

A capacitor has a total charge of 6  $\mu\text{C}$  stored. If it were possible to transfer this charge uniformly through a light with a current of 100 mA, how long would the light stay lit?

Solution:

$$(I = \frac{\Delta q}{\Delta t}) \Leftrightarrow (\Delta t = \frac{\Delta q}{I} = \frac{6\mu\text{C}}{100\text{mA}} = \frac{6 \times 10^{-6}\text{C}}{100 \times 10^{-3}} = 6 \times 10^{-5}\text{s} = 60 \mu\text{s})$$