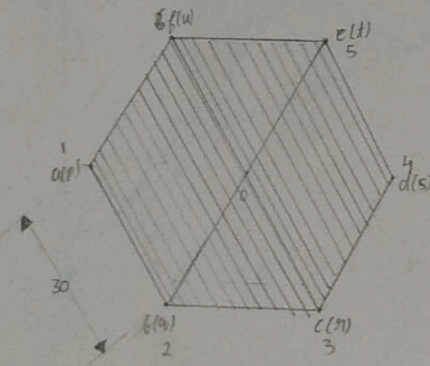
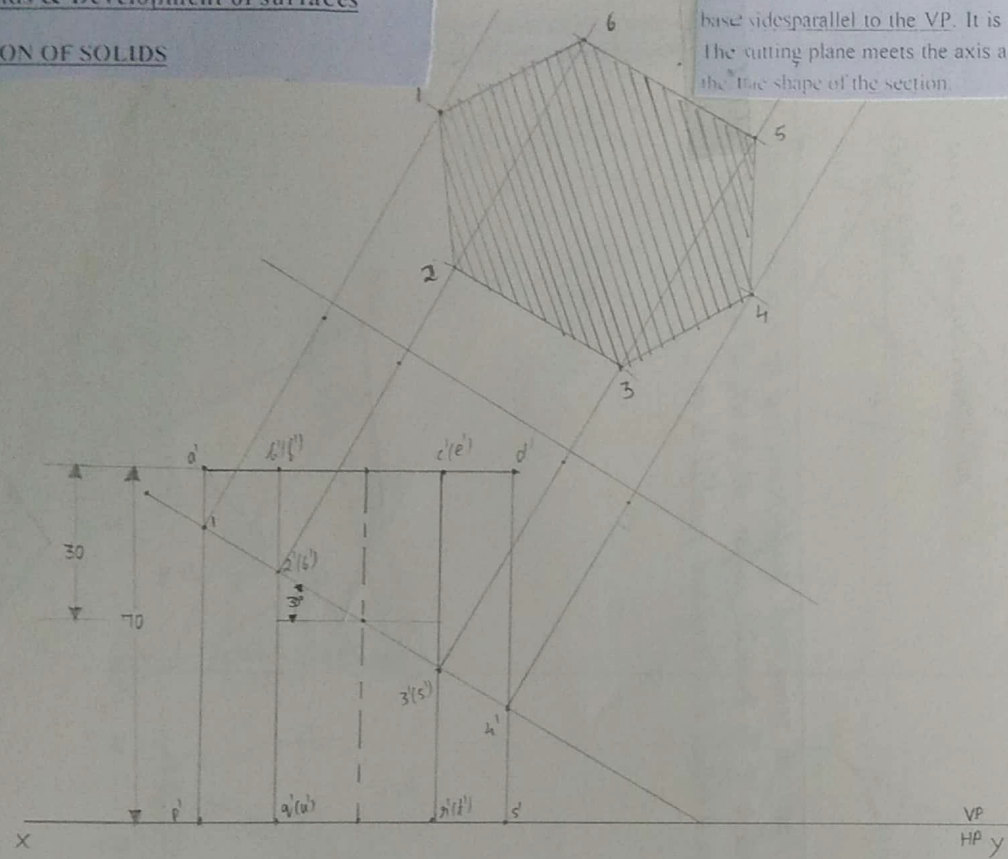


MR. G. ASHWIN PRABHU
ASSISTANT PROFESSOR
MECHANICAL

Unit-4 Section of solids & Development of surfaces

SECTION OF SOLIDS

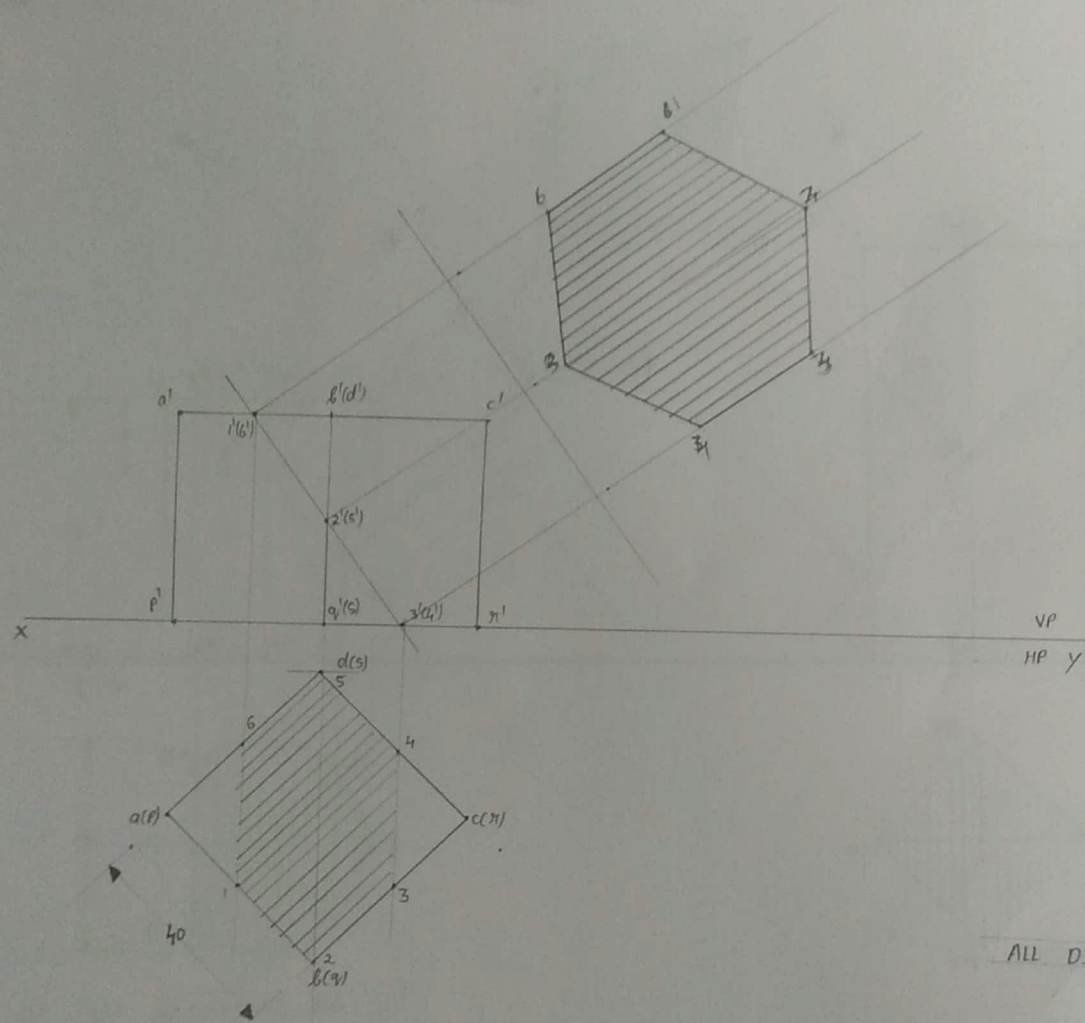
A Hexagonal prism of base side 30mm and axis length 70mm rests on one of its ends on the HP with two base sides parallel to the VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP. The cutting plane meets the axis at 30mm from the top. Draw the plan, elevation, sectional top view and the true shape of the section.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

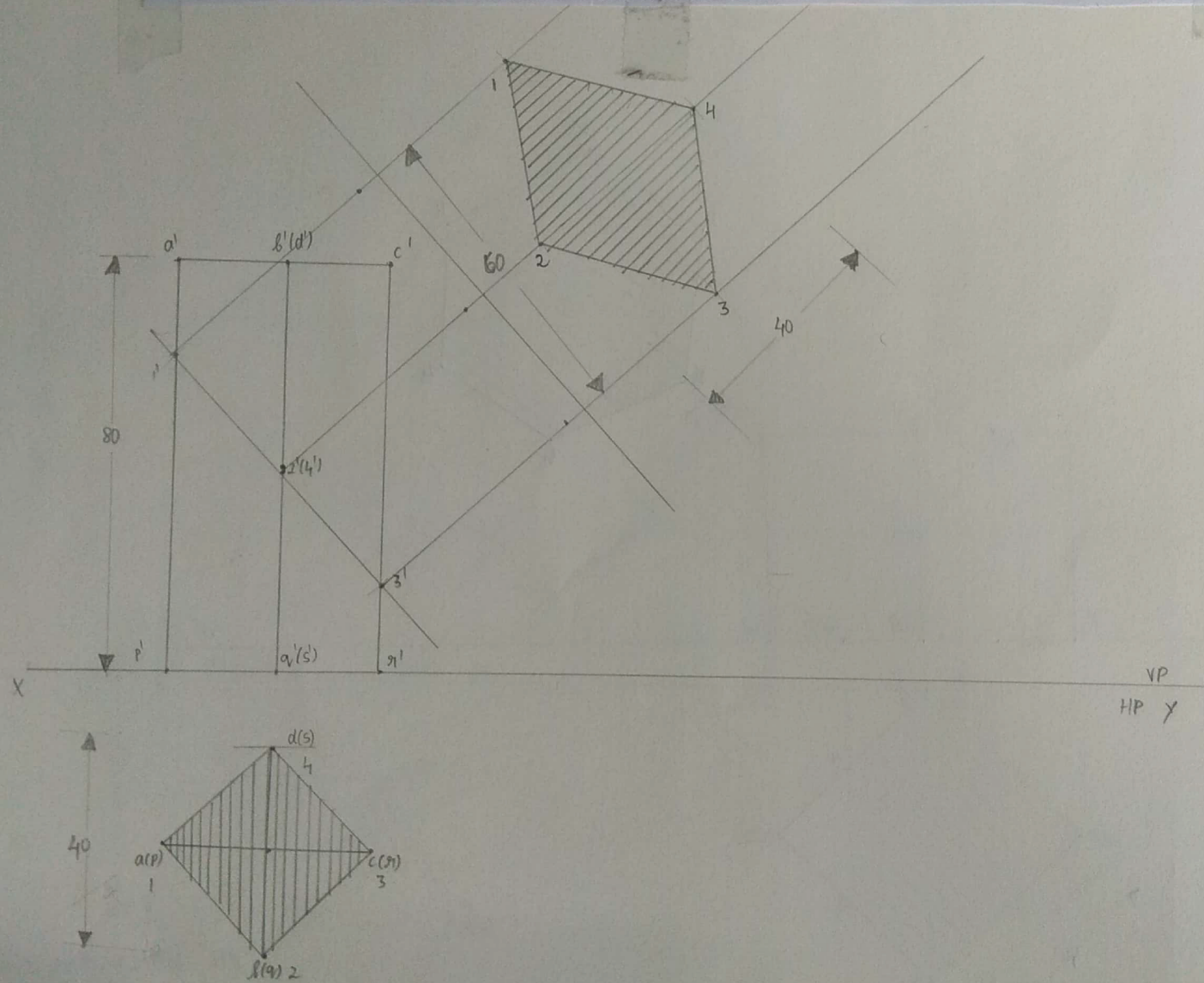
A cube of side 40mm is placed and cut by a plane in such a way that the true shape of the section is a regular hexagon. Draw the front and top views of the cube and determine the inclination of the plane with the HP.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

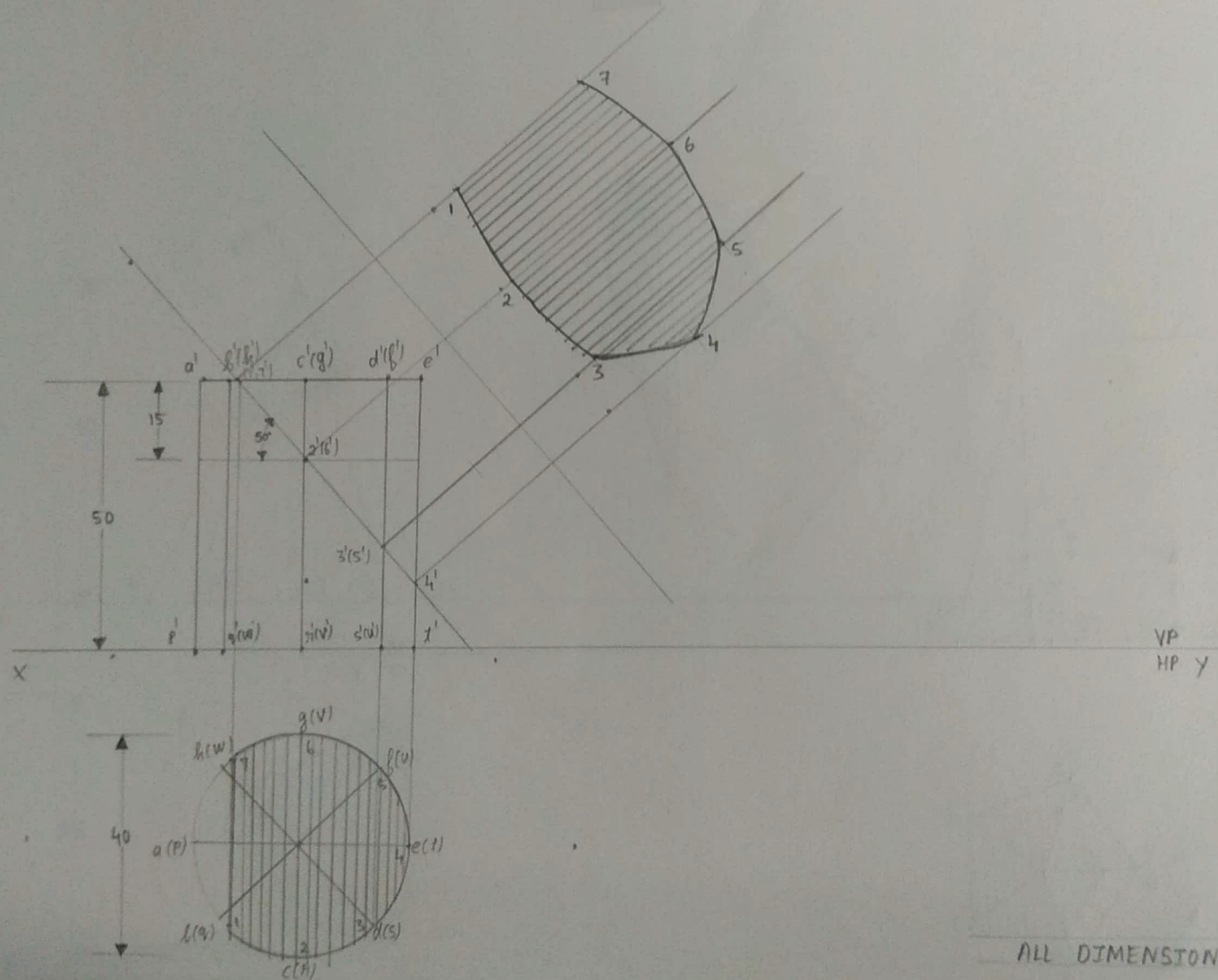
3. A square prism of height 80mm and base of diagonal 40mm rests on the HP on its base with base edges equally inclined to the VP. It is cut by a section plane passing through the midpoint of the axis of the prism perpendicular to the VP and inclined to the HP. Find the inclinations of the cutting plane if the true shape of the section is a rhombus of diagonal 60mm and 40mm.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

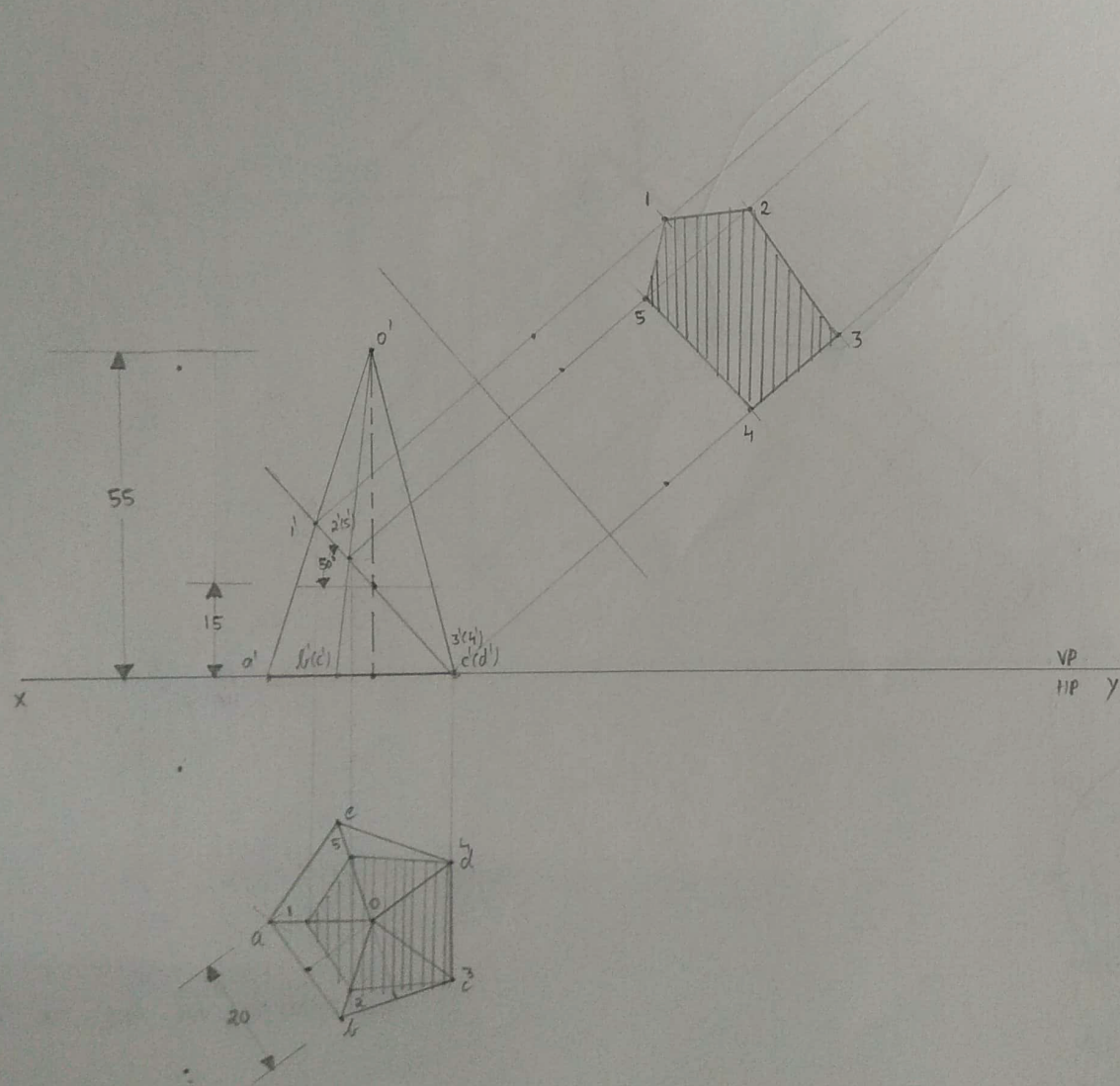
4. A cylinder of base diameter 40mm and height 50mm rest on its base on HP. It is cut by a plane perpendicular to VP and inclined at 50° to HP. The cutting plane meets the axis at a distance of 15mm from the top. Draw the front view, sectional top view and the true shape of the section.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

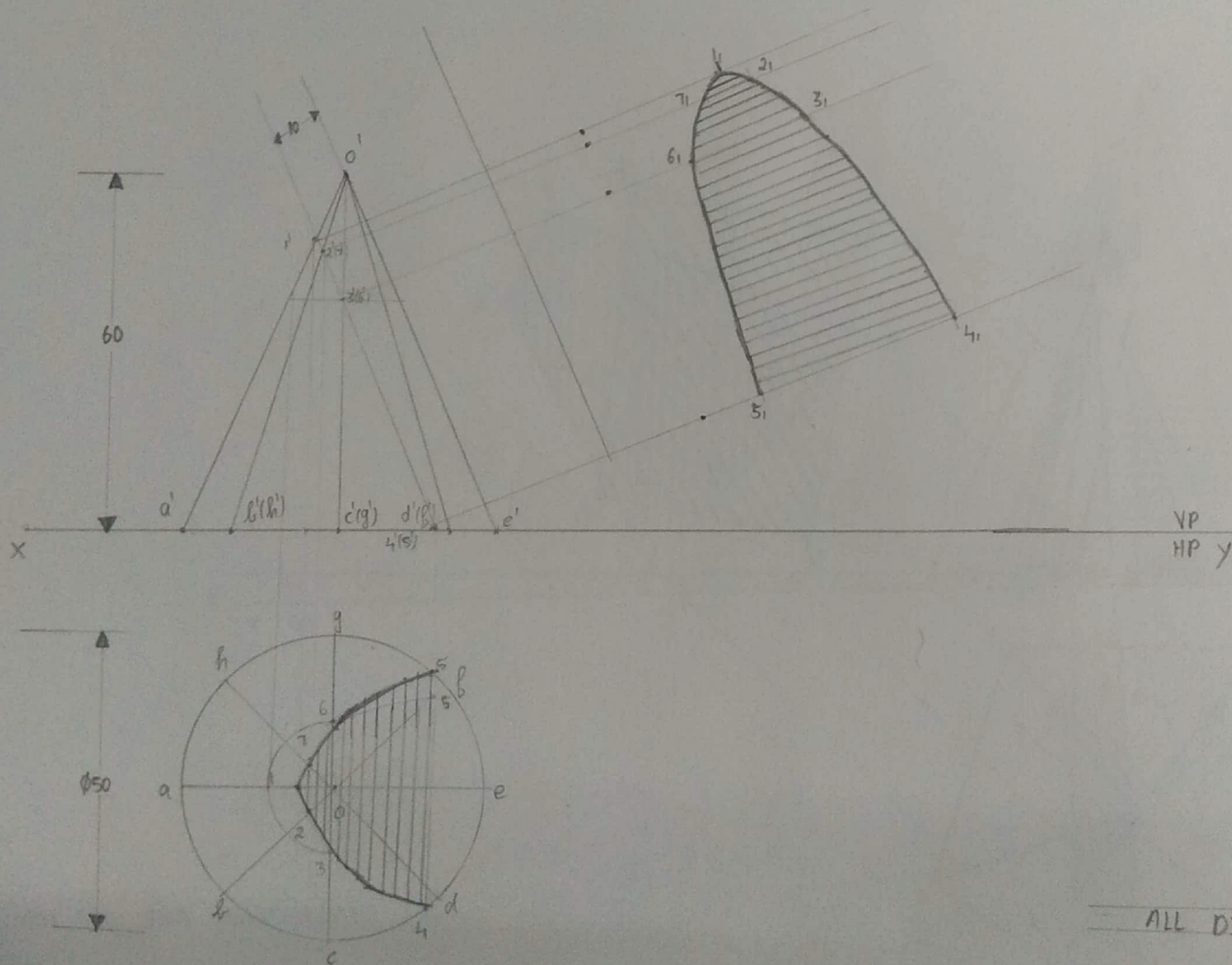
5. A pentagonal pyramid of base side 20mm and altitude 55mm rests on its base on the HP with one of the base edges perpendicular to the VP. It is cut by a plane inclined at 50° to the base & meets the axis at 15mm above the base. Draw the plan, elevation, sectional top view and the true shape of the section.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

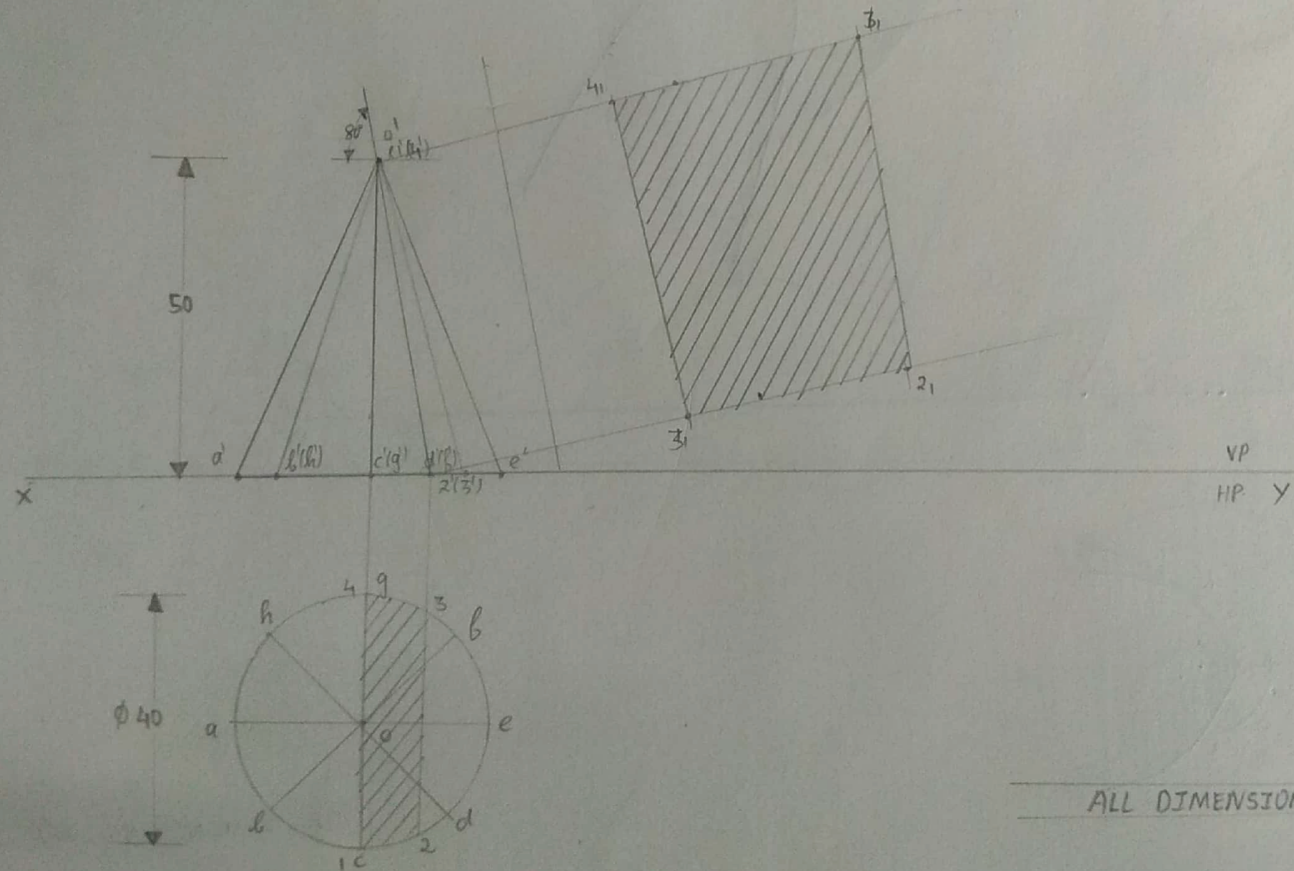
6. A cone, base 50mm diameter and axis 60mm long, rests with its base on HP. It is cut by a section plane perpendicular to VP, parallel to one of the Extreme generators and 10mm away from it. Draw the plan, elevation, sectional top view and the true shape of the section.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

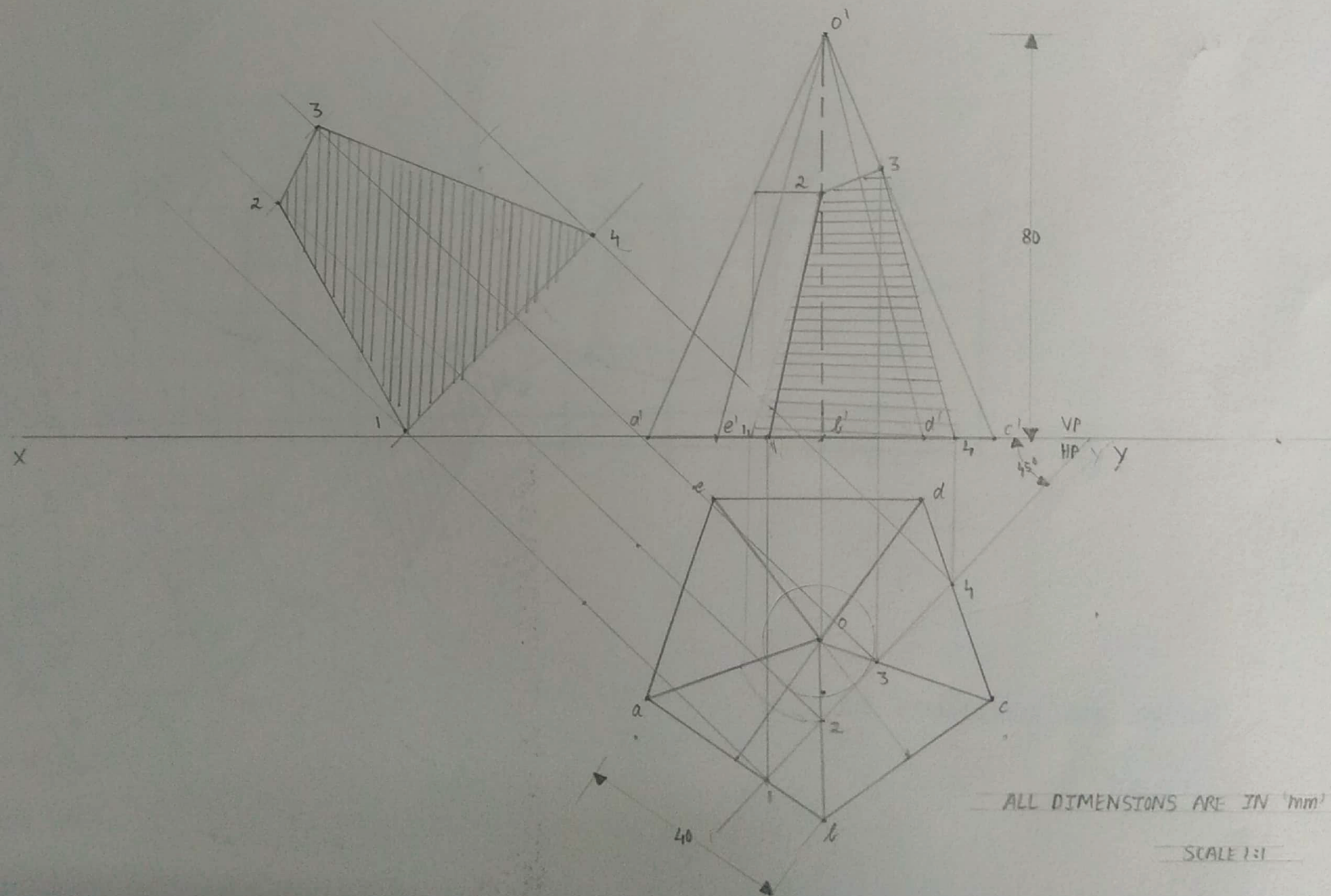
7. A cone, base 40mm diameter and axis 50mm long, rests with its base on HP. It is cut by a section plane perpendicular to VP, inclined at 80° to HP and passing through the apex. Draw the front view, sectional top view and the true shape of the section.



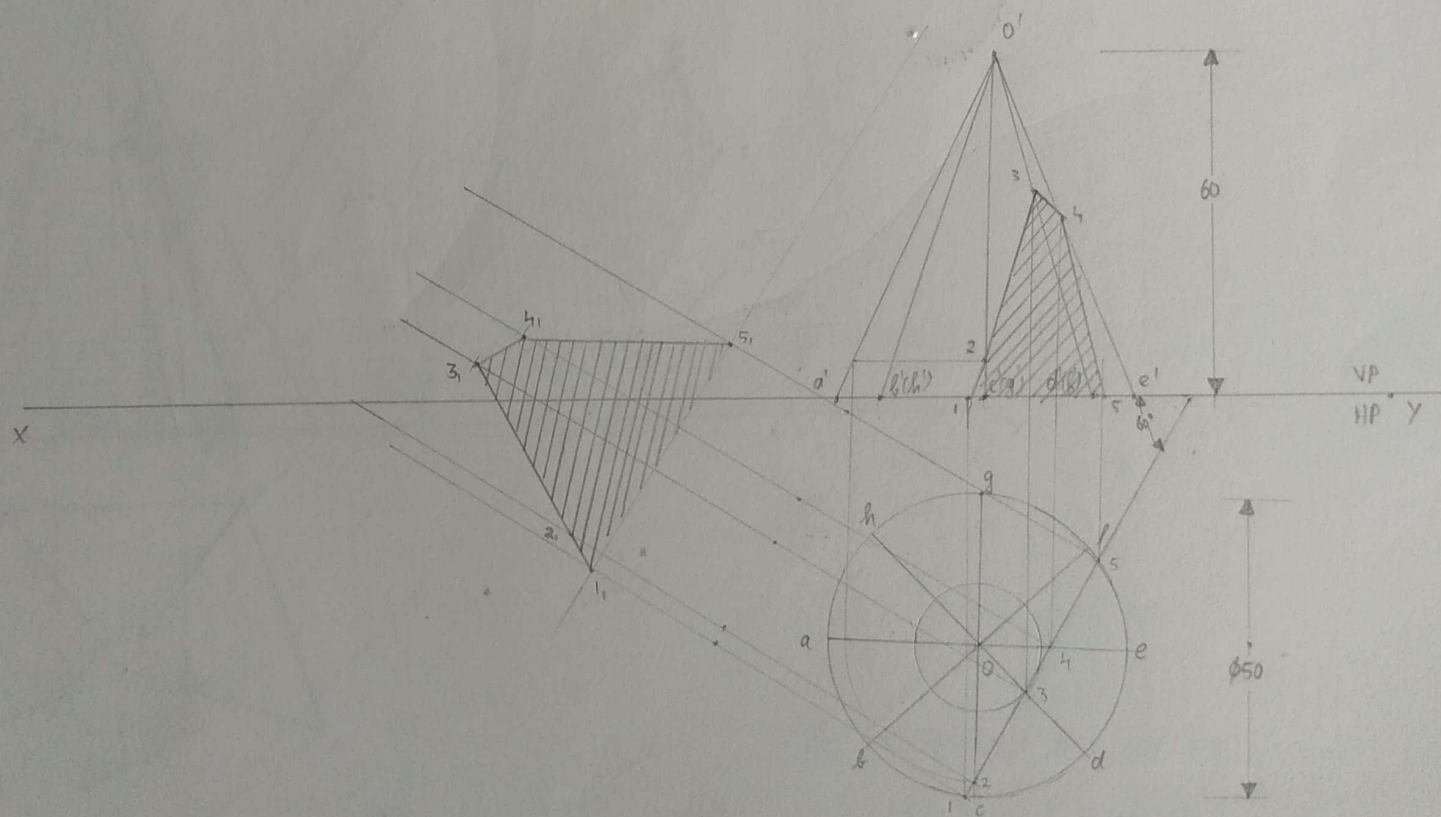
ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

8. A pentagonal pyramid of base side 40mm and altitude 80mm rests on its base on the HP with one of the base edge parallel to the VP. It is cut by a plane perpendicular to HP, inclined at 45° to VP at a distance 10mm from the axis. Draw the top view, sectional front view and the true shape of the section.



9. A cone of base diameter 50mm and axis length 60mm rest on its base on HP. It is cut by a plane perpendicular to HP and inclined at 60° to VP and is 10mm away from the axis. Draw the top view, sectional front view and the true shape of the section.

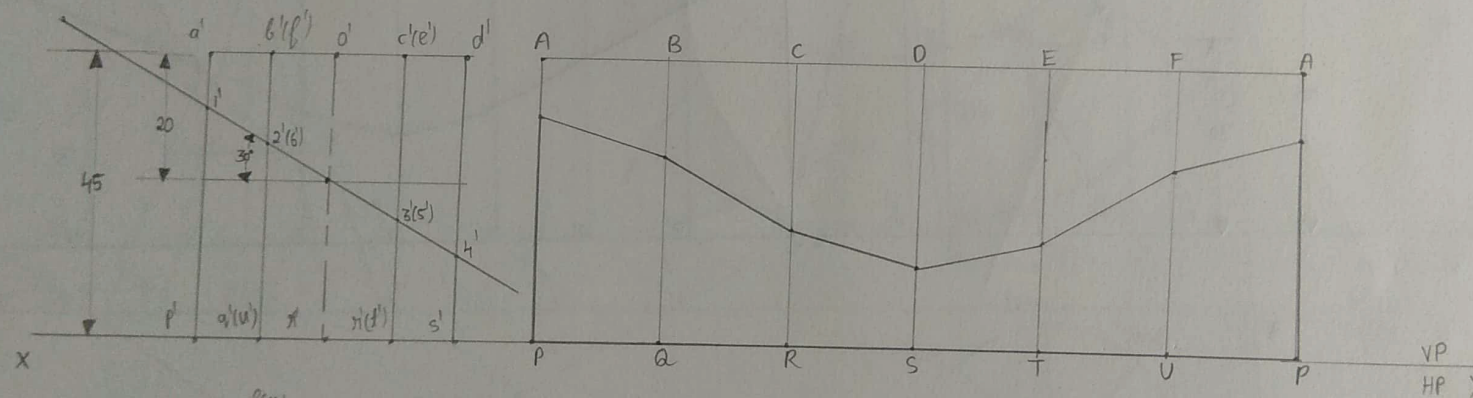


ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

DEVELOPMENT OF SURFACES

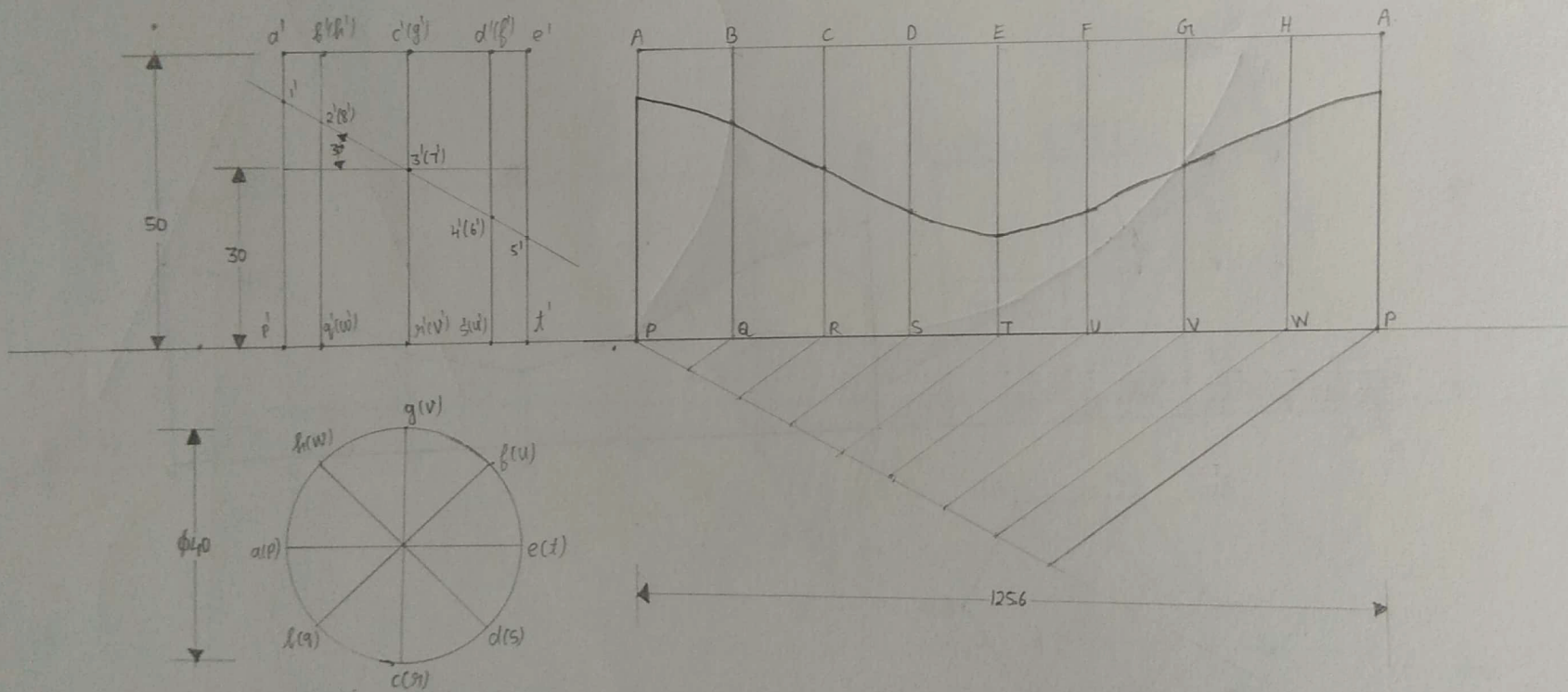
1. A hexagonal prism of base side 20mm and axis length 45mm rests on one of its ends on the HP with two base sides parallel to the VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP. The cutting plane meets the axis at 20mm from the top. Develop the lateral surface of the truncated solid.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

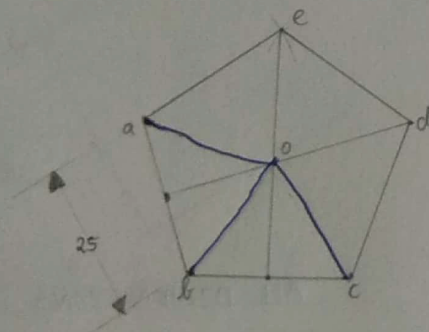
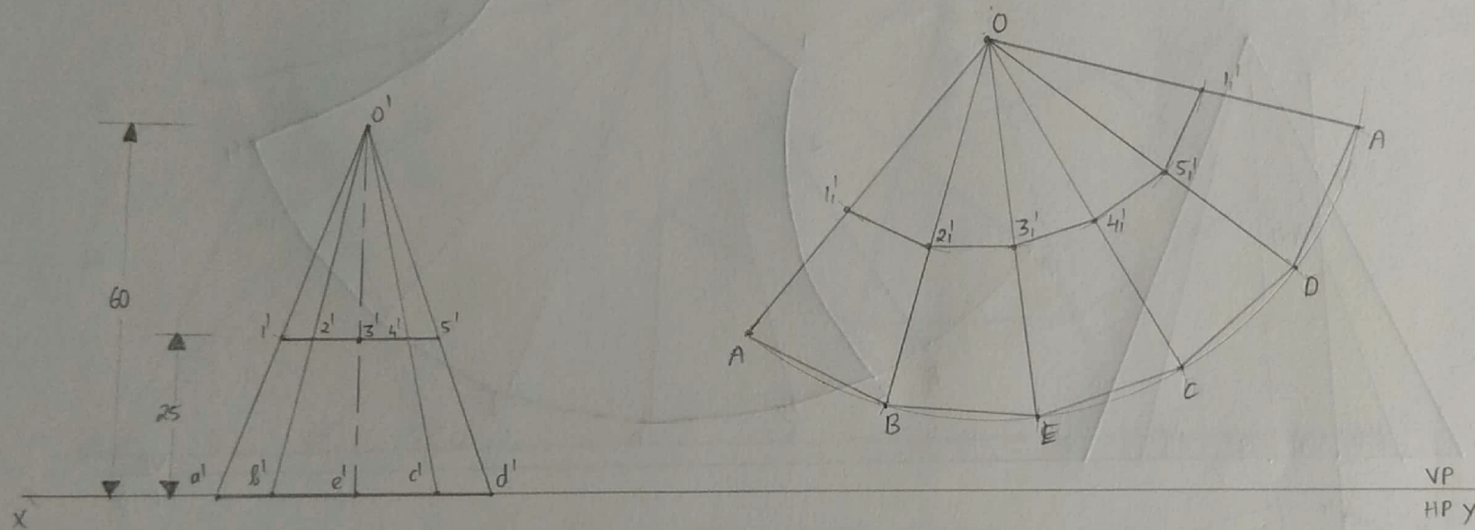
2. A cylinder of base diameter 40mm and height 50mm rest on its base on HP. It is cut by a plane perpendicular to VP and inclined at 30° to HP. The cutting plane meets the axis at a distance of 30mm from the base. Develop the lateral surface of truncated solid.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

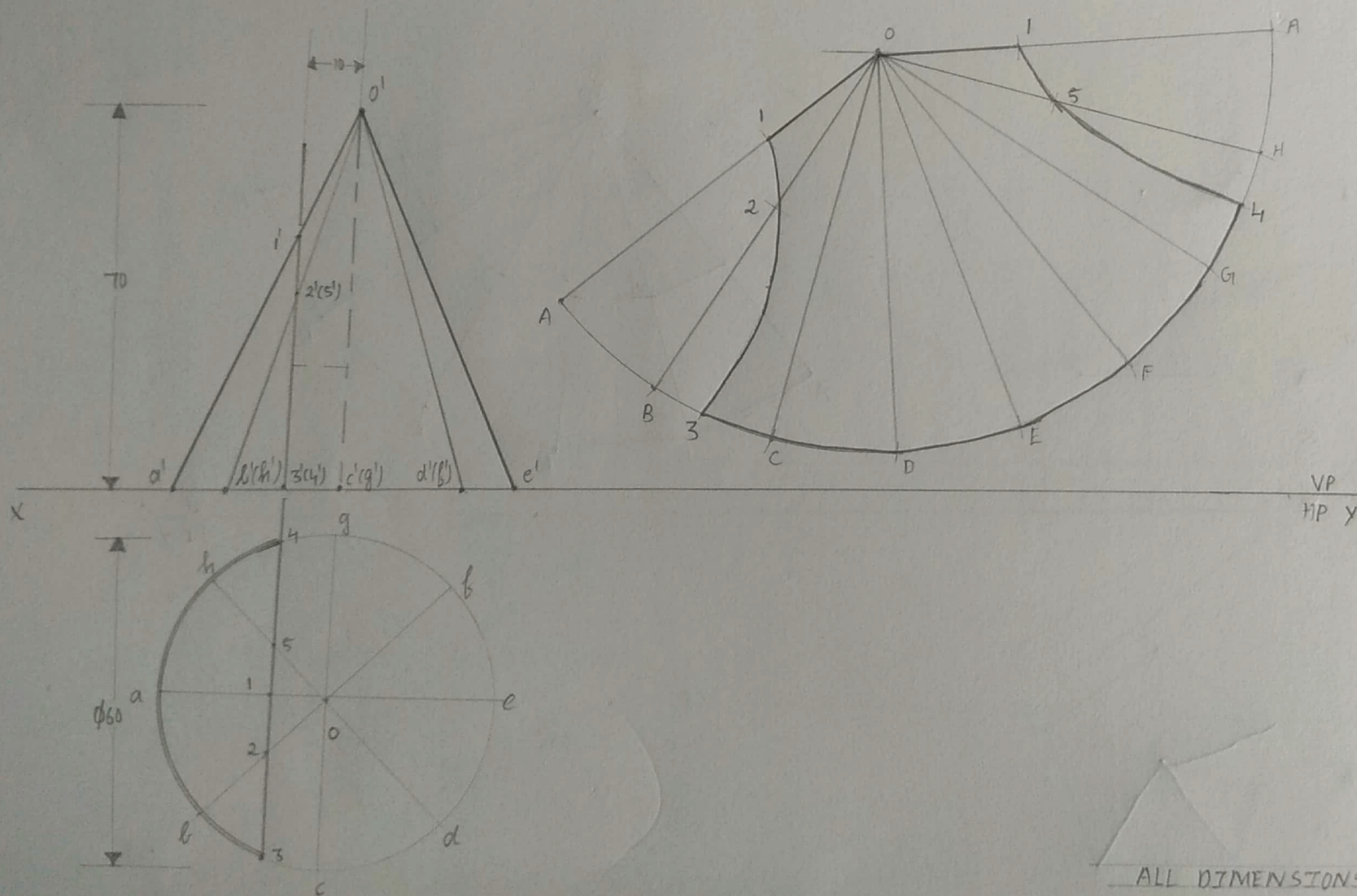
3. A pentagonal pyramid of base side 25mm and altitude 60mm resting vertically on its base on the ground with one of the sides of the base parallel to the V.P. It is cut by a plane perpendicular to the V.P. and parallel to the H.P. at the distance of 25mm above the base. Develop the lateral surface of truncated solid.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

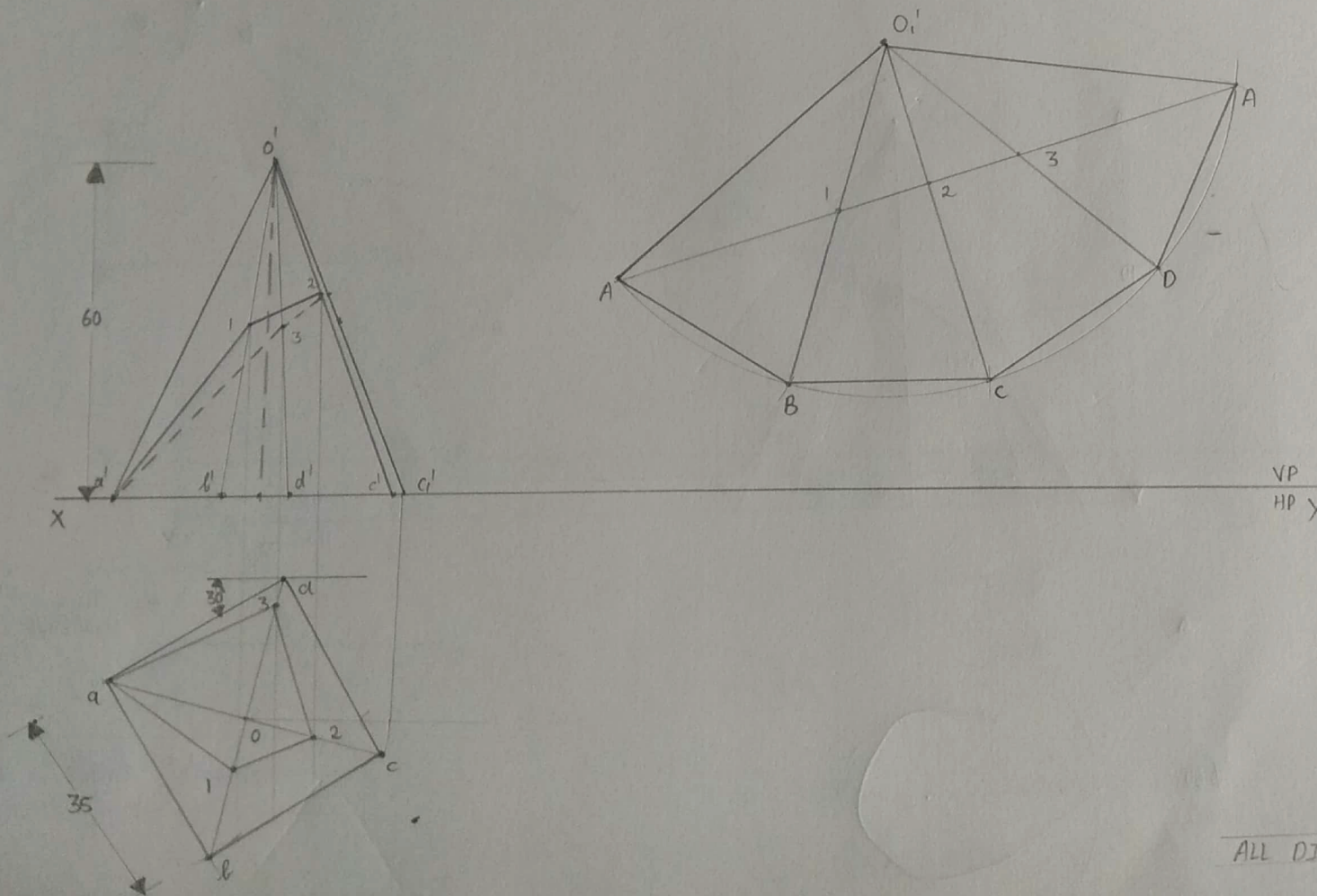
4. A cone, base 60mm diameter and axis 70mm long, rests with its base on HP. It is cut by a section plane perpendicular to both the HP and the VP and passing through the cone 10mm to the left of the axis of the cone. Develop the lateral surface of truncated solid.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

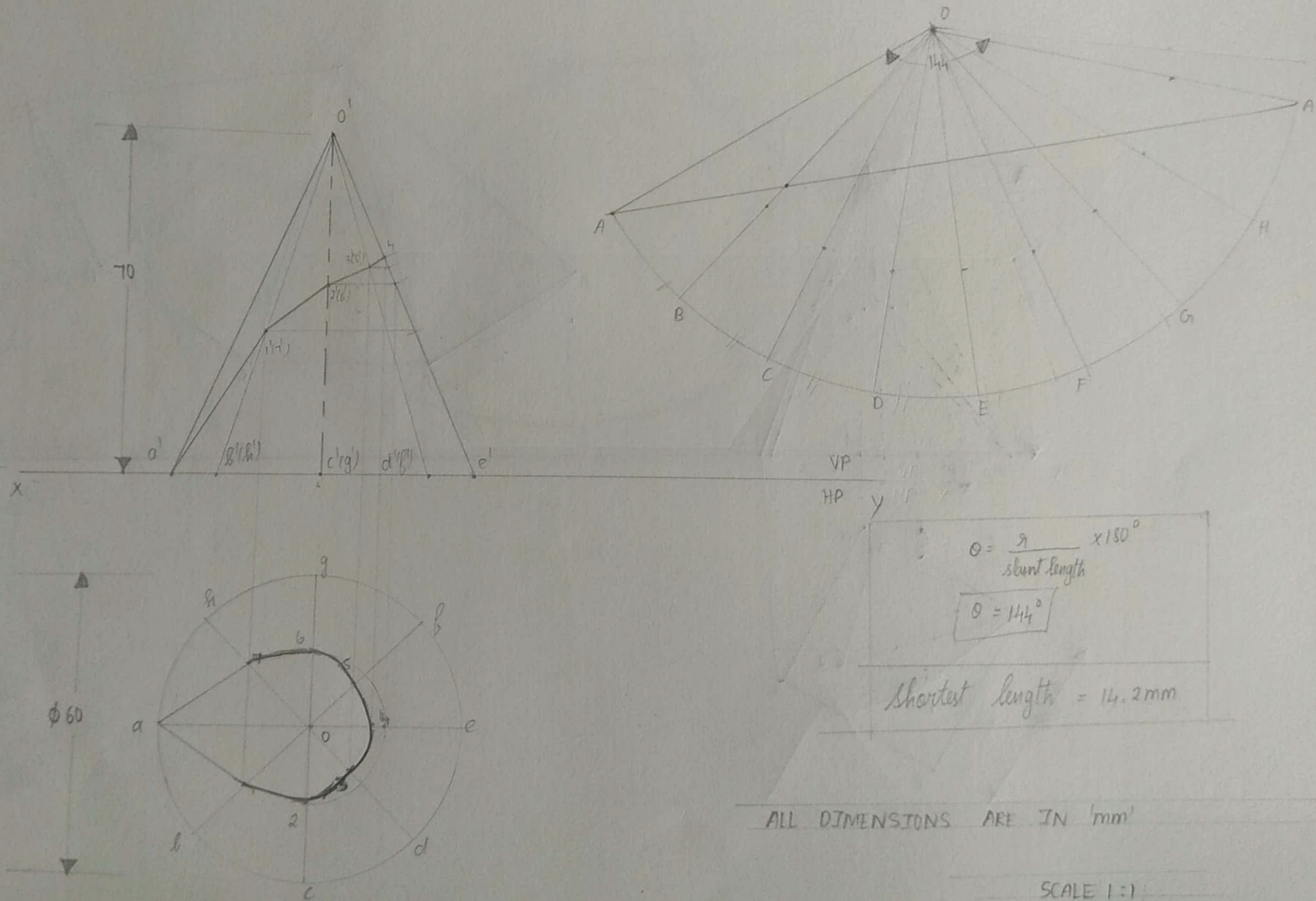
5. A square pyramid of base side 35mm & axis 60mm rests on its base on the ground with one of the sides of the base inclined at 30° to the VP. A string is wound round the surfaces of the pyramid from left extreme point on the base & ending at the same point. Find the shortest length of the string required. Also trace the path of the string in the front and top view.



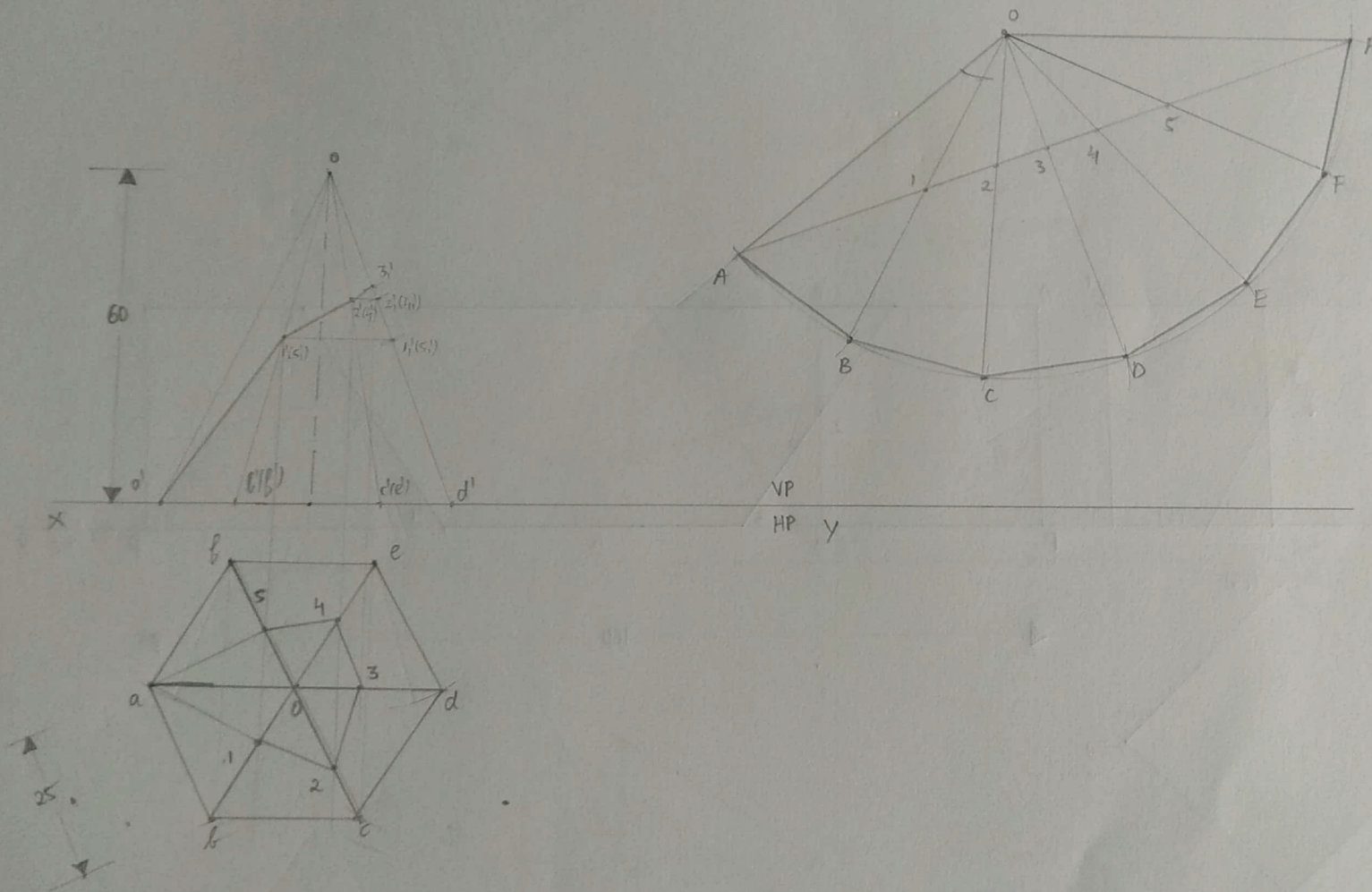
ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

6. A cone of base diameter 60mm and height 70mm rests vertically on its base on the ground. A string is wound round the curved surface of the cone starting from left extreme point on the base and ending at the same point. Find the shortest length of the string required. Also trace the path of the string in the front and top view.



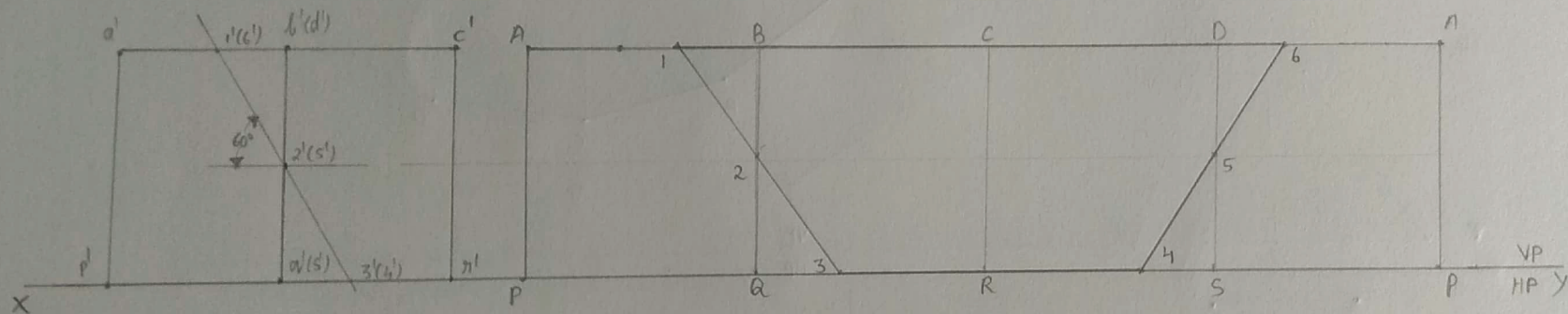
7. A hexagonal prism of base side 25mm & height 60mm is rests vertically on the HP with a base side parallel to the VP. A String is wound round the surface of the prism starting from extreme point on the base, passing through the diametrically opposite corner on the top and ending at the starting point. Find graphically the shortest required. Also show the path of the string in the front view.



ALL DIMENSIONS ARE IN 'mm'

SCALE 1:1

8. A cube of side 40mm is placed in the ground with two vertical faces equally inclined to VP. It is cut by a plane perpendicular to the VP and inclined at 60° to the HP; cutting plane bisects the axis of the cube. Develop the lateral surface of the truncated solid.

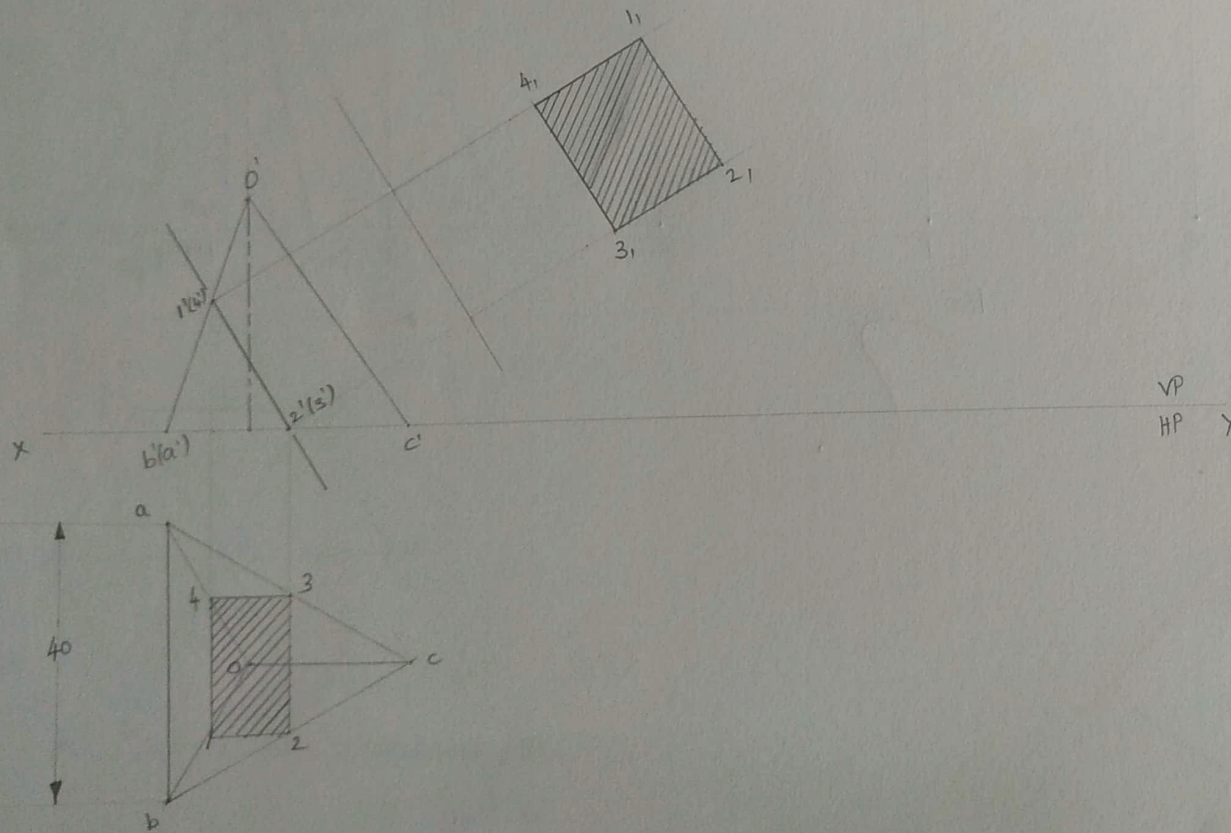


ALL DIMENSIONS ARE IN 'mm'

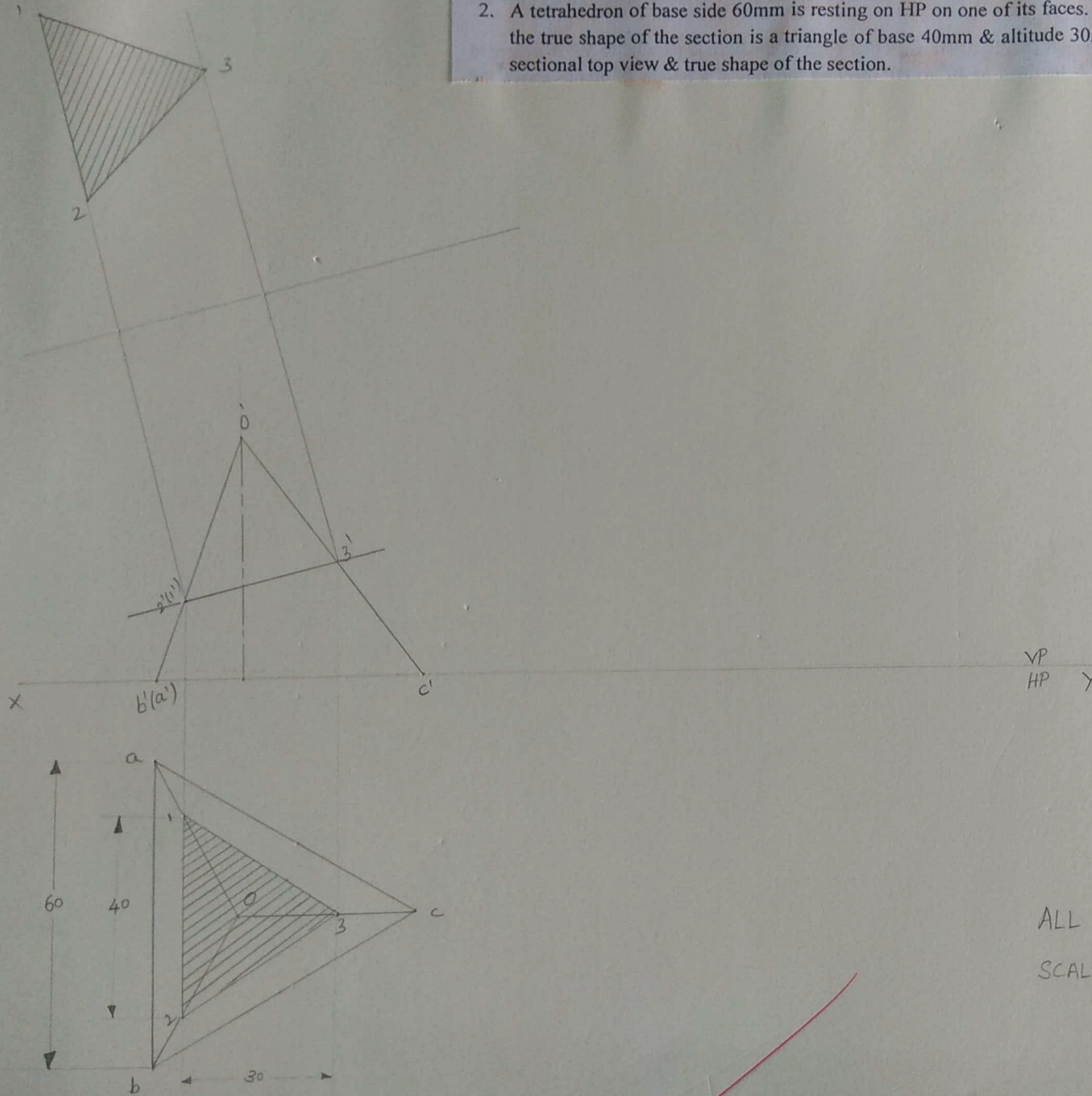
SCALE 1:1

SECTION OF SOLIDS

1. Draw a tetrahedron of side 40mm, which is cut by a plane perpendicular to VP & inclined to HP. Such that true shape of the section is a square. . Draw the sectional top view & true shape of the section



2. A tetrahedron of base side 60mm is resting on HP on one of its faces. It is cut by a plane perpendicular to VP. So that the true shape of the section is a triangle of base 40mm & altitude 30mm. locate the cutting plane position. Draw the sectional top view & true shape of the section.



ALL DIMENSIONS ARE IN mm

SCALE 1:1

