PHYA10F-2023

Practice questions on Rotational motion & Oscillations:

Q1 When a rigid body rotates about a fixed axis, all the points in the body have the same

A) tangential speed.

B) angular acceleration.

C) tangential acceleration.

D) linear displacement.

E) centripetal acceleration.

Answer: B

Q2: The rotational inertia of a uniform thin rod about its end is $ML^{2}/3$, where M is the mass and L is the length. Such a rod is hung vertically from one end and set into small amplitude oscillation. If L = 1.0m this rod will have the same period as a simple pendulum of length:

A. 33 cm

B. 50 cm

C. 67 cm

D. 100 cm

E. 150 cm

ans: C

Q3: The two rotating systems shown in the figure differ only in that the two identical movable masses are positioned at different distances from the axis of rotation. If you release the hanging blocks simultaneously from rest, and if the ropes do not slip, which block lands first?