UNIT-10: APPLICATIONS OF TRIGONOMETRY

1.1 The angle of depression of a car when observed from top of 10m tall building is 45^0. Find the distance between foot of the building to the car.

1.2 The angle of depression of a car from the top of building is 45. The distance between the car and the foot of the building is 10m. Find the height of the building.

1.3 A car at a distance of 10m from the foot of the building of height 10m is observed from the top of the building. Find the angl of depression.

1.4 The angle of elevation of the car from 10m tall building is 45^0. Find the distance between the top of the building and the car.

1.5 The angle of elevation of the top of 12m tall building from a point on the ground is 45^0. Find the distance between the person and the foot of the building.

2.1 The angle of elevation of the top of a building from the foot of the tower is 30^0 and the angle of elevation of the top of the tower from the foot of the building is 60^0. If the tower is 50m high find the height of the building.

2.2 The angle of elevation of the top of a building from the foot of the tower is 30^0 and the angle of elevation of the top of the tower from the foot of the building is 45^0. If the tower is 30m high, find the height of the building.

2.3 The angle of elevation of the top of a building from the foot of the tower is 30^0 and the angle of elevation of the top of the tower from the foot of the building is 60^0.If the tower is 60m high, find the height of the building.

3.1 A person observed the angle of elevation of the top of a tower as 30^0. He walked 50m towards the foot of the tower along ground level and found the angle of elevation of the top of the tower is 60^0. Find the height of the tower.

3.2 A man observes the angle of elevation of a bird which sat on a tree is 30^0. He then walks 100m towards the bird which is stationary and find the angle of elevation 60^0. Find the height at which the bird is sitting.

3.3 A person standing on the bank of a river observes that angle of elevation of the top of the tree standing on the opposite bank is 60^0. When he moves back 20m from the bank, he finds angle of elevation to be 30^0. Find the height of the tree and breadth of the river.

3.4 The angle of elevation of the top of a tower from a point on the ground is 45^0. On walking 30metres towards the tower, the angle of elevation becomes 60^0. Find the height of the tower.

3.5 The angle of elevation of the top of the tower from a point on the ground is 30^0. On moving a distance of 20m towards the foot of the tower, the angle of elevation increases to 60^0. Find the height of the tower.

3.6 A 2m tall boy is standing at some distance from a 29m tall building. The angle of elevation, from his eyes increases from 30^0 and 60^0 as he walked towards the building. Find the distance he walked towards the building.

4.1 From a point on the ground, the angles of elevation of bottom and top of transmission tower fixed at the top of a 20m high building are 45^0 and 60^0 respectively. Find the height of the tower.

4.2 A statue 1.6m tall stands on the top of a pedestal. From a point on the ground the angle of elevation of the top of the statue is 60^0, and from same point the angle of elevation of the top of the pedestal is 45^0. Find the height of the pedestal.

4.3 From a point P on the ground the angle of elevation of the top of a 10m tall building is 30^0. A flag is hoisted at the top of the building and the angle of the flagstaff from P is 45^0. Find the length of the flagstaff.

4.4 From a point P on the ground, the angle of elevation of the top of a tower is $45^0$and that of top of a flagstaff fixed on the top of the tower is 60^0. If the length of the flagstaff is 5m, find the height of the tower.

4.5 An Aeroplane flying at a height of 9000m from the ground passes vertically above another Aeroplane at an instant. When angle of elevation of two planes from same point are 60^0 and 30^0 respectively. find the vertical distance between the planes.

5.1 Two pillars of equal heights stand on either side of a road, which is 200m wide. The angles of elevation of the tops of the pillars are 60^0 and 30^0 at a point between the pillars. Find the position of the point between the pillars and height of each pillar.

5.2 Two poles of equal heights are standing opposite each other on either side of the road, which is 80m wide. From a point between them on the road, the angles of elevation of poles are 60^0 and 30^0 respectively. Find the height of the poles and the distances of the point from the poles.

5.3 Two pillars of equal heights stand on either side of a road, which is 100m wide. The angles of elevation of the tops of the pillars are 60^0 and 30^0 at a point between the pillars. Find the position of the point between the pillars and height of each pillar.

6.1 Two men on either side of the tower and in the same straight line with its base notice the angle of elevation of the top of the tower is to be 30^0 and 60^0. If the height of the tower is 150m find the distance between the two men.

6.2   Two men on either side of the cliff and in the same straight line with its base notice the angle of elevation of the top of the tower is to be 30^0 and 60^0. If the height of the cliff is 75m find the distance between the two men

6.3   Two men on either side of the tower and in the same straight line with its base notice the angle of elevation of the top of the tower is to be 45^0 and 60^0. If the height of the tower is 60m, find the distance between the two men.

7.1   Two ships are sailing in the sea on either side of a light house, the angles of depression of two ships as observed from the top of the light house are 60^0 and 45^0. If the distance between the ships is $200\frac{\sqrt{3}+1}{\sqrt{3}}$m, find the height of the light house.

7.2   Two boats approach a light house from opposite directions in mid-sea. The angles of elevation of the top of light house from two boats are 30^0 and 45^0. If the distance between two boats is 100m, find the h height of the light house.

8.1   A 1.2m tall girl spots a balloon moving with the wind in a horizontal line at a height of 88.2m from the ground. The angle of elevation of the balloon from the eyes of the girl at any instance is 60^0. After some time, the angle of elevation reduces to 30^0.Find the distance travelled by the balloon during the interval.

9.1   The angle of elevation of a jet plane from a point on the ground is 60^0. After 30 seconds the angle of elevation changes to 30^0. If the jet plane is flying at a height of $3600\sqrt{3}$m, find the speed of the jet plane.

9.2   The angle of elevation of a jet plane from a point on the ground is 60^0. After 30 seconds the angle of elevation changes to 30^0. If the jet plane is flying at a height of $3000\sqrt{3}$m, find the speed of the jet plane.

9.3   The angle of elevation of a jet plane from a point on the ground is 60^0. After 10 seconds the angle of elevation changes to 30^0. If the jet plane is flying at a speed of 720 km/hr, find the constant height of the jet plane.

9.4   The angle of elevation of a jet plane from a point on the ground is 60^0. After 10 seconds the angle of elevation changes to 30^0. If the jet plane is flying at a speed of 648 km/hr, find the constant height of the jet plane.