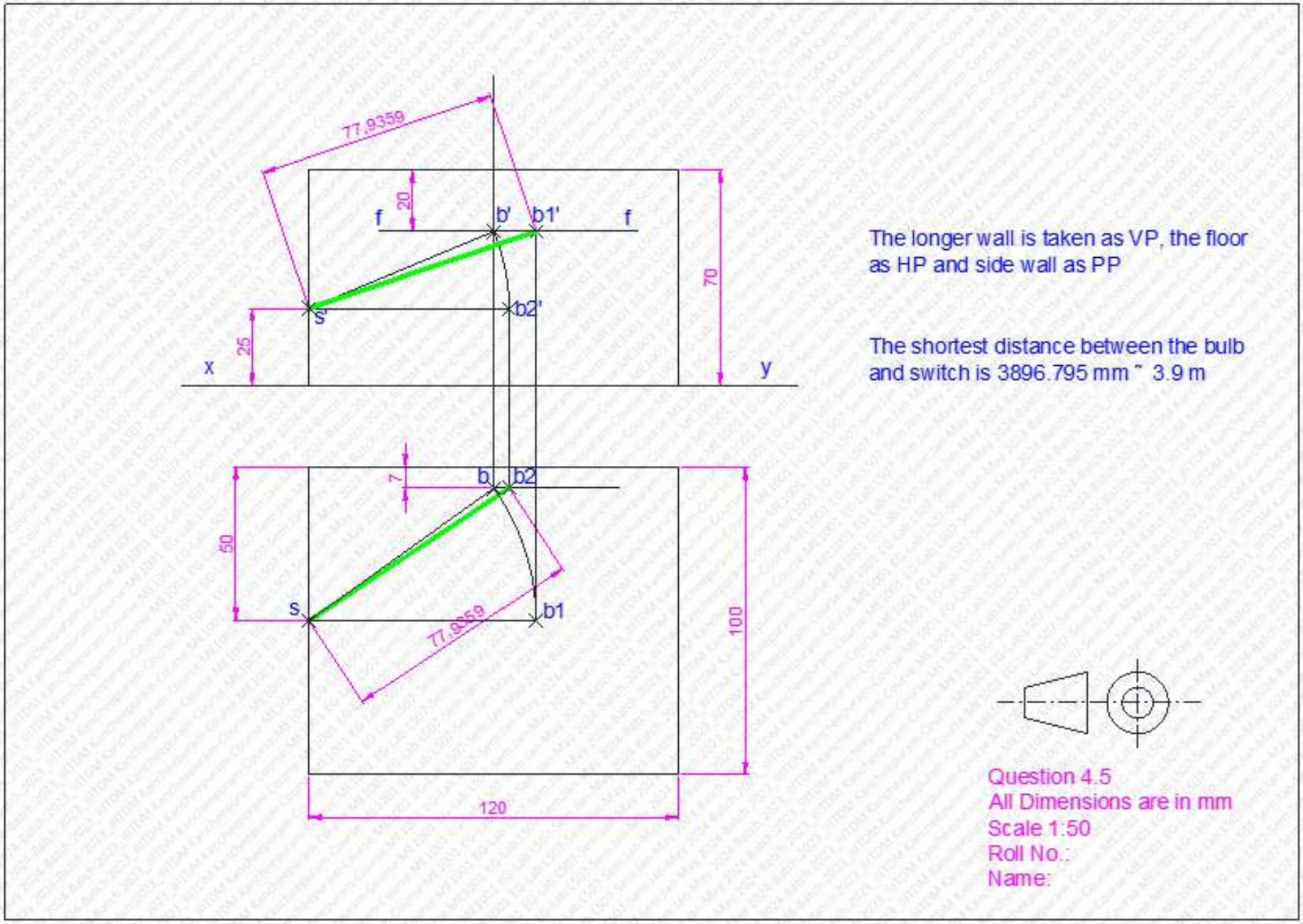
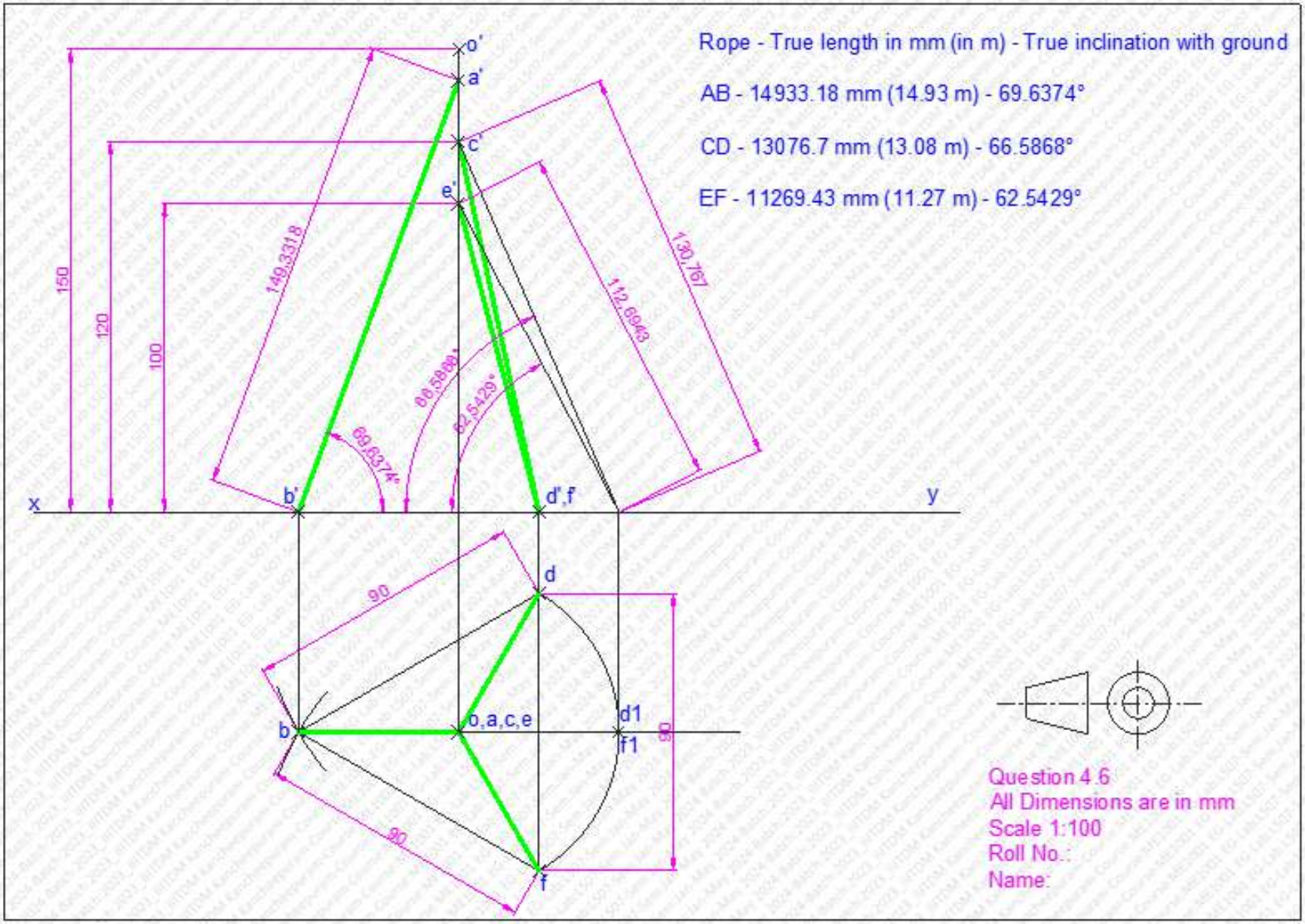
4.5. *A room is 6m ×5m ×3.5m height. An electric bulb is above the center of the longer wall and 1m below the ceiling and 0.35m away from the wall. The switch for the light is 1.25m above the floor, on the center of an adjacent wall. Determine graphically, the shortest distance between the bulb and switch. (5 Marks)*

Ref: Narayana. K.L, and Kannaiah. P, Engineering Drawing, Scitech Pub. Pvt. Ltd, 3rd Edition, **Page No.: 249, Problem 26, Fig. 8.36.**



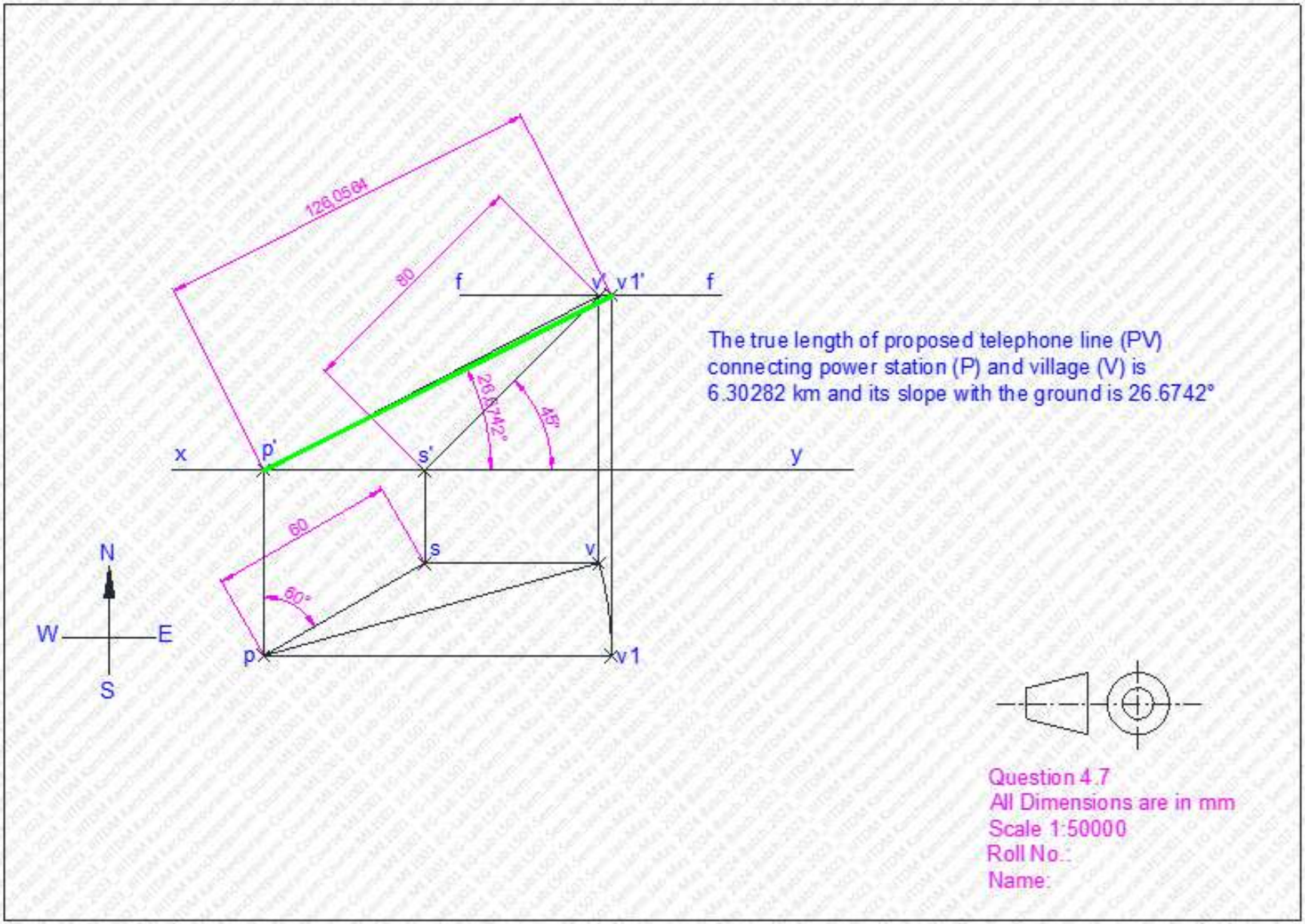
4.6. *Three guy wires AB, CD and EF are tied at A, C and E on a 15m long vertical post at heights of 14m, 12m and 10m respectively from the ground. The lower ends of the wires are tied to hooks at points B, D and F at the ground level. If the points B, D and F lie at the corners of an equilateral triangle of 9m side, and if the post is situated at the center of the triangle, determine the length of each rope and its inclination with the ground Assume thickness of the post and the wire to be equal to that of a line. (5 Marks)*

Ref: Narayana. K.L, and Kannaiah. P, Engineering Drawing, Scitech Pub. Pvt. Ltd, 3rd Edition, **Page No.: 267, Problem 46, Fig. 8.56.**



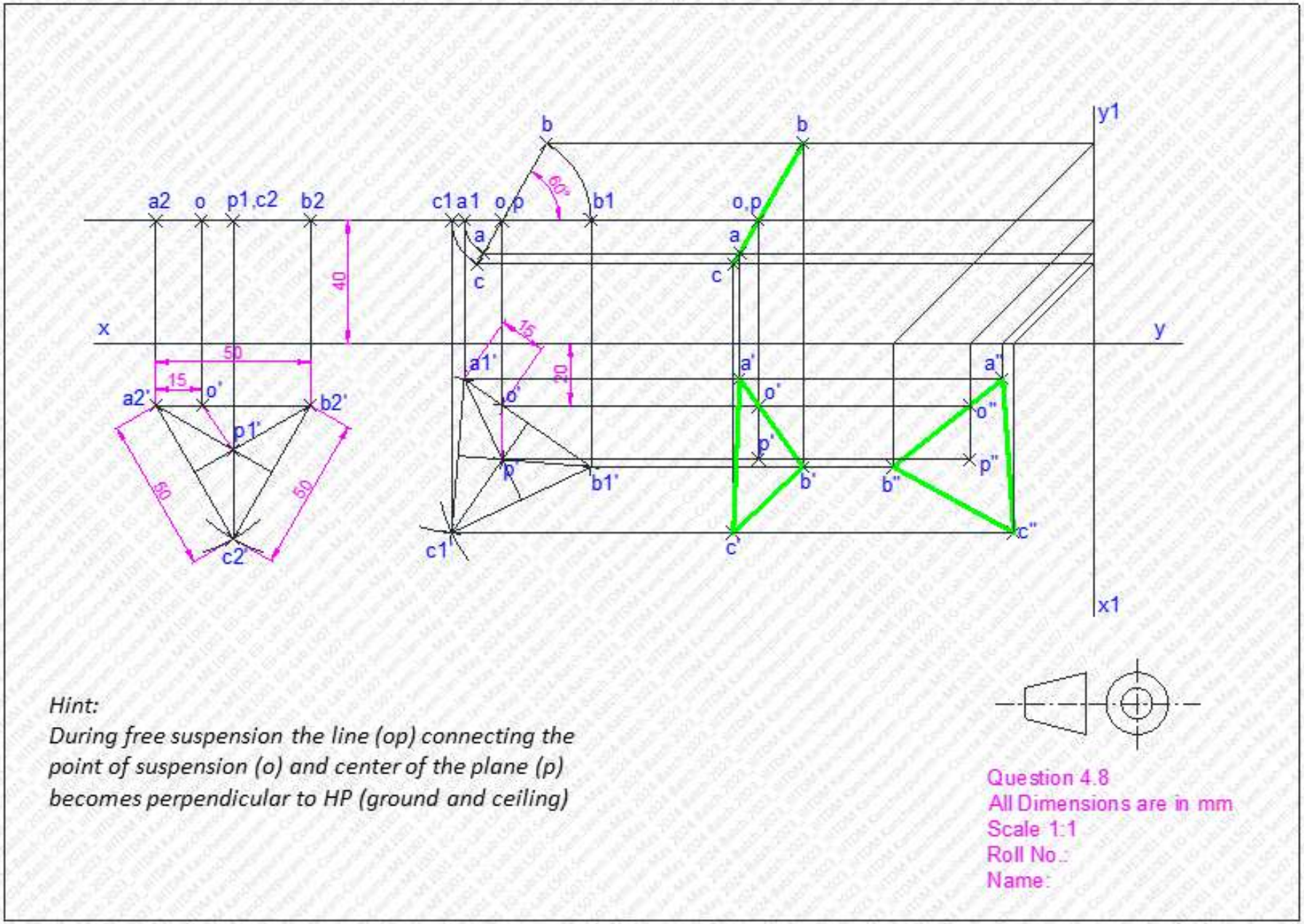
4.7. *A transmission line laid along a level ground from a power station (P) at N60° E to a sub-station is 3km long. Another line from the sub-station (S) laid to a village (V) along an uphill, due east is 4km long and has a slope of 45°. Determine the true length and slope of a proposed telephone line, connecting the power station (P) and village (V). (5 Marks)*

Ref: Narayana. K.L, and Kannaiah. P, Engineering Drawing, Scitech Pub. Pvt. Ltd, 3rd Edition, **Page No.: 269, Problem 48, Fig. 8.58.**



4.8. *An equilateral triangle ABC having side length as 50 is suspended from a point O on the side AB 15 from A in such a way that the plane of the triangle makes an angle of 60° with the VP. The point O is 20 below the HP and 40 behind the VP. Draw the projections of the triangle. (10 Marks)*

Ref: Narayana. K.L, and Kannaiah. P, Engineering Drawing, Scitech Pub. Pvt. Ltd, 3rd Edition, **Page No.: 286. topic 9.2.2.**



Hint:
During free suspension the line (op) connecting the point of suspension (o) and center of the plane (p) becomes perpendicular to HP (ground and ceiling)

Question 4.8
All Dimensions are in mm
Scale 1:1
Roll No.:
Name: