

Numerical answers

$$Q1) a) J = \frac{5}{3} t^3 a \quad x_s = \frac{a}{2} \quad y_s = \frac{4}{5} a$$

$$I_{ss} = 1.29 a^3 t \quad I_{tt} = 3.93 a^3 t \quad \alpha = 24.65^\circ$$

$$b) x_c = -\frac{3}{8} a$$

$$Q2) a) EI \delta = 0.904 F r^3$$

$$b) M_B = -\frac{1}{32} w l^2$$

$$Q3) b) P = 3 \frac{EI}{L^2}$$

$$c) -$$

$$Q4) b) F = 27.8 \frac{EI}{L^2}$$

$$c) F = 21.5 \frac{EI}{L^2}$$

$$\frac{\theta_B}{\theta_A} \approx -0.92$$