A particle of mass 2 kg is on a smooth horizontal table and moves in a circular path of radius 0.6m. The height of the table from the ground is 0.8 m. If the angular speed of the particle is 12 rad s^{-1}, the magnitude of its angular momentum about a point on the ground right under the centre of the circle is :

(A) 8.64 kg m^{2}s^{-1} (B) 11.52 kg m^{2}s^{-1} (C) 14.4 kg m^{2}s^{-1} (D) 20.16 kg m^{2}s^{-1}

Sol. $L_0 = mvr \sin 90°$

$= m(0.6\omega)r$
$= 2 \times 0.6 \times 12 \times 1$
$= 14.4 \ kgm^2/s$