Chapter 7, Solution 88.

(a) $\tau = RC = (300 \times 10^3)(200 \times 10^{-12}) = 60\ \mu s$

As a differentiator,

$$T > 10\tau = 600\ \mu s = 0.6\ ms$$

i.e. $T_{min} = \mathbf{0.6\ ms}$

(b) $\tau = RC = 60\ \mu s$

As an integrator,

$$T < 0.1\tau = 6\ \mu s$$

i.e. $T_{max} = \mathbf{6\ \mu s}$