Spherical Shell v/s Cylindrical Shell

Solution:

The correct answer is b.)

From Question #3, we know that: $v = \sqrt{\dfrac{2gh}{1+\left(I/mr^2\right)}}$

… (1)

Thus, for the cylindrical shell $\left(I = mr^2\right)$, from (1),

$$v = \sqrt{gh}$$

… (2)

Spherical Shell v/s Cylindrical Shell

And, for the spherical shell $\left(I = \left(\frac{2}{3} \right) mr^2 \right)$, from (1),

$$v = \sqrt{\left(\frac{6}{5} \right) gh} = 1.095\sqrt{gh}$$

… (3)

Clearly, from (2) and (3), *the spherical shell reaches the bottom faster*.