Ans ⇒

① Zenith Angle (θ_z) It is the Vertical Angle between the Sun's Ray and line perpendicular to the Horizontal plane through the point

$$\theta_z = \frac{\pi}{2} - \alpha$$

② Hour Angle (ω) ⇒ The angular Displacement of the Sun East, or West of the local meridian due to the Rotation of the Earth on its axis at an angle of 15° per Hours.

$$\omega = 15(LST - 12)$$

where LST ⇒ local Solar time—

Solar Constant ⇒ This is the Energy Received from the Sun in unit time on a unit area perpendicular to Sun's Rays at the mean distance from the Sun.