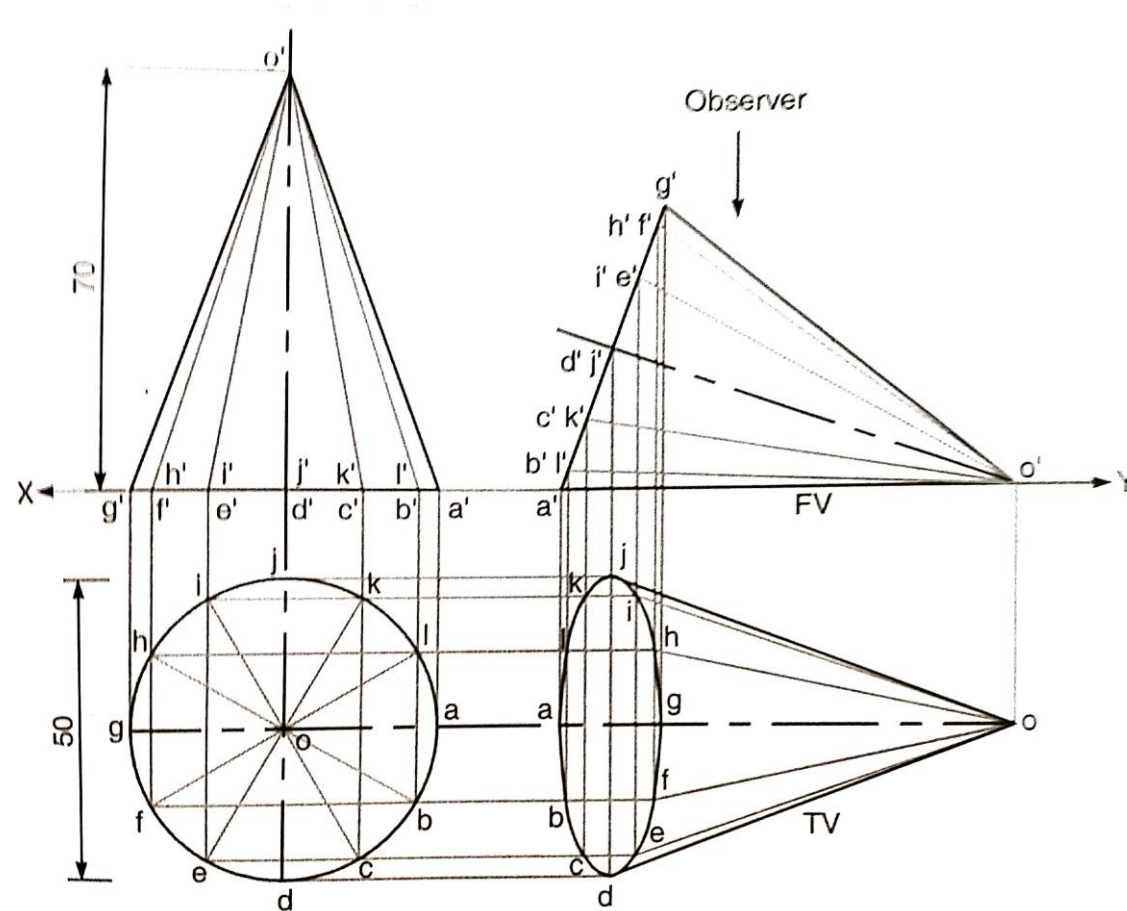


(d) Hexagonal prism

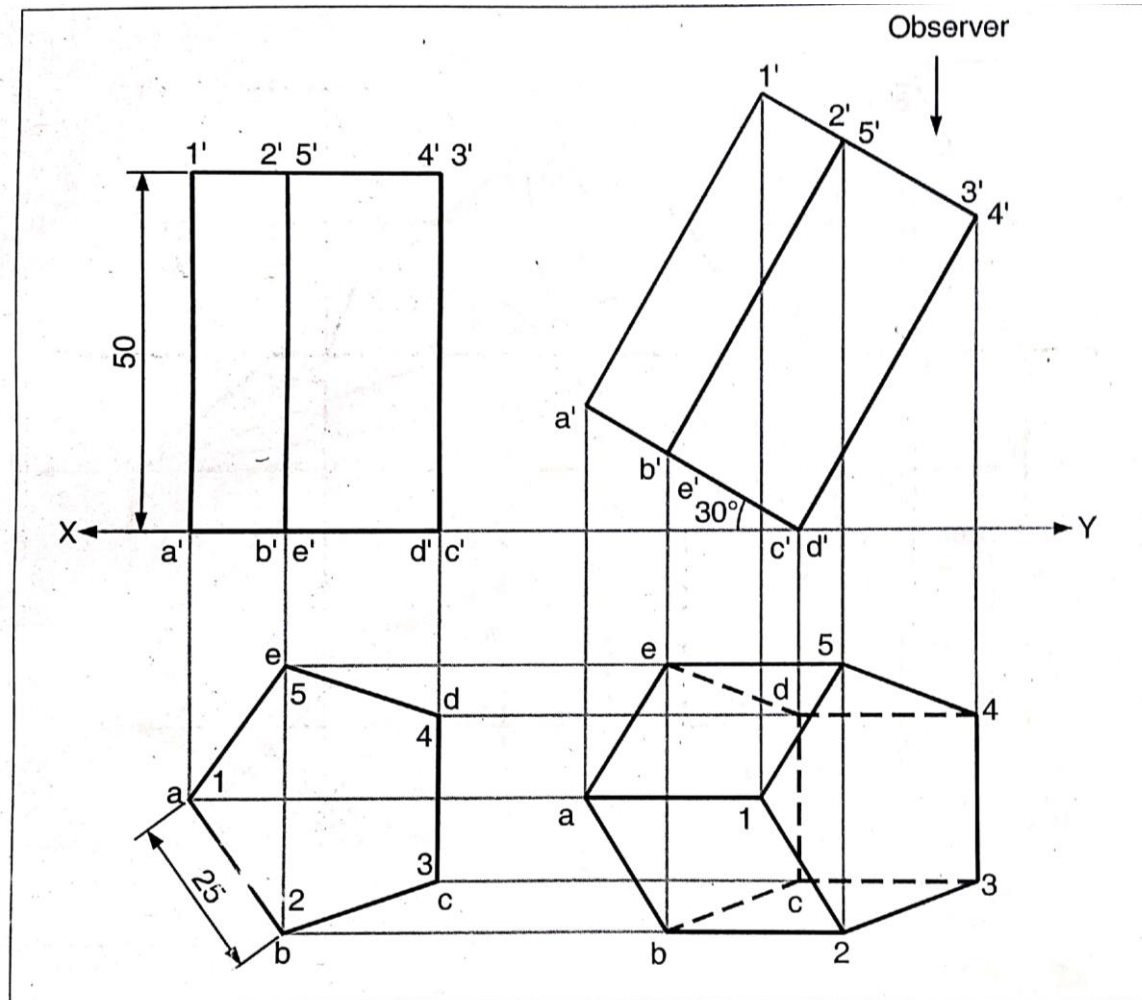


(e) Rectangular prism

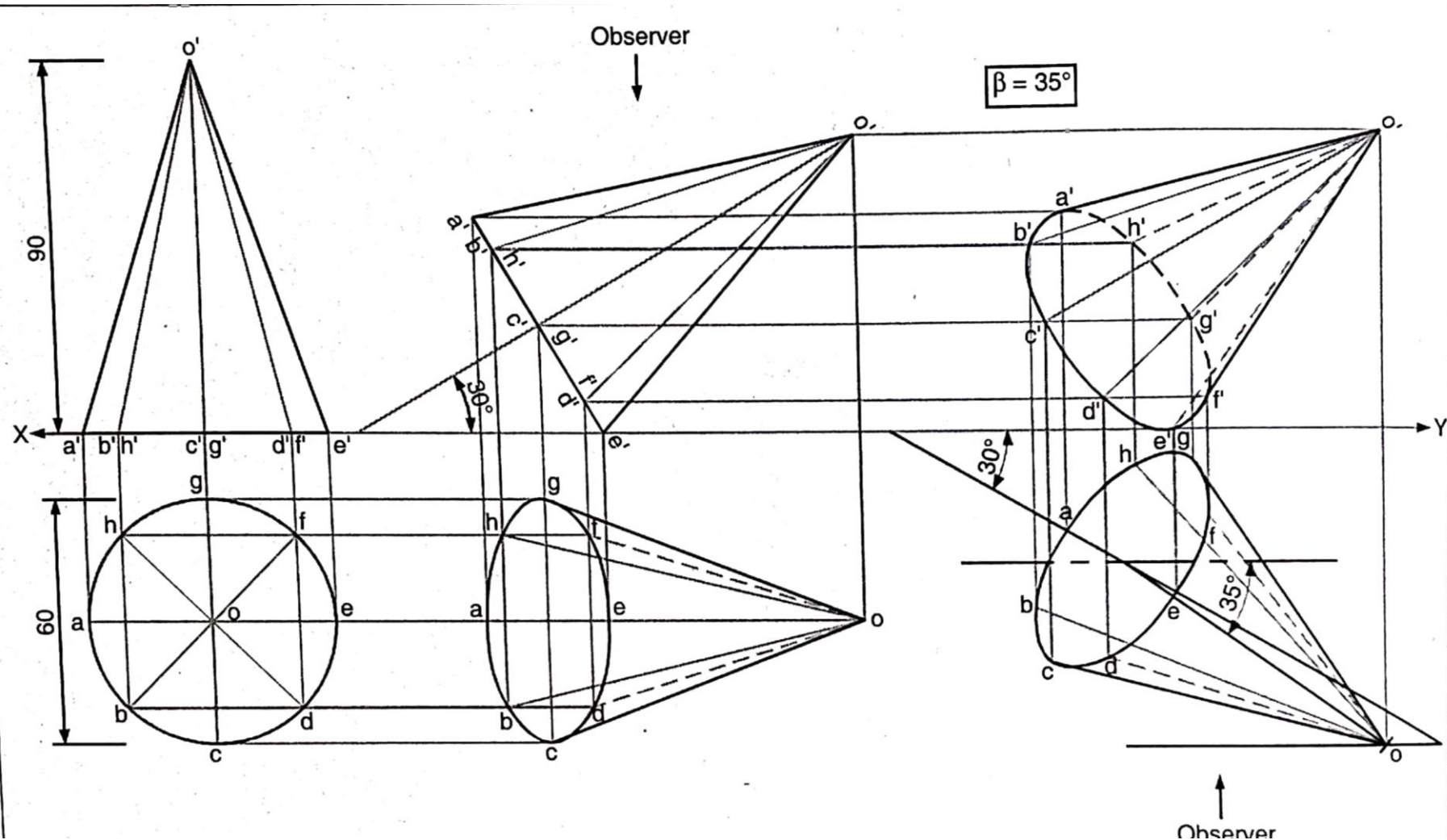
A cone of 50 mm base diameter and axis 70 mm rests on one of its generator with the axis parallel to the V.P. Draw the projection



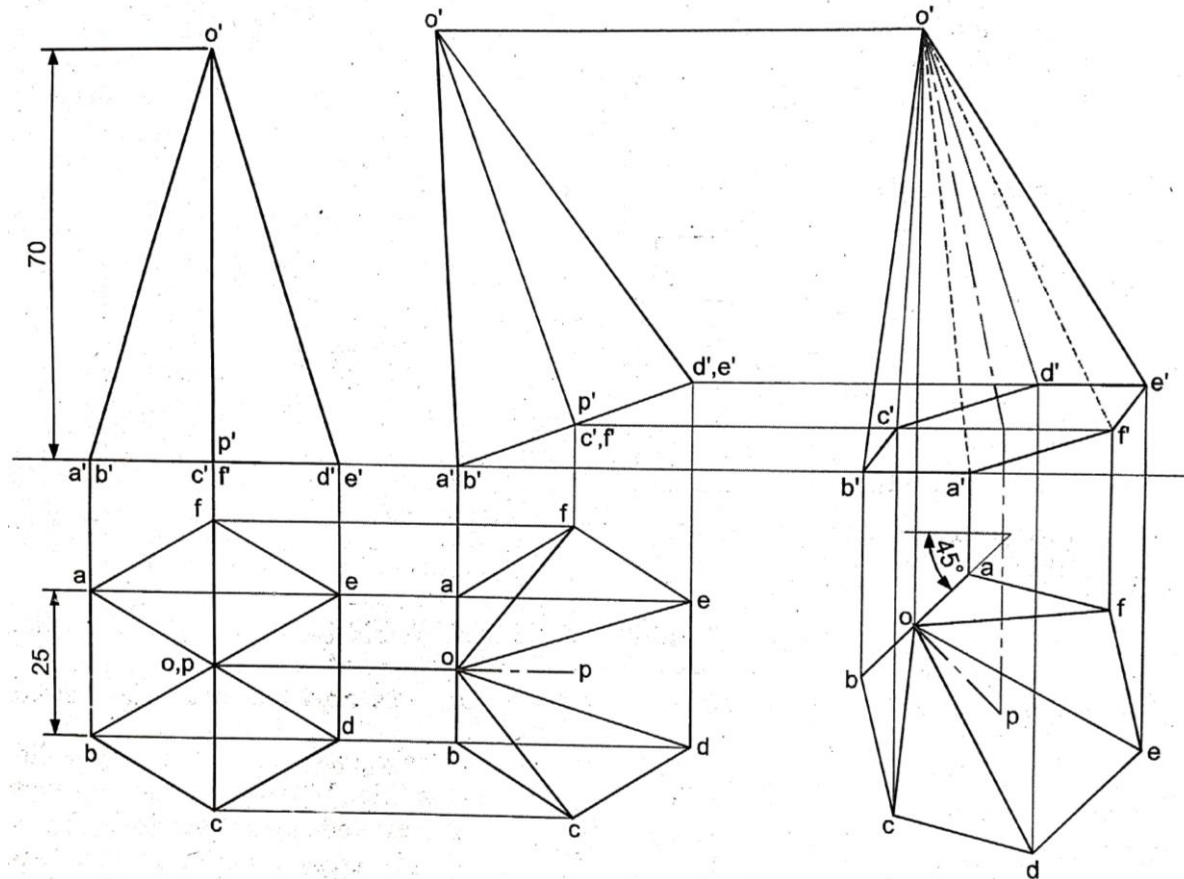
Draw the projections of pentagonal prism of base 25 mm and axis 50 mm long rests on one of its base edges on the H.P. The base makes an angle of  $30^\circ$  to the H.P. and axis of prism is parallel to VP



A cone diameter of base 60 mm and height 90 mm is resting on H.P. on the point of its periphery of base. The Axis of cone makes  $30^\circ$  with HP and  $30^\circ$  with VP draw projections of cone when apex is nearer to observer.



A hexagonal pyramid, side of base 25 mm long and height 70 mm resting on HP on its side, has one of its triangular faces perpendicular to HP and inclined at  $60^\circ$  to VP. Draw projections.



A hexagonal prism is resting on one of its side of base (30 mm) such that axis (60 mm) is inclined at  $45^\circ$  to the HP and the side on which it is resting is inclined at  $30^\circ$  to the VP. Draw the projections.

