Answer on Question #53730, Physics Electric Circuits

1.If the charge flowing is equal to 0.16C every 64ms, what is the current flow in Amperes?

2. How many seconds are required for 4x10^16 electrons to pass if current flow is 5mA?

Answer

1. The current flow in Amperes is $I = \frac{q}{t} = \frac{0.16C}{64ms} = \frac{0.16C}{64 \cdot 10^{-3} s} = 2.5A$

2. Time is $t = \frac{n \cdot e}{I} = \frac{4 \cdot 10^{16} \cdot 1.6 \cdot 10^{-19} C}{5mA} = \frac{4 \cdot 10^{16} \cdot 1.6 \cdot 10^{-19} C}{5 \cdot 10^{-3} A} = 1.28s$,

   where $n = 4 \cdot 10^{6}$ is a number of electrons; $e = 1.6 \cdot 10^{-19} C$ is the absolute value of the electron charge