(a) Find \( I = I_{\text{muon}} + I_{\text{circle}} \)

\[
I_a = I_c = \frac{1}{2} mR^2 \quad \text{from Table 11-2 (e)}
\]

\( I_b = mR^2 \) since entire beam is distance \( R \) from axis.

\( I_d = 0 \) since entire beam is distance \( 0 \) from axis.

For \( I_{\text{hoop}} \) use parallel-axis theorem pp 248-250.

\[
I_{\text{hoop}} = I_{\text{cm}} + mR^2
\]

\[
= \frac{1}{2} mR^2 + mR^2 = \frac{3}{2} mR^2 \quad \text{since} \quad I_{\text{cm}} \quad \text{from Table 11-2 (e)}
\]

\[
I = \frac{1}{2} mR^2 + mR^2 = \frac{3}{2} mR^2
\]

\[
= \frac{19}{6} mR^2 = \frac{19}{6} (2k_3)(0.5m)^2 = 1.58 \text{ kg m}^2
\]

(b) \( I = I \omega \) \( \omega = 2\pi f = \frac{2\pi}{1} \), \( I = 2.5s \)

\[
= (1.58 \text{ kg m}^2) \left( \frac{2\pi}{2.5s} \right)
\]

\[
= 3.98 \text{ kg m}^2
\]