Chapter 9, Solution 81.

Let $\mathbf{Z}_1 = R_1$, $\mathbf{Z}_2 = R_2 + \dfrac{1}{j\omega C_2}$, $\mathbf{Z}_3 = R_3$, and $\mathbf{Z}_x = R_x + \dfrac{1}{j\omega C_x}$.

$$\mathbf{Z}_x = \frac{\mathbf{Z}_3}{\mathbf{Z}_1}\mathbf{Z}_2$$

$$R_x + \frac{1}{j\omega C_x} = \frac{R_3}{R_1}\left(R_2 + \frac{1}{j\omega C_2}\right)$$

$$R_x = \frac{R_3}{R_1}R_2 = \frac{1200}{400}(600) = \mathbf{1.8\ k\Omega}$$

$$\frac{1}{C_x} = \left(\frac{R_3}{R_1}\right)\left(\frac{1}{C_2}\right) \longrightarrow C_x = \frac{R_1}{R_3}C_2 = \left(\frac{400}{1200}\right)(0.3\times 10^{-6}) = \mathbf{0.1\ \mu F}$$