ch 11 exam

Chapter 11: Rotational Dynamics

Section 2: Torque, angle and lever arm

11.2.1 A 3.30 kg birdfeeder hangs from the tip of a r m pole that sticks up from the
(5.00) ground at a 65.0° angle. What is the magnitude of the torque exerted on the
pole by the birdfeeder? Treat the bottom end of the pole as the pivot point.

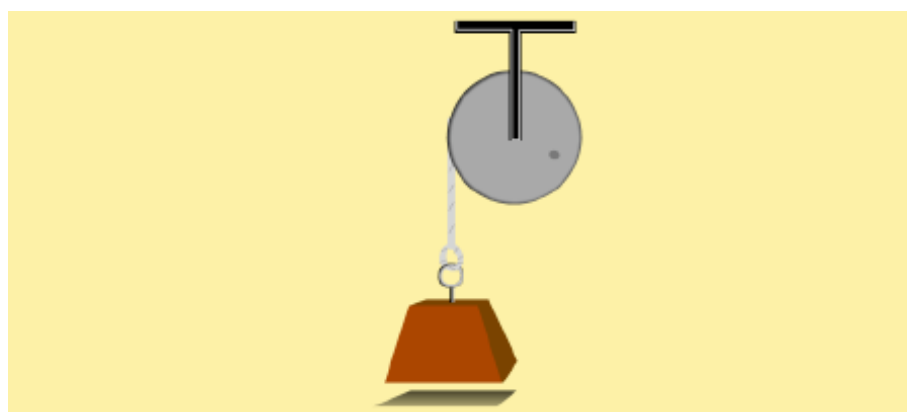[   ] N·m

Section 4: Torque, moment of inertia and angular acceleration

11.4.1 The pulley shown in the illustration has a radius of 2.70 m and a moment of
(7.00) inertia of 39.0 kg·m^2. The hanging mass is 4.20 kg and it exerts a force
tangent to the edge of the pulley. What is the angular acceleration of the
pulley?

[   ] rad/s^2

Section 12: Rotational work

11.12.1 A child pushes a merry-go-round with a force of F N at an angle tangent to
(5.00) the circle (that is, perpendicular to a radius). If the child pushes it through
exactly one full circle, and the merry-go-round has a radius of 1.15 m, how
much work does she do?

☐ J

Section 15: Rolling objects and kinetic energy

11.15.1 A *m* kg solid ball with a radius of 0.185 m rolls without slipping at 3.55 m/s.
(5.00) What is its total kinetic energy?

☐ J

Section 22: Angular momentum of a rigid body

11.22.1 A thin rod 2.60 m long with mass 3.80 kg is rotated counterclockwise about
(5.00) an axis through its midpoint. It completes 3.70 revolutions every second. What
is the magnitude of its angular momentum?

☐ $kg·m^2/s$

Section 26: Torque and angular momentum

11.26.1 An electric drill delivers a net torque of 15.0 N·m to a buffing wheel used to
(5.00) polish a car. The buffing wheel has a moment of inertia of $2.30×10^{-3}$ kg·m^2.
At 0.0220 s after the drill is turned on, what is the angular velocity of the
buffing wheel?

☐ rad/s

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