

UNIT-5

SOLIDS

PROJECTION OF SOLIDS

To Solid:- A solid is different as an object having three dimensions i.e., length, breadth, and height. (or) thickness. Measured along the three mutual perpendicular axes.

Types of solids:-

1. Prism
2. Pyramid
3. cylinders
4. cones
5. spheres.

1. Prism:-

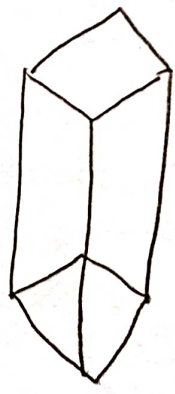
1. Triangular prism:



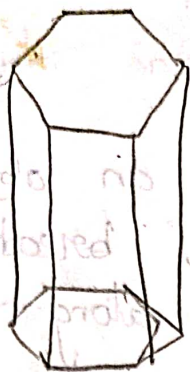
2. Pentagonal prism



2. Square prism

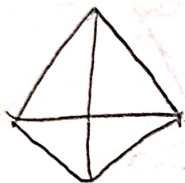


4. Hexagonal



Pyramids:-

1. Triangular



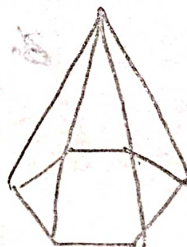
3. ^{to} Pentagonal:



2. Square



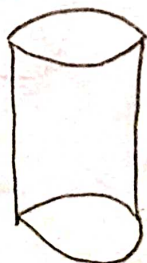
4. Hexagonal:



Cone:



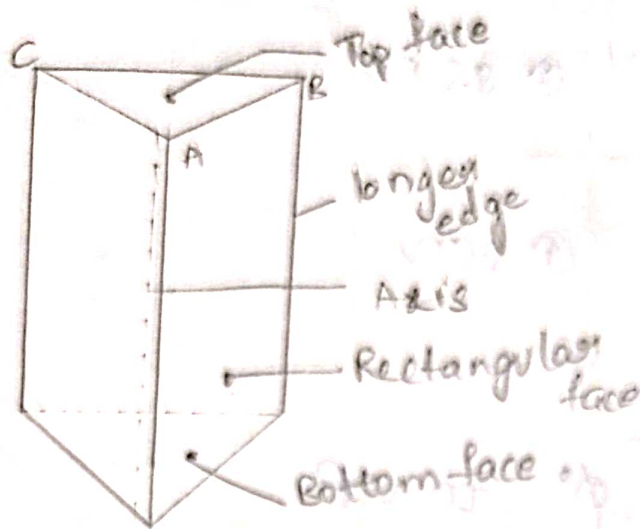
Cylinder:-



PRISM:

a) TRIANGULAR PRISM:-

b) SQUARE PRISM:-

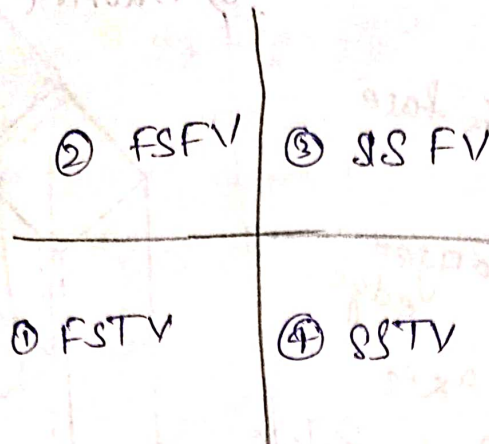


c) PENTAGONAL PRISM:-

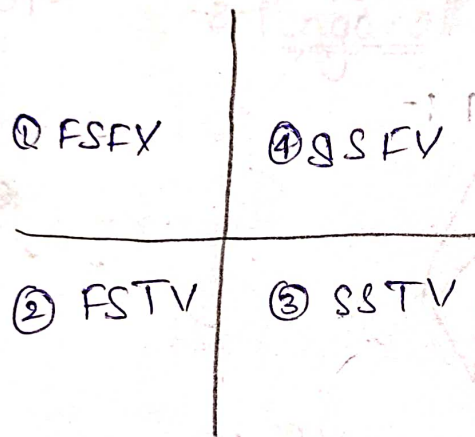


Problem:- A horizontal line is drawn at a distance of 10 mm from the XY line. The top view is a circle of 20 mm diameter. The front view is a rectangle of 40 mm height. Draw the projections.

→ Axis inclined 0° to H.P



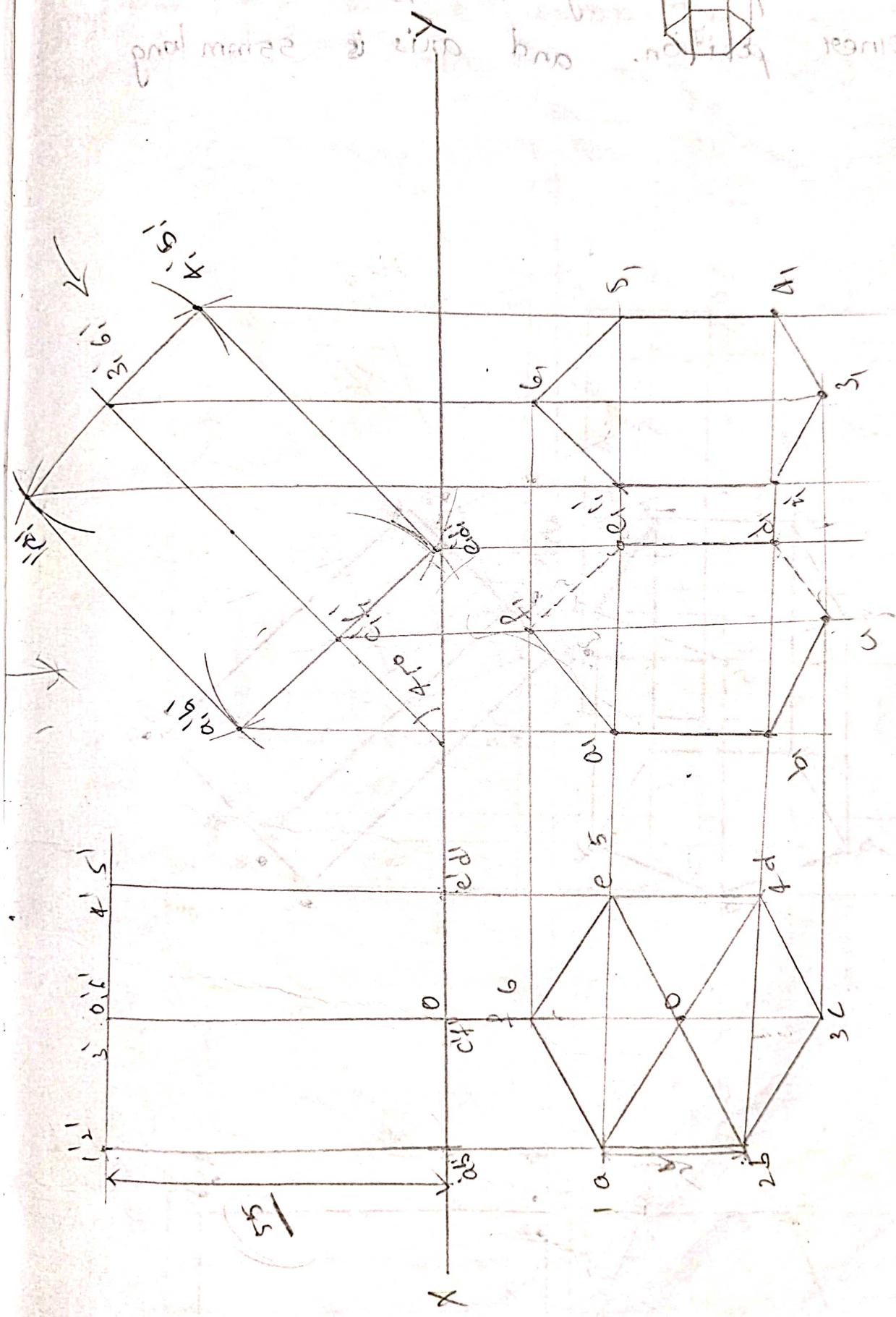
→ Axis inclined ϕ° to V.P



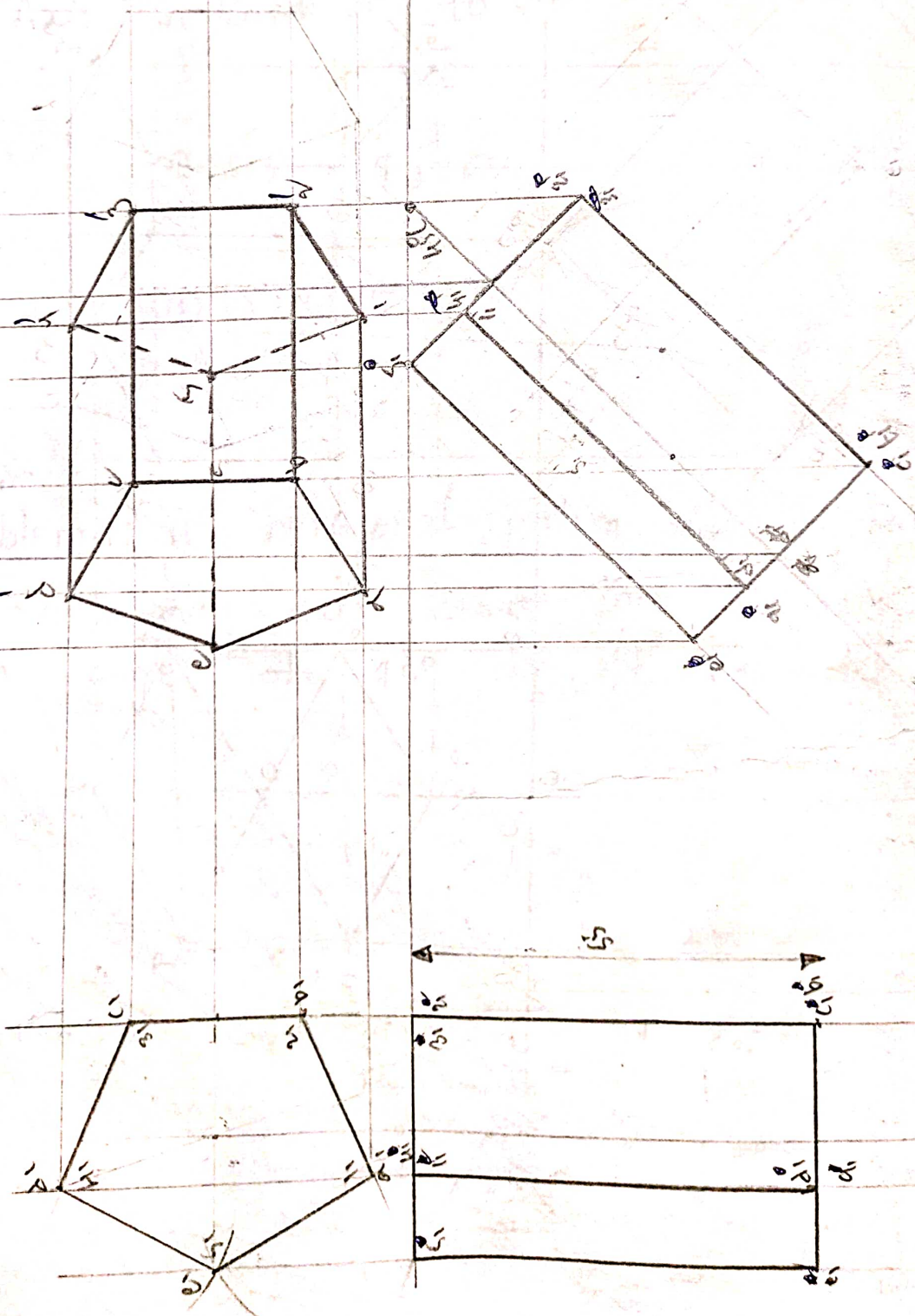
Edge:
Corner

mech
Problem-1: A hexagonal prism side of base 24 mm and axis 55 mm long. The axis makes an angle of 45° to H.P. Draw the projection

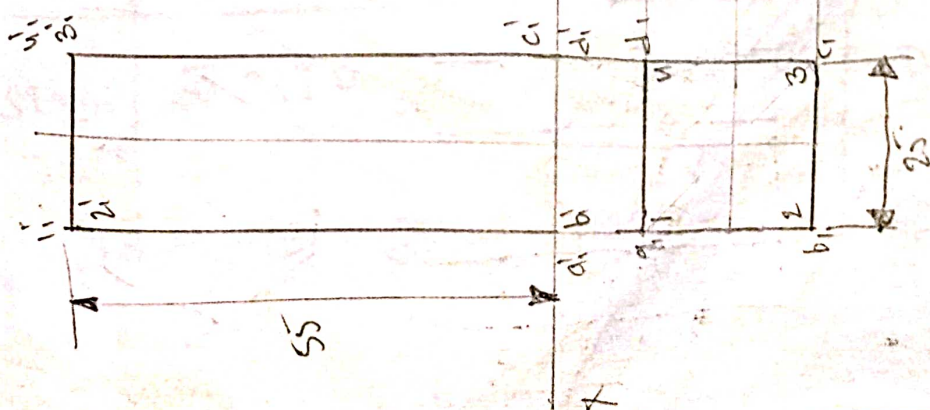
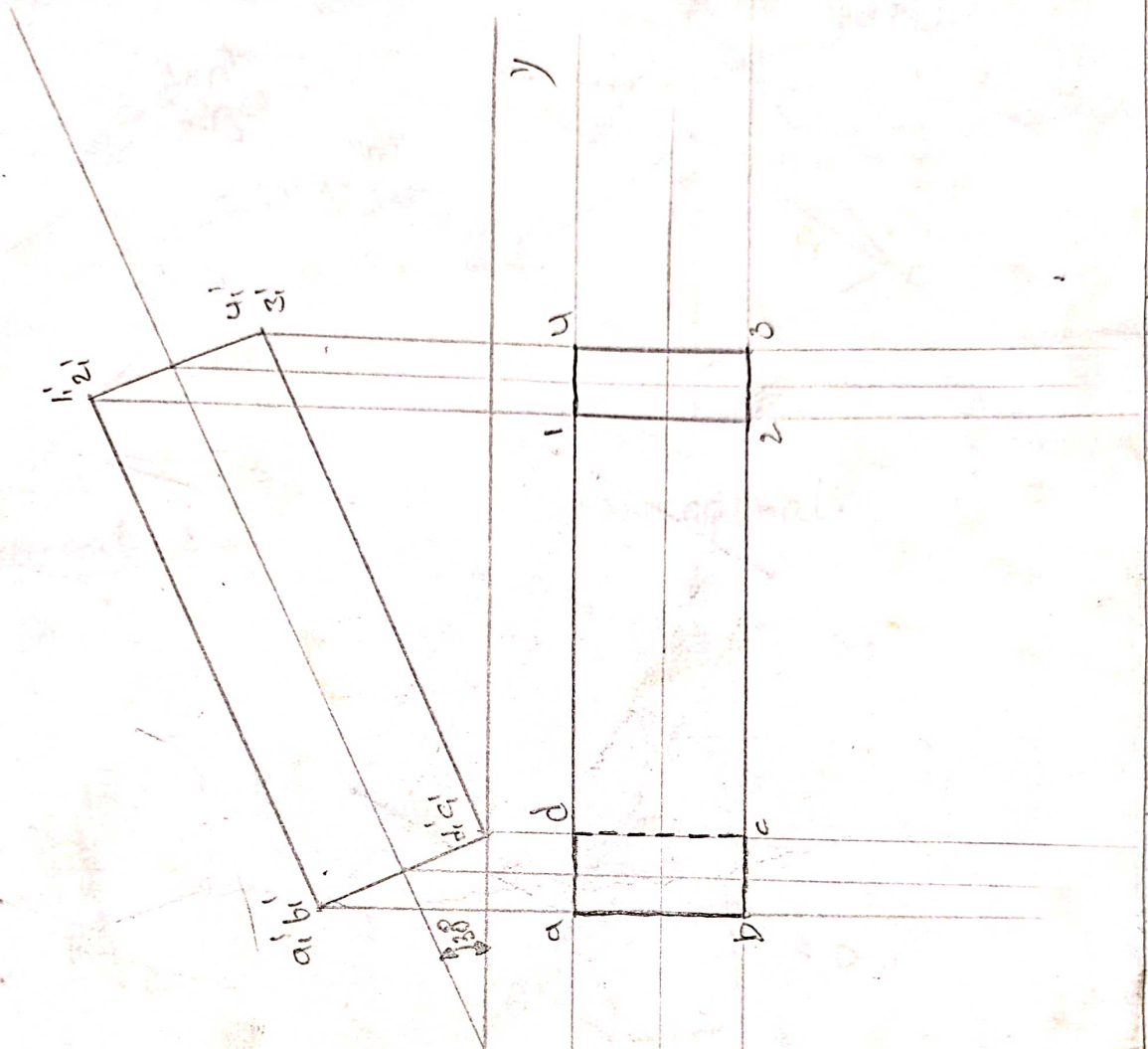
horizontal line for finding
 the angle of dip of the stratum
 and the strike is a horizontal line



med
Problem-2: A pentagonal prism of side 24mm and axis makes an angle of 45° to V.P. it is a cornered position. and axis is 55mm long



Problem-3: A square prism of side 25 mm, its axis makes an angle of 20° to H.P. Draw the projections. and axis is 55 mm long.



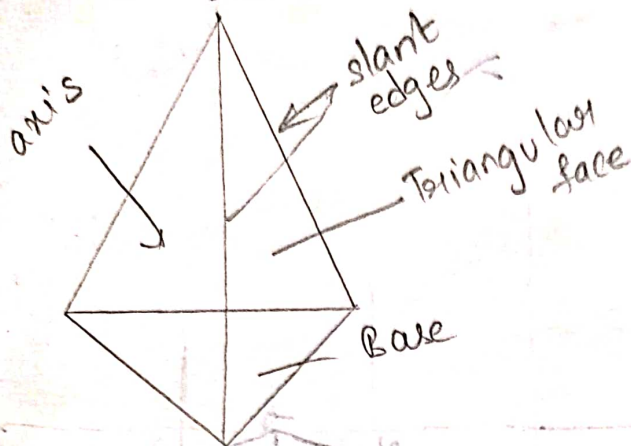
Problem-4: A triangular prism of side 25mm, its one of side is inclined at 20° to V.P. Draw the projections. and axis is 55 mm long.



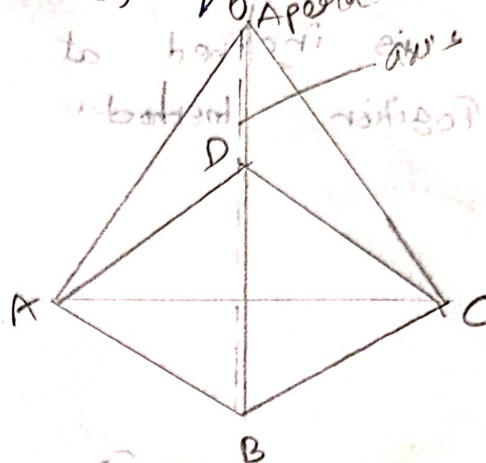
Pyramids:

Types of Regular Pyramids:-

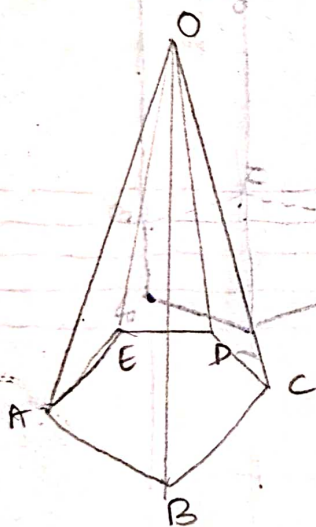
a) Triangular



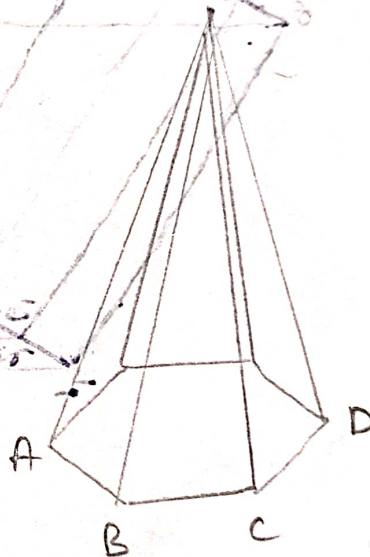
b) Square



c) Pentagonal



d) Hexagonal



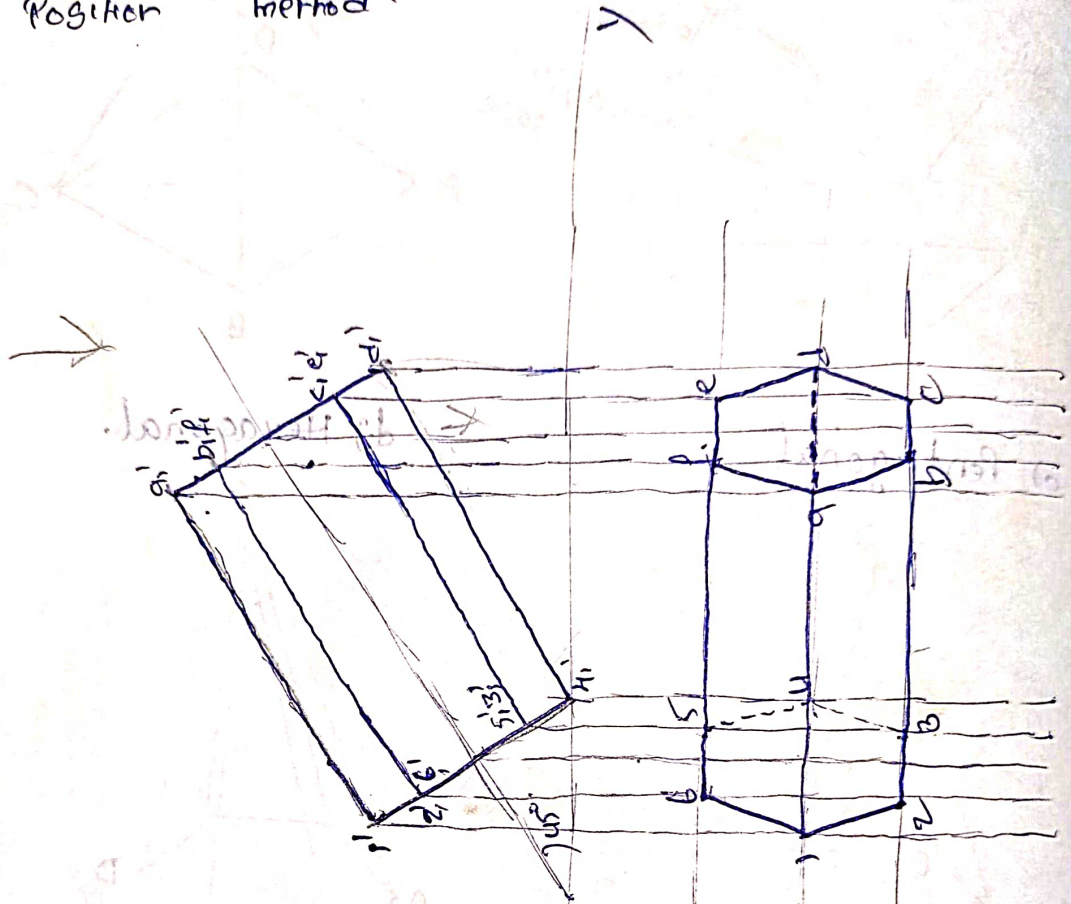
Possibilities:

1. Axis is inclined to H.P

2. Axis is inclined to V.P

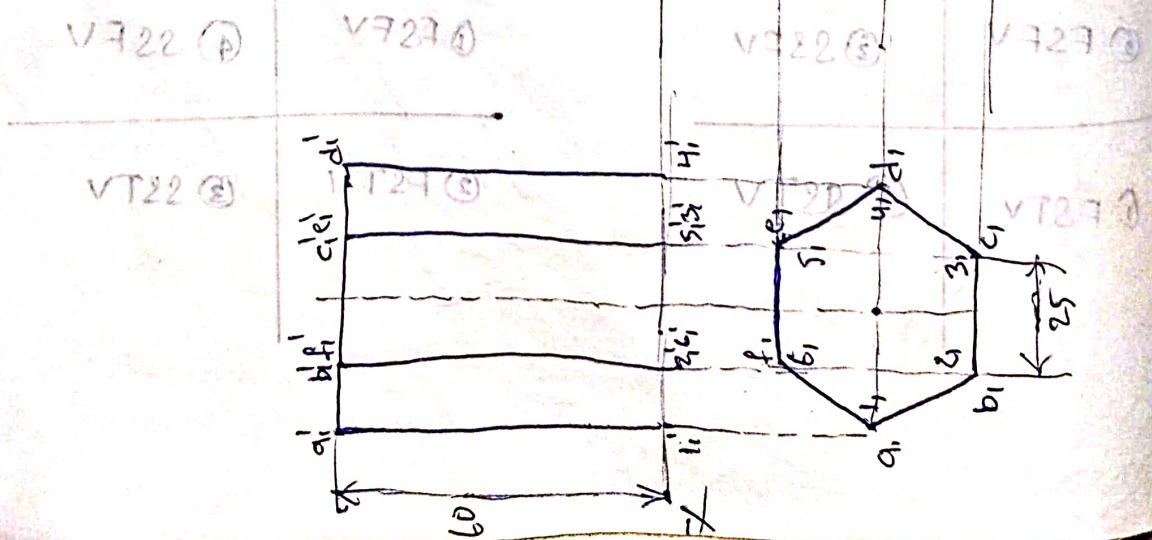
① FSV	② SSFV	① FSV	④ SSFV
① FSTV	④ SSTV	② FSTV	③ SSTV

① mech. Draw the projection of a hexagonal prism of base 25 side and axis 60 long, when it is resting on one of its corner of the base on h.p. The axis of the solid is inclined at 45° to H.P. Follow the change of position method.



Q.V of horizontal axis A

Q.H of horizontal axis A

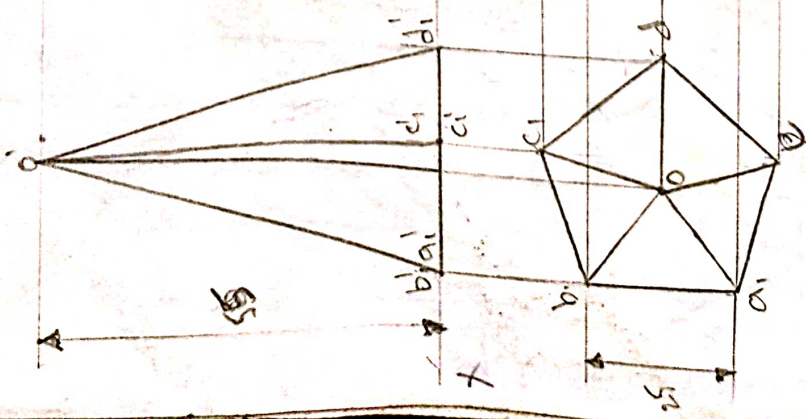
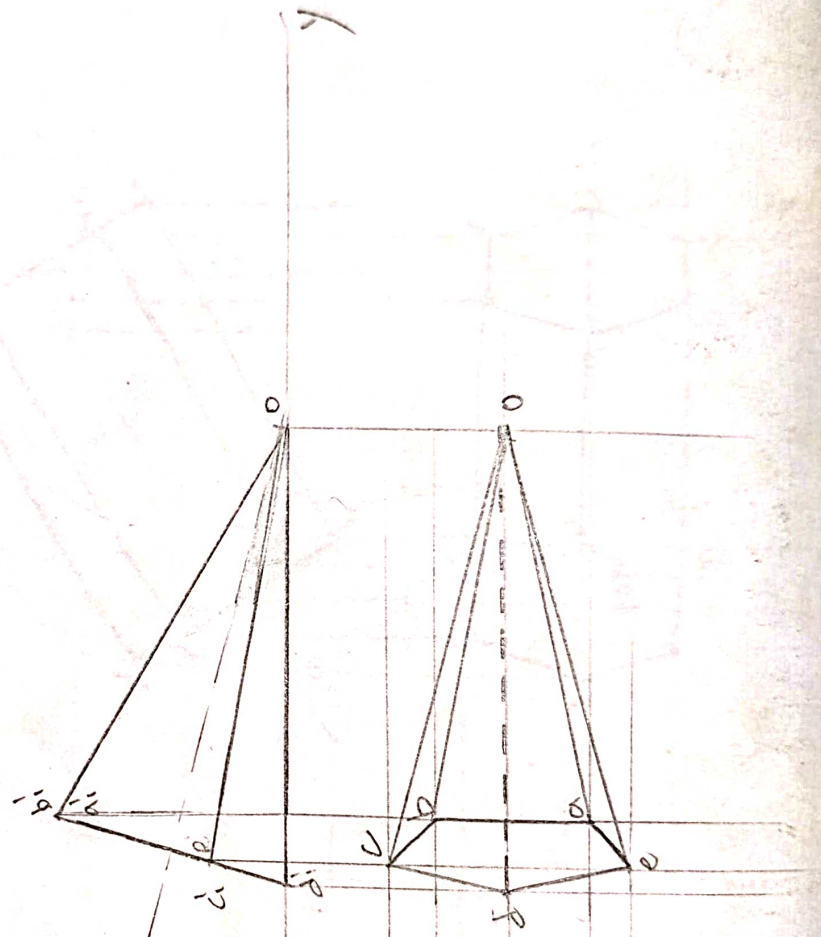


② A pentagonal pyramid of base 25 mm and axis 60 mm long & it is inclined at 45° to V.P. Draw the projections.

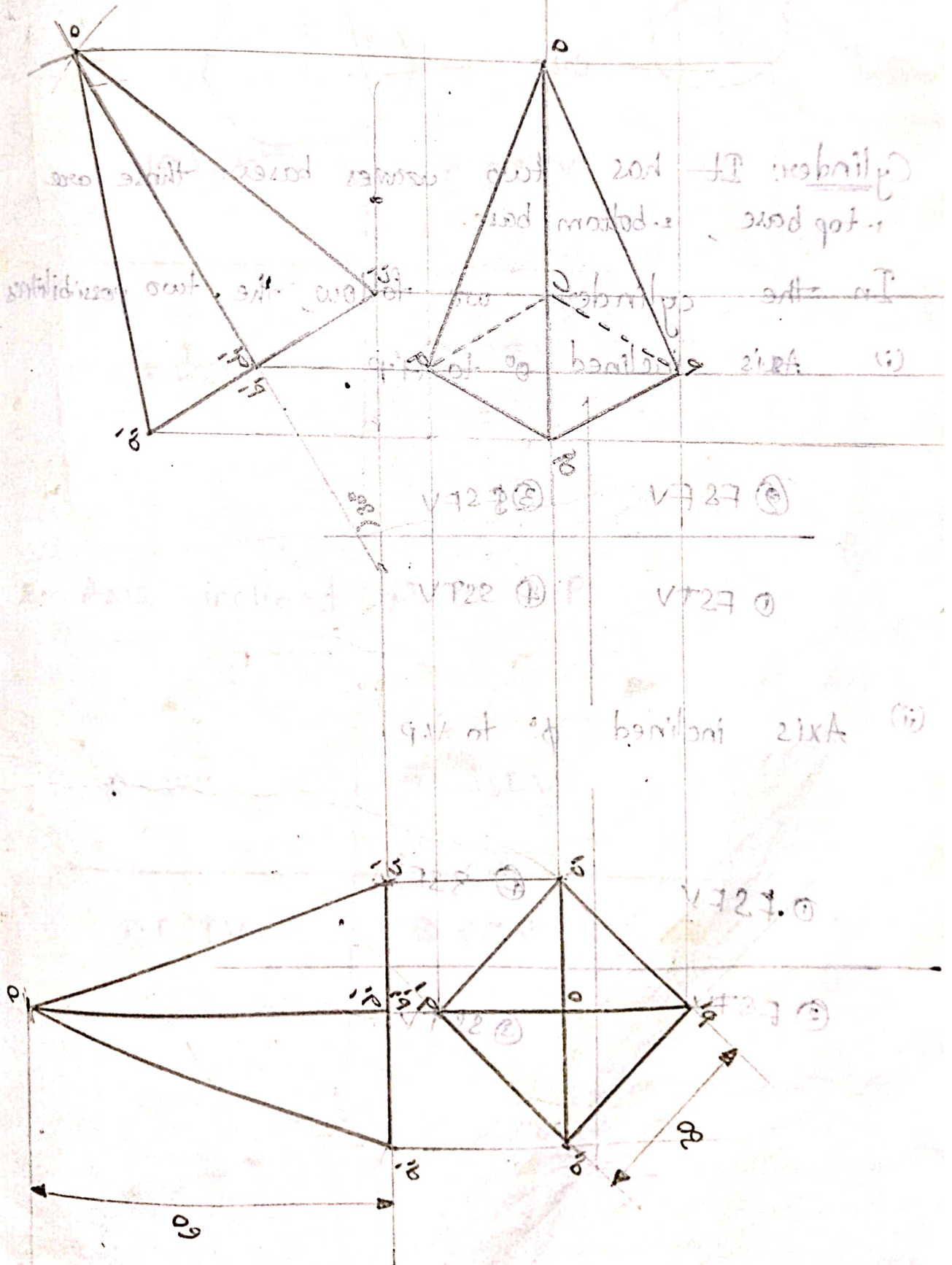
mech.

③

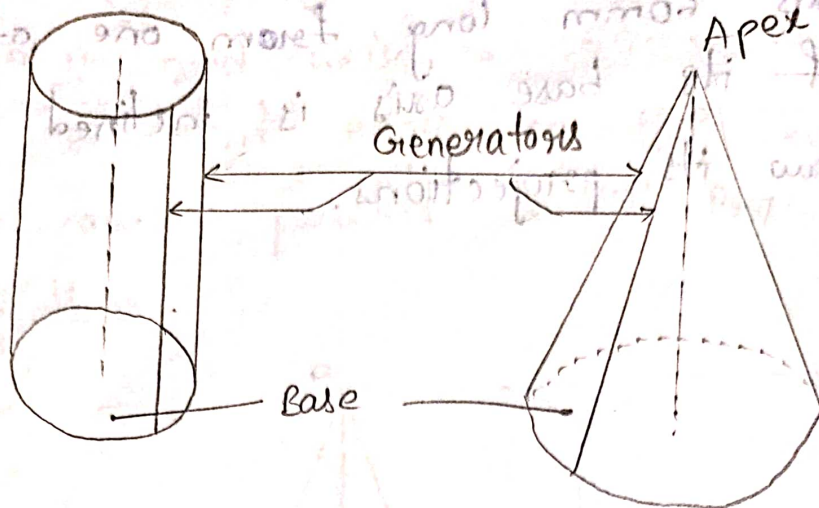
A pentagonal pyramid side of base 25 mm and axis is 55 mm long & its one of slant edge on H.P such that its axis parallel to V.P. Draw the projections



④ A square pyramid of base 30mm side and axis 60mm long from one of the corner of its base axis is inclined 30° to H.P. Draw its projections.



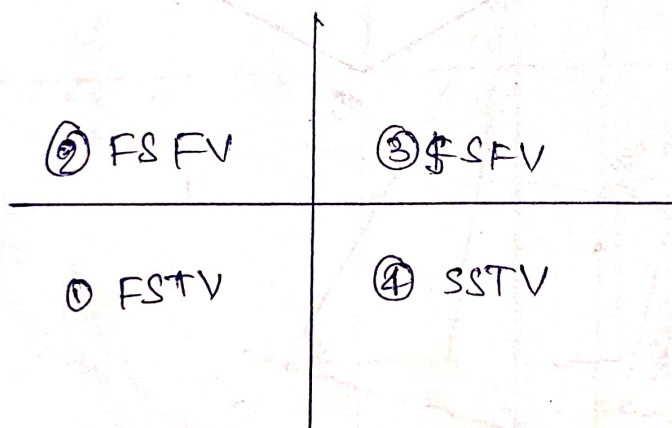
Cylinder:



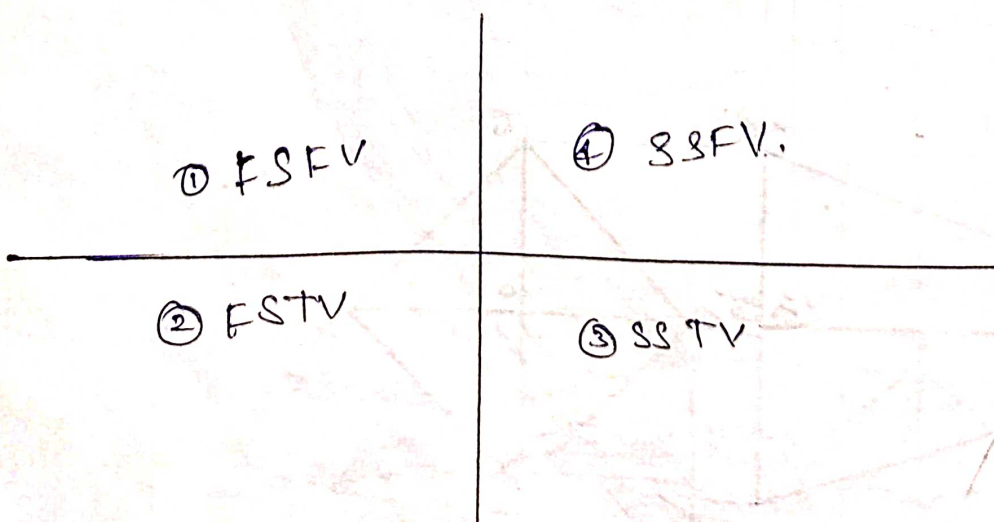
Cylinder: It has two bases those are
1. top base, 2. bottom base.

In the cylinder we follow the two possibilities

(i) Axis inclined 90° to H.P.

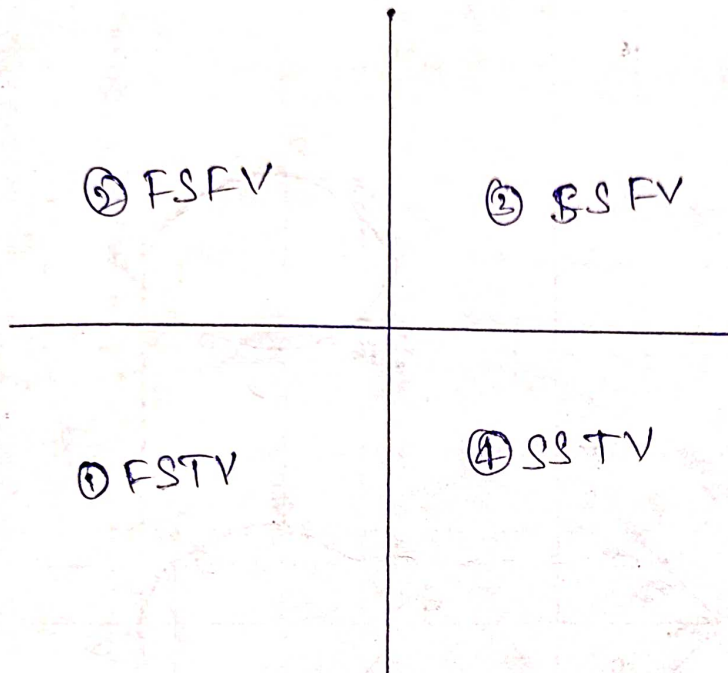


(ii) Axis inclined ϕ° to V.P.

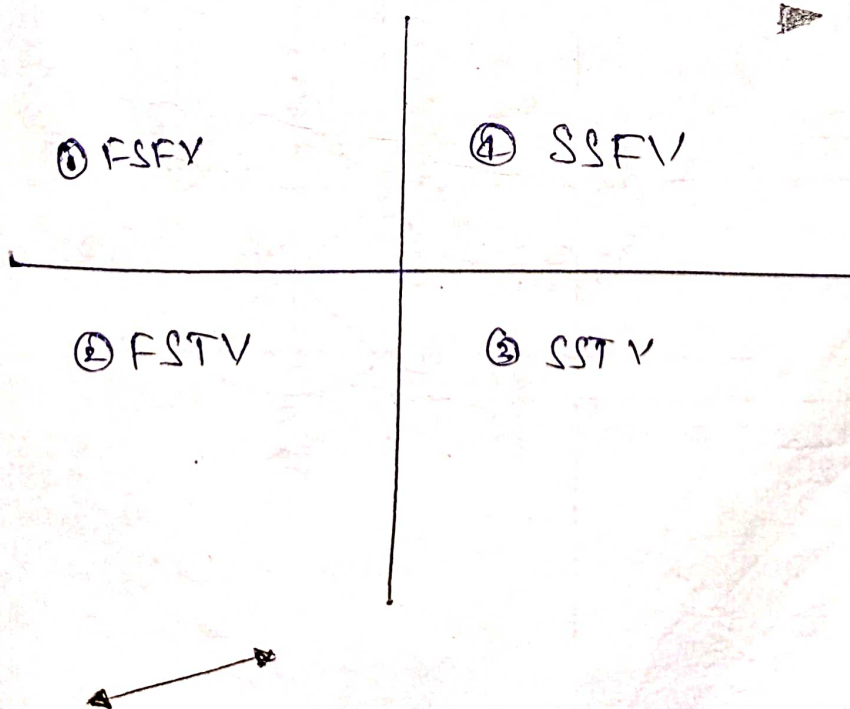


Cone: It have only one base (or) face i.e., bottom base (or) face. and it have one apex. Its look like a point.

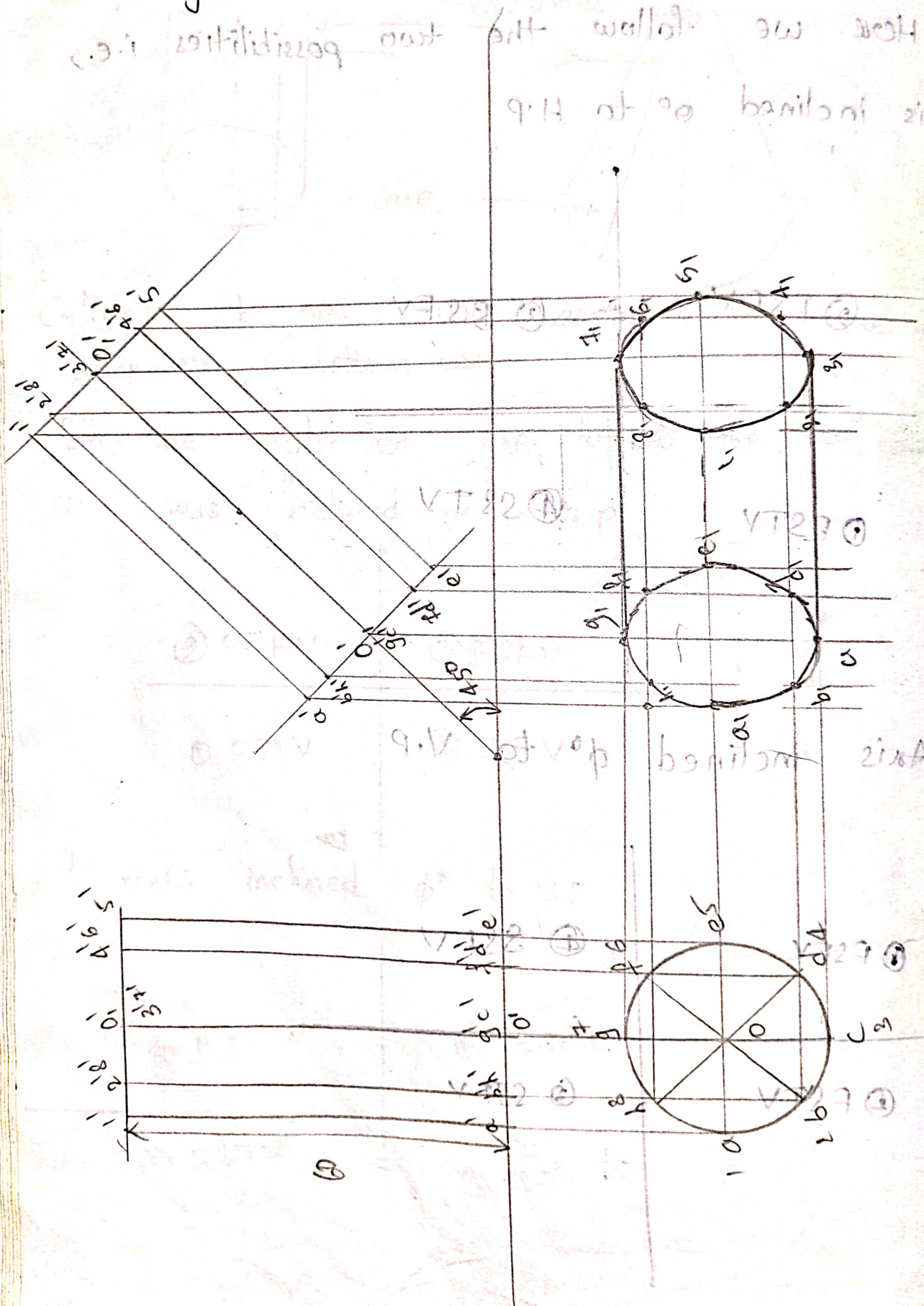
Here we follow the two possibilities i.e.,
1. Axis inclined 0° to H.P



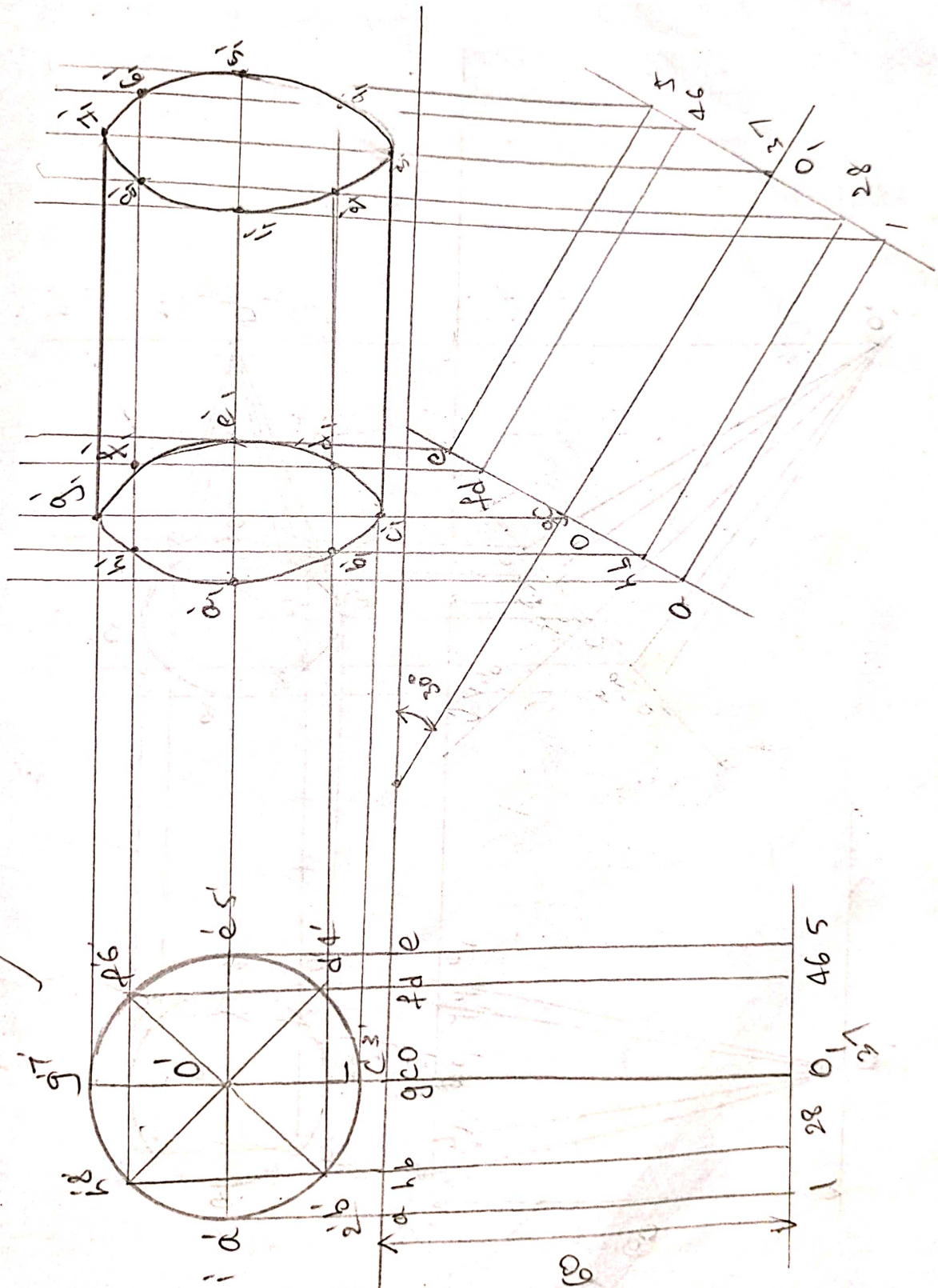
2. Axis inclined ϕ° to V.P



mech
Problem-1: A cylinder of 30mm diameter and axis 60mm long and its axis makes an angle of 45° to H.P.



med.
Problem-2: A cylinder of 40 mm diameter and axis is 60 mm long its axis is (30°) inclined 30° to V.P. Draw the projections.



Problem-3: A cone of 30mm diameter and axis is 60mm long its axis is inclined 45° to H.P.

