Spherical Shell v/s Cylindrical Shell

Solution:
The correct answer is b.)
From Question #3, we know that:
\[ v = \sqrt{\frac{2gh}{1 + \left(\frac{I}{mr^2}\right)}} \] … (1)

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

\[ v = \sqrt{gh} \] … (2)
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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.