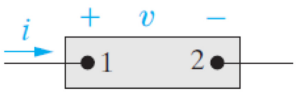
ENGR 2910-101: Circuit Analysis Instructor: Brian Rashap

In Class 1: 01/11/23

Question 1



The current entering the left terminal of this element is

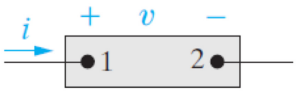
$$i = 40\cos(4000t)A$$

Assume the charge at the terminal is zero at the instant the current is passing through its maximum value. Find the expression for $q(t)$.

Question 2

How much energy is imparted on an electron as it flows through a 6 volt battery from the positive to the negative terminal? Express your answer in attojoules (10^{-18}J).

Question 3



The current at the terminals of the element is

$$i = 40te^{-500t}A, \text{ for } t \geq 0$$

assume $i = 0$, $t < 0$.

(a) Find the expression for the charge accumulating at the left electrode.

(b) Find the charge that has accumulated at $t = 1ms$.