Rajiv Gandhi Institute of Petroleum Technology
Jais, Amethi
An Institution of National Importance, Government of India

Engineering Graphics (ME121)

Projection of Points and Lines

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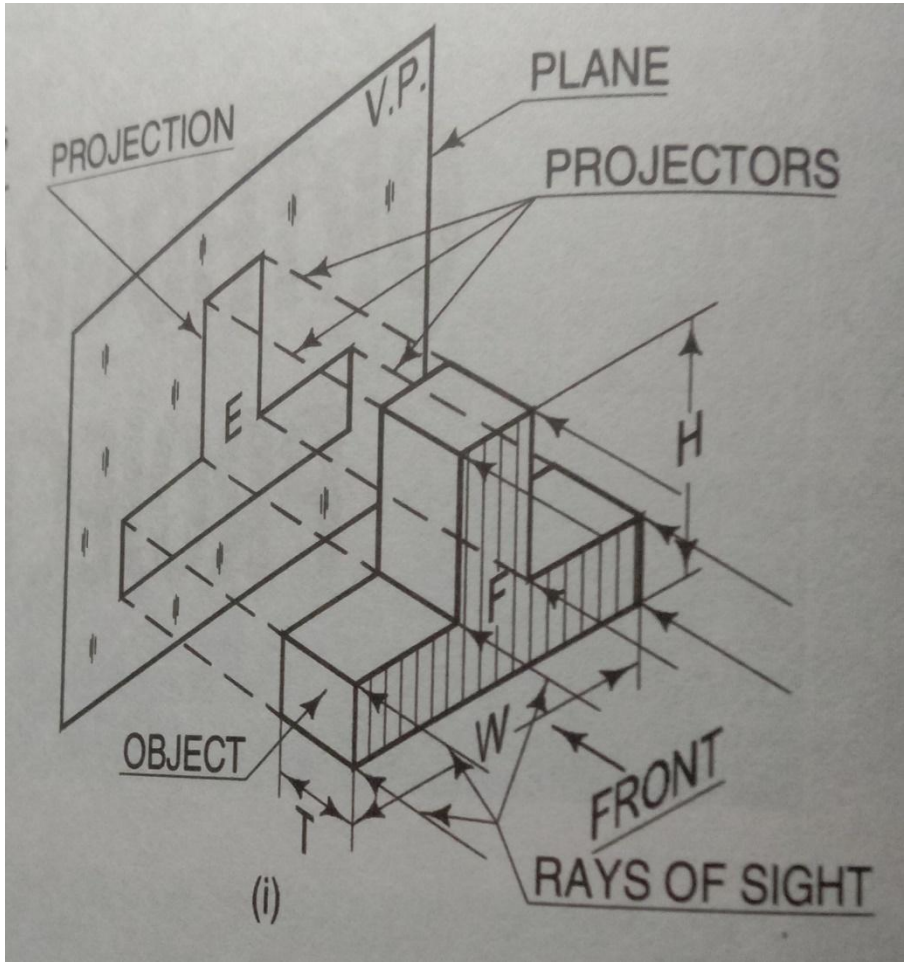
Topics

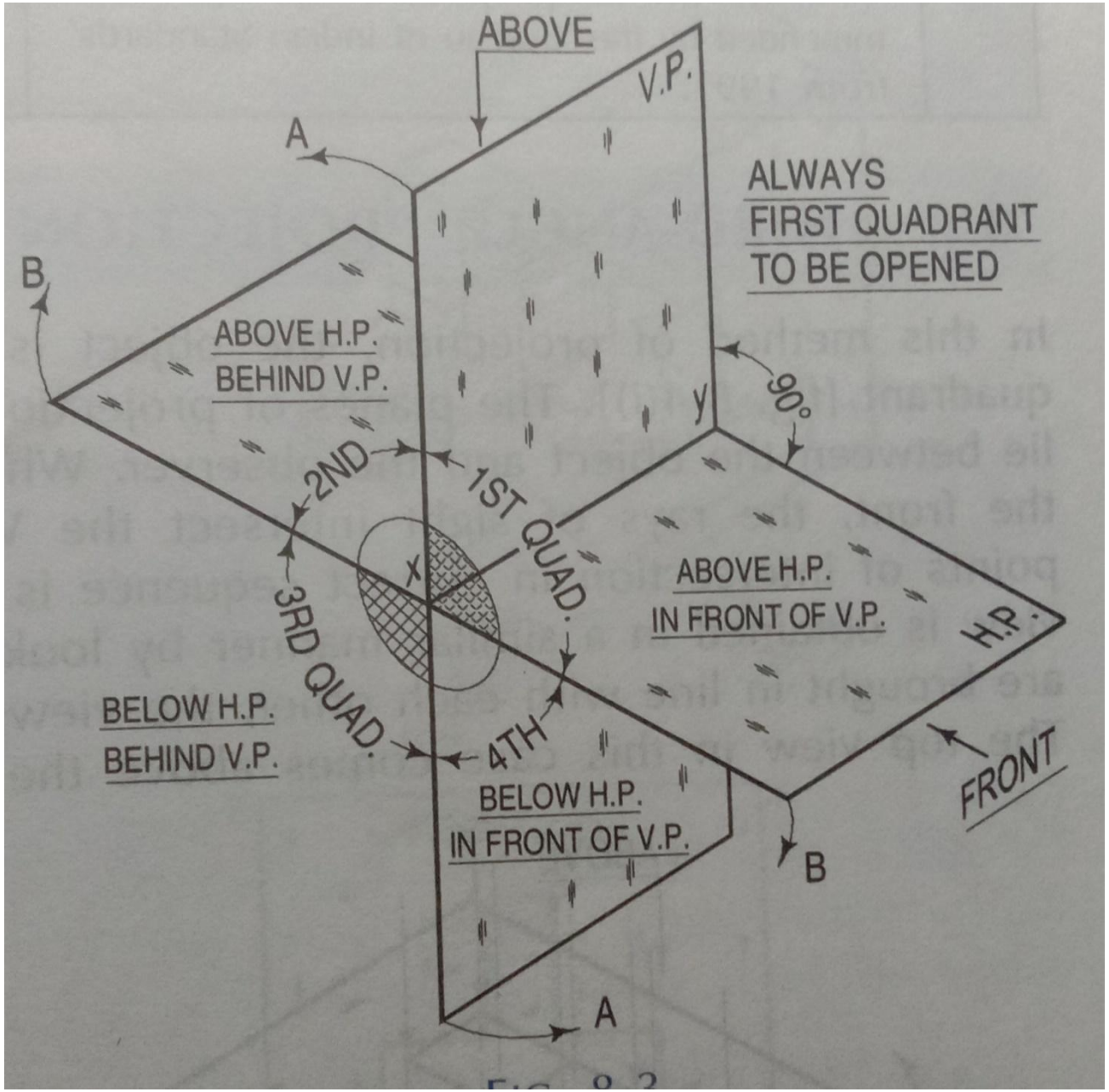
1. Orthographic projection terminology
2. Projection of point
3. Projection of line

Orthographic Projection

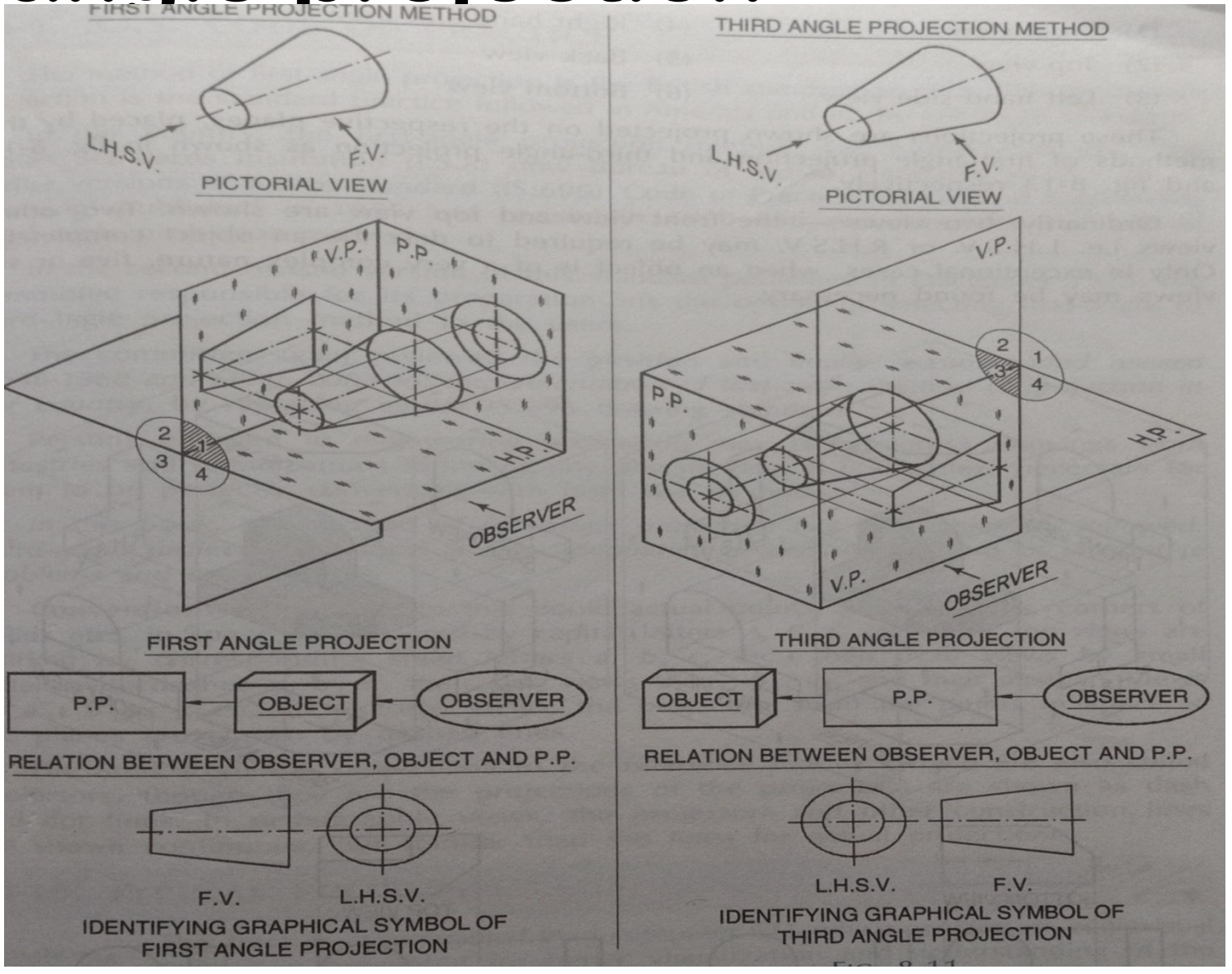
- When the projectors are parallel to each other and also perpendicular to the plane



Quadrant

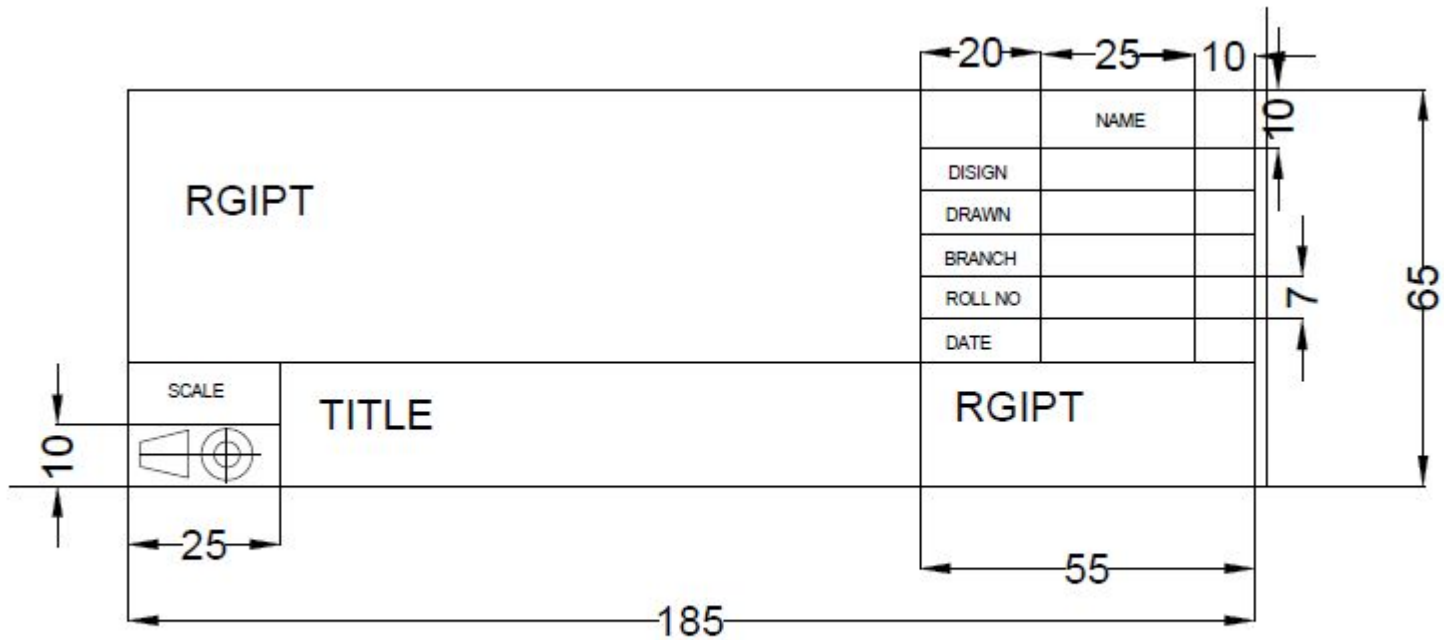

ABOVE
V.P.
A
ALWAYS
FIRST QUADRANT
TO BE OPENED
B
ABOVE H.P.
BEHIND V.P.
y
90°
2ND
1ST QUAD.
x
3RD QUAD.
ABOVE H.P.
IN FRONT OF V.P.
H.P.
BELOW H.P.
BEHIND V.P.
4TH
BELOW H.P.
IN FRONT OF V.P.
FRONT
B
A

1st and 3rd angle projection



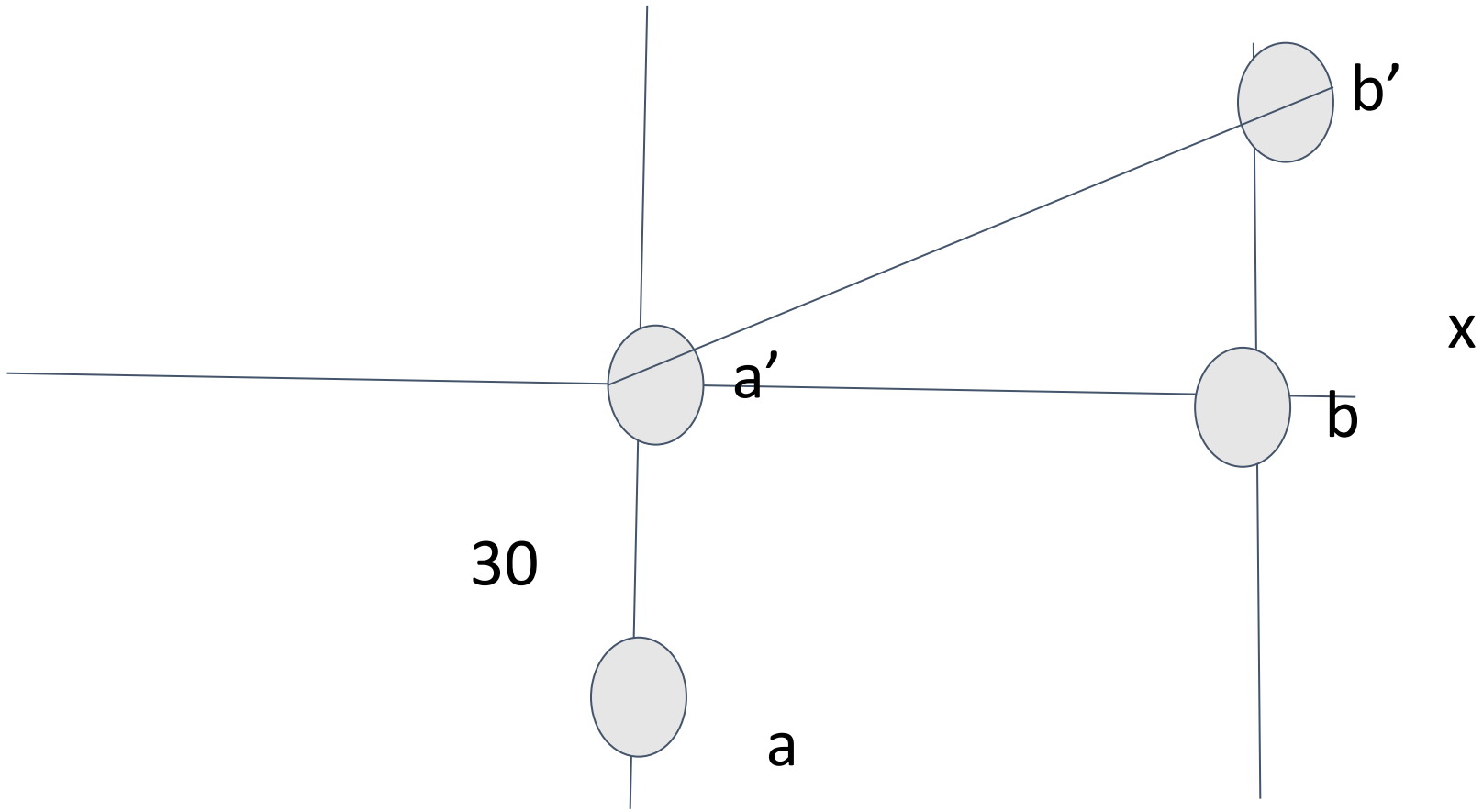
BIS Code of orthographic projection

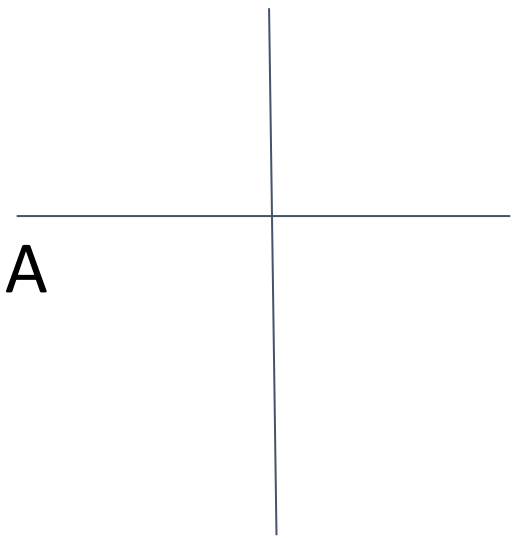
- In space points are represented as A,B,C,D, etc. and their **top view (TV)** marked by corresponding small letters a, b, c, d, etc. and their **front view (FV)** marked as a', b', c', d', etc.
- The side views by a_1', b_1', c_1', d_1', etc
- The projectors and other construction lines are shown continuous but thinner than actual projections

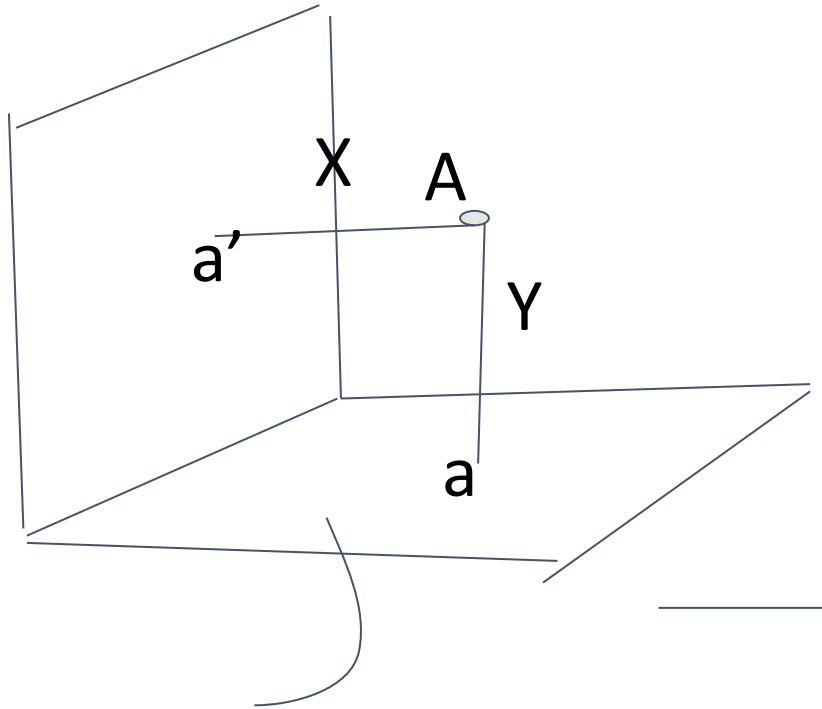

20
25
10
NAME
10
RGIPT
DISIGN
DRAWN
BRANCH
ROLL NO
DATE
7
65
SCALE
TITLE
RGIPT
10
25
55
185

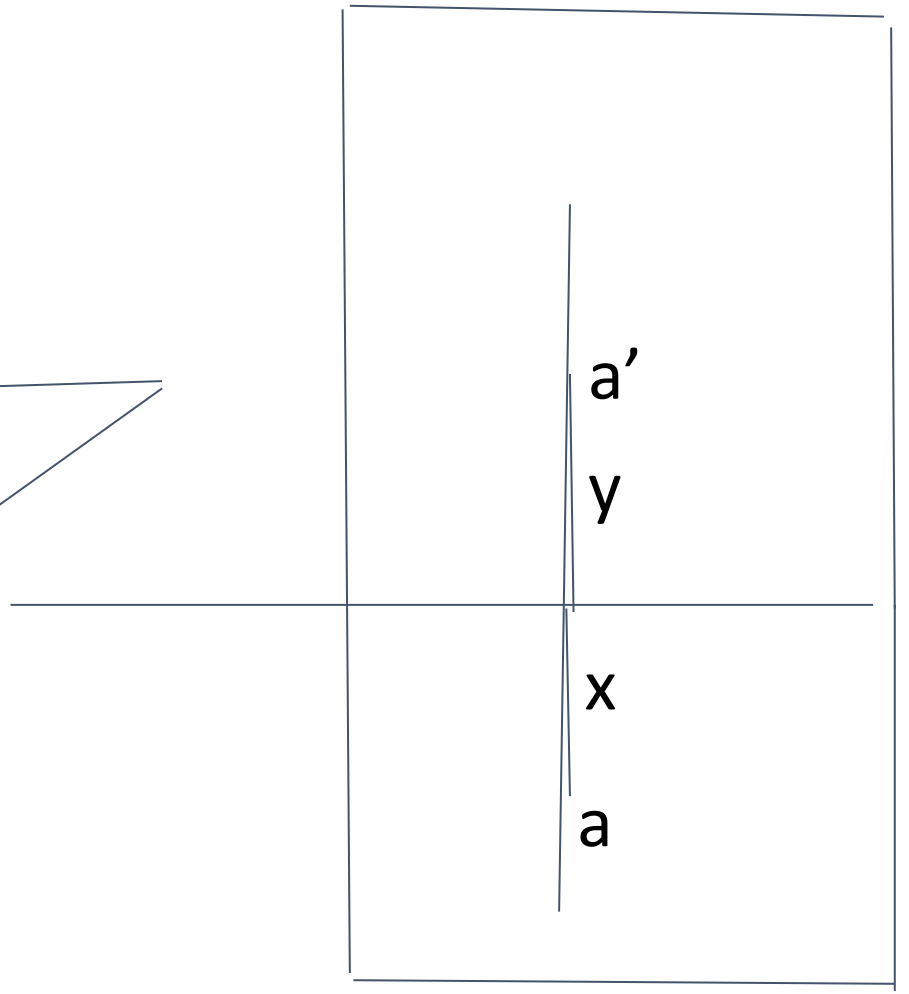
Point Projection Exercise

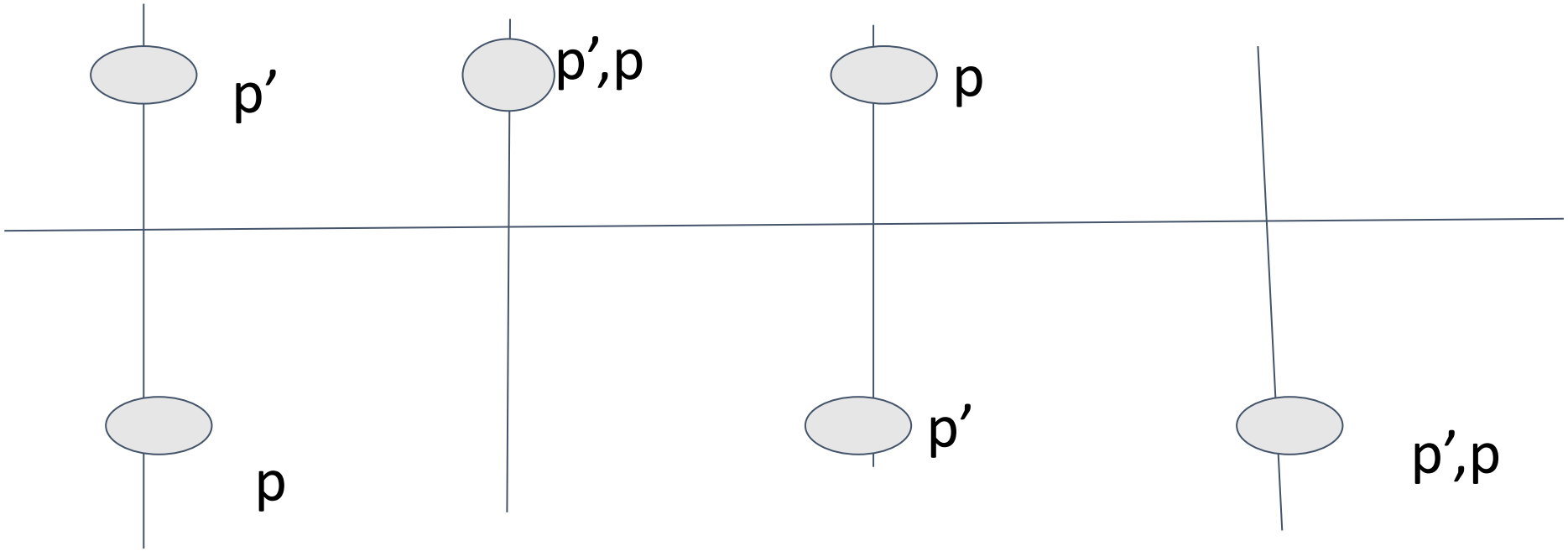
1. A point P is 50 mm from both the reference planes, draw its projections in all possible positions
2. Draw the projections of the point A in the HP and 20 mm behind VP
3. Draw the projections of the point B 40 mm above HP and 25 mm in front of the VP
4. Draw the projections of the point C in the VP and 40 mm above HP.
5. Draw the projections of the point D 25 mm below HP and 25 mm behind VP.
6. Two points A and B are in HP. The point A is 30 mm in front of the VP while B is behind VP. The distance between their projectors is 75 mm and the line joining their top views makes an angle of 45° with xy. Find the distance of the point B from VP.


b’
x
a’
b
30
a


A


X
A
a’
Y
a


a’
y
x
a


p’
p’,p
p
p
p’
p’,p

Projection of Line

- Line is parallel to one or both the planes
- Line is perpendicular to one of the plane
- Line is inclined to one plane and parallel to other
- Line is inclined to both the planes