Instructor:

Asst. Prof. Onur Kurt

Student Name:

ID:

Date:

ITU

EHB 211E: Basics of Electrical Circuits (Fall 2020)

Homework #1

Grading Policy:

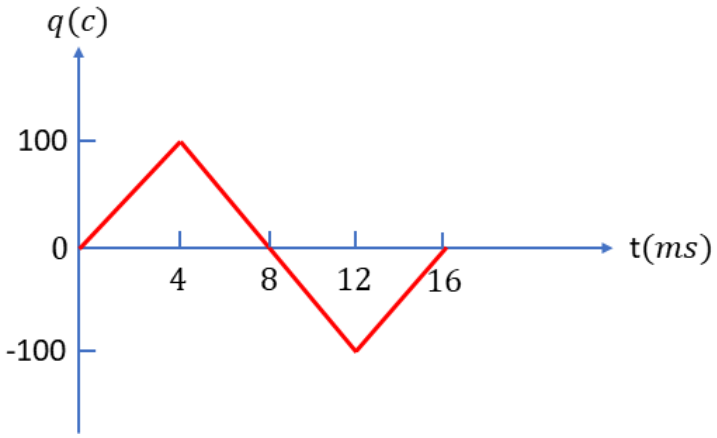
- You must upload your homework assignment to Ninova before its due date. Late homework will not be accepted/graded.
- Homework should be written clearly and legibly. Your answers should show step-by-step solution of each question. Messy and illegible homework may not be graded.
- You must not ask for answers directly from any aide.
- Academic dishonesty is unacceptable. Plagiarism and cheating on the homework assignment will result in a zero grade.

Question 1-) Find the current flowing through an element if the charge flow is given by

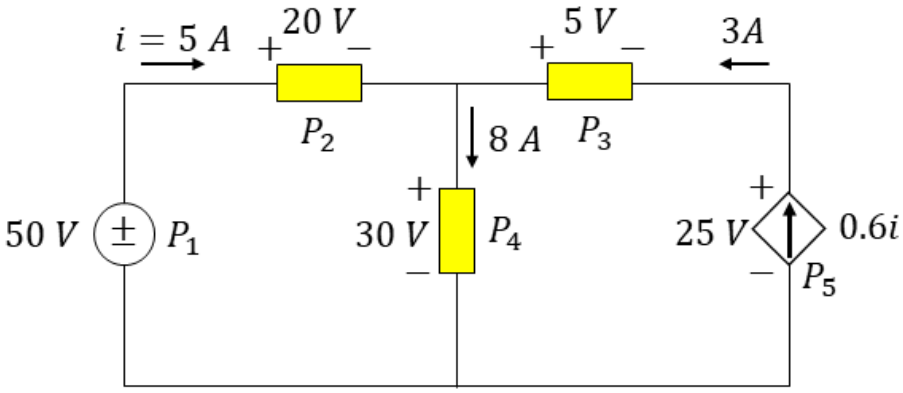
(a) $q(t) = (2e^{-t} - 4e^{-3t})$ nC

(b) $q(t) = 30\cos(100\pi t)$ pC

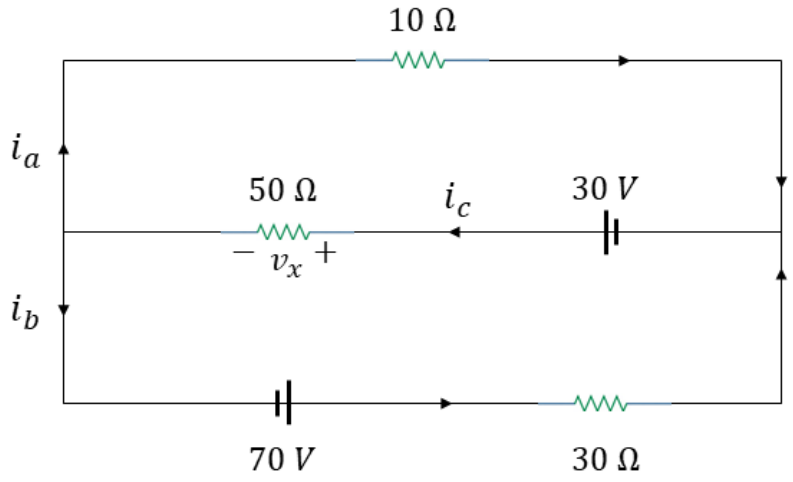
Question 2-) The charge flowing in a conducting wire is plotted in the figure shown below. Sketch graph of the corresponding current.



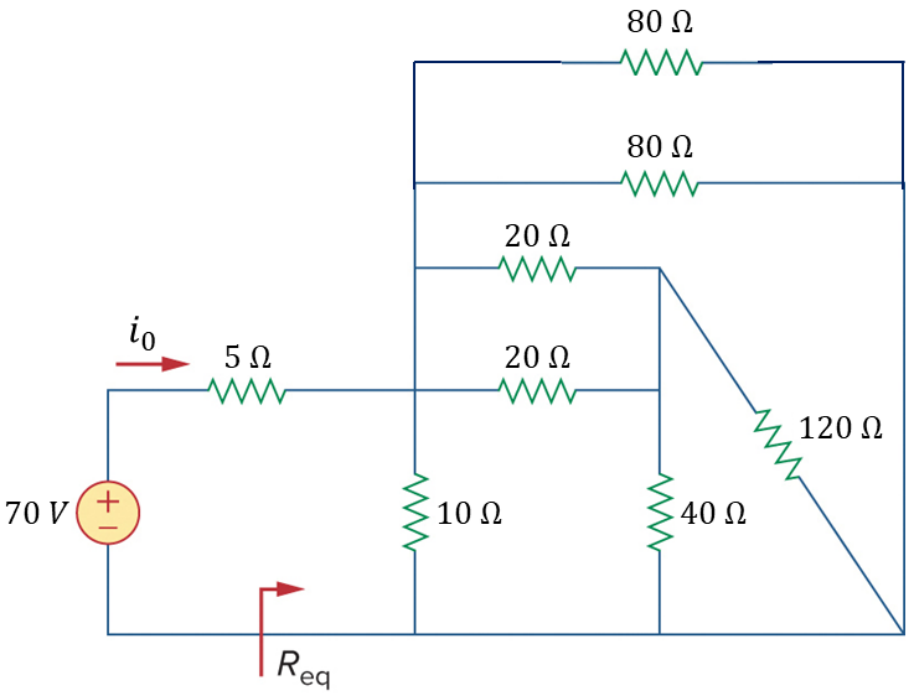
Question 3-) Calculate the power supplied or absorbed by each element in the figure shown below and verify Tellegen's theorem.



Question 4-) For the circuit shown below, find i_a, i_b, i_c, v_x and the power dissipated in the 50-Ω resistor.



Question 5-) For the circuit shown below, obtain the equivalent resistance R_{eq} and use it to find current i_0.



Question 6-) Find the current i_0 in the circuit shown below.