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**Question 5) For a body in pure rolling, its rotational kinetic energy is 1/2 times of its translational kinetic energy. The body should be?**

- (A) Solid cylinder
- (B) Ring
- (C) Solid sphere
- (D) Hollow sphere

**Answer: (A)**

**Solution:**

Given,

Rotational K.E =  $(\frac{1}{2})$  Translational K.E

$$(\frac{1}{2})I\omega^2 = (\frac{1}{2}) \times (\frac{1}{2})mv^2$$

In pure rolling,  $v = R\omega$

$$(\frac{1}{2})I\omega^2 = (1/4) mR^2\omega^2$$

$$I = (\frac{1}{2}) mR^2$$

Here, it is a solid cylinder