82. We make use of Table 11-2(e) as well as the parallel-axis theorem, Eq. 11-27, where needed. We use ℓ (as a subscript) to refer to the long rod and s to refer to the short rod.

(a) The rotational inertia is

$$I = I_s + I_\ell = \frac{1}{12} m_s L_s^2 + \frac{1}{3} m_\ell L_\ell^2 = 0.019 \text{ kg}\cdot\text{m}^2 \ .$$

(b) We note that the center of the short rod is a distance of $h = 0.25$ m from the axis. The rotational inertia is

$$I = I_s + I_\ell = \frac{1}{12} m_s L_s^2 + m_s h^2 + \frac{1}{12} m_\ell L_\ell^2$$

which again yields $I = 0.019 \text{ kg}\cdot\text{m}^2$.