Chapter 7, Solution 62.

$$\tau = \frac{L}{R_{eq}} = \frac{2}{3 \parallel 6} = 1$$

For $0 < t < 1$, $u(t-1) = 0$ so that

$$i(0) = 0, \qquad i(\infty) = \frac{1}{6}$$

$$i(t) = \frac{1}{6}\left(1 - e^{-t}\right)$$

For $t > 1$, $i(1) = \frac{1}{6}\left(1 - e^{-1}\right) = 0.1054$

$$i(\infty) = \frac{1}{3} + \frac{1}{6} = \frac{1}{2}$$

$$i(t) = 0.5 + (0.1054 - 0.5)e^{-(t-1)}$$

$$i(t) = 0.5 - 0.3946e^{-(t-1)}$$

Thus,

$$i(t) = \begin{cases} \mathbf{\frac{1}{6}\left(1 - e^{-t}\right) A} & \mathbf{0 < t < 1} \\ \mathbf{0.5 - 0.3946e^{-(t-1)}\ A} & \mathbf{t > 1} \end{cases}$$