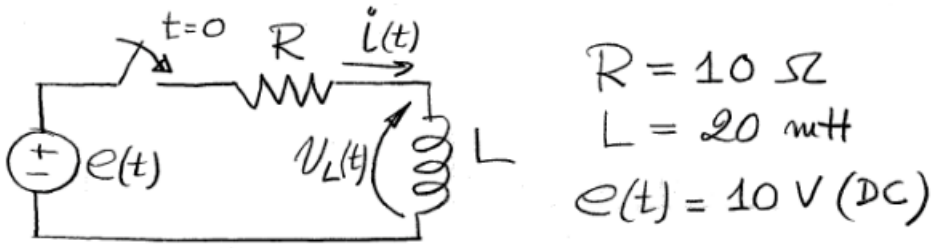
Dept. Electrical and Computer Engineering
The University of British Columbia
EECE560 Network Analysis and Simulation January 2021
Instructor: Dr. J. R. Martí

ASSIGNMENT No. 1b

Due Date: 29 January 2021

Basic Circuit Discretizations with PSCAD

Consider the simple RL circuit shown of Assignment 1a.



A step function $e(t)$ is applied at $t = 0$. Solve the circuit for $i(t)$ and $v_L(t)$ from $t = 0$ to $t = 10\,\text{ms}$ as follows:

1. Use PSCAD to simulate the circuit and compare the simulation with your results in Assignment 1a.
2. Run the following simulations:
   (a) Using PSCAD with $\Delta t_1 = 0.1\,\text{ms}$.
   (b) Using PSCAD with $\Delta t_2 = 0.8\,\text{ms}$.
3. Plot the solution with $\Delta t_1 = 0.1\,\text{ms}$ from your own program and from PSCAD on the same graph. Plot the solution with $\Delta t_2 = 0.8\,\text{ms}$ from your own program and from PSCAD on the same graph.
4. Make sure all graphs have labels that identify the variables and conditions.
5. Discuss how PSCAD's results match your program's results and what are the possible differences.