

$$\dot{y} + \frac{1}{5}y = 3u_r(t)$$

$$y(0) = 7$$

$$5\dot{y} + \cancel{5} \frac{1}{5}y = 5(3)u_r(t)$$

$$\underline{5\dot{y} + y = 15u_r(t)} \quad \tau = 5$$

$$y_c(t) = t - \tau(1 - e^{-t/\tau})$$

$$y_c(t) = t - 5(1 - e^{-t/5})$$

$$y_{fr}(t) = y(0) e^{-t/\tau} = \underline{7e^{-t/5}}$$

$$y_{fo}(t) = 15y_c(t) = \underline{15t - 75e^{-t/5}}$$

$$y(t) = y_{fr}(t) + y_{fo}(t) = 7e^{-t/5} + 15t - 75e^{-t/5}$$

$$\boxed{= 15t - 68e^{-t/5}}$$