

## 12. APPLICATIONS OF TRIGONOMETRY

1. If the angle of elevation of the top of a tower at a distance of 500 m from the foot is  $30^\circ$ . Then the height of the tower is \_\_\_\_\_
2. A pole 6m high casts a shadow  $2\sqrt{3}$ m long on the ground, then sun's elevation is \_\_\_\_\_
3. The height of the tower is 100m. When the angle of elevation of sun is  $30^\circ$ , then shadow of the tower is \_\_\_\_\_
4. If the height and length of the shadow of a man are the same, then the angle of elevation of the sun is \_\_\_\_\_
5. The angle of elevation of the top of a tower, whose height is 100m, at a point whose distance from the base of the tower is 100m is \_\_\_\_\_
6. The angle of elevation of the top of a tree height  $200\sqrt{3}$  m at a point at distance of 200m from the base of the tree is \_\_\_\_\_
7. A lamp post  $5\sqrt{3}$  m high casts a shadow 5m long on the ground. The sun's elevation at this moment is \_\_\_\_\_
8. The length of shadow of 10m high tree if the angle of elevation of the sun is  $30^\circ$  \_\_\_\_\_
9. If the angle of elevation of a bird sitting on the top of a tree as seen from the point at a distance of 20m from the base of the tree is  $60^\circ$ . Then the height of the tree is \_\_\_\_\_
10. The tops of two poles of height 20m and 14m are connected by a wire. If the wire makes an angle of  $30^\circ$  with horizontal, then the length of the wire is \_\_\_\_\_
11. The ratio of the length of a tree and its shadow is  $1:1/\sqrt{3}$ . The angle of the sun's elevation is \_\_\_\_\_ degrees.
12. If two towers of height  $h_1$  and  $h_2$  subtend angles of  $60^\circ$  and  $30^\circ$  respectively at the mid-point of the line joining their feet, then  $h_1:h_2$  is \_\_\_\_\_
13. The line drawn the eye of an observer to the object viewed is called \_\_\_\_\_
14. If the angle of elevation of the sun is  $30^\circ$ , then the ratio of the height of a tree with its shadow is \_\_\_\_\_
15. From the figure  $\theta =$  \_\_\_\_\_
16. The angle of elevation of the sun is  $45^\circ$ . Then the length of the

- shadow of a 12m high tree is \_\_\_\_\_
17. When the object is below the horizontal level, the angle formed by the line of sight with the horizontal is called \_\_\_\_\_
18. When the object is above the horizontal level, the angle formed by the line of sight with the horizontal is called \_\_\_\_\_
19. The angle of depression of a boat is 60m high bridge is  $60^\circ$ . Then the horizontal distance of the boat from the bridge is \_\_\_\_\_
20. The height or length of an object can be determined with help of \_\_\_\_\_

## ANSWERS

- 1)  $500\sqrt{3}$ ; 2)  $60^\circ$ ; 3)  $100\sqrt{3}\text{m}$ ; 4)  $45^\circ$ ;  
5)  $45^\circ$ ; 6)  $60^\circ$ ; 7)  $60^\circ$ ; 8)  $10\sqrt{3}\text{m}$ ;  
9)  $20\sqrt{3}\text{m}$ ; 10) 12m; 11)  $60^\circ$ ; 12) 3:1;  
13) Line of sight; 14) 1:  $\sqrt{3}$ ; 15)  $60^\circ$ ;  
16) 12m; 17) Angle of depression;  
18) Angle of elevation; 19)  $20\sqrt{3}\text{m}$ ;  
20) Trigonometric Ratios.