

A particle of mass 'm' is projected on horizontal ground with an initial velocity of u making an angle θ with horizontal. Find out the angular momentum of particle about the point of projection when .

- (i) it just starts its motion
- (ii) it is at highest point of path.
- (iii) it just strikes the ground.

Solution :

(i) Angular momentum about point O is zero.

(ii) Angular momentum about point A.

$$\vec{L} = \vec{r} \times \vec{p}$$

$$L = H \times mu \cos\theta$$

$$L = mu \cos\theta \frac{u^2 \sin^2 \theta}{2g}$$

Ans.

(iii) Angular momentum about point B.

$$L = R \times mu \sin\theta$$

$$mu \sin \theta \frac{u^2 \sin 2\theta}{g}$$

Ans.

