

Student's name:

Student's ID:

PRINCIPLES OF EE2

Spring 2020

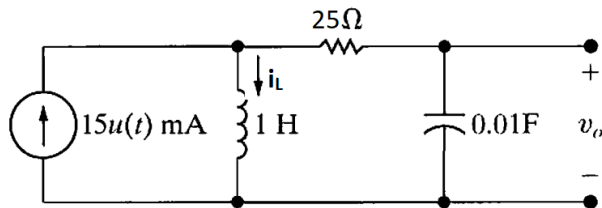
Homework #5

Deadline: 10/04/2020

NOTE:

- While doing your homework, explain your work in detail
- Submit the homework via Blackboard, the name of the PDF file should follow the format: **HovaTen_MSSSV_HW#5**.
- You can do your HW either by typing equation in Word or hand written papers. Then, before submitting, convert them into PDF format so that your work arrangement will remain the same the way you represent it.
- Hand written works should not be captured by camera only, as it will be hard for me to see your work if the image quality is low. Using CamScanner App on mobile phone to scan your Paper is recommended if you do not possess scanner machine.
- Any late submission will be subtracted by 20% per day. Copying your classmate homework is prohibited. If caught with evidences, violation cases will result in 0 in the marks from both parties, respectively.

Problem 1 (30 marks): Given the circuit in Figure 1:



- a) Find the s – domain expression for V_o in the circuit
- b) With the archived expression in (a), predict the initial and final value of v_o . Then, find the time – domain expression for v_o
- c) Find the s – domain and then time – domain expression for i_L

Problem 2 (30 marks): There is no energy stored within the capacitors in the circuit given in Figure 2 at the moment the switch is closed.

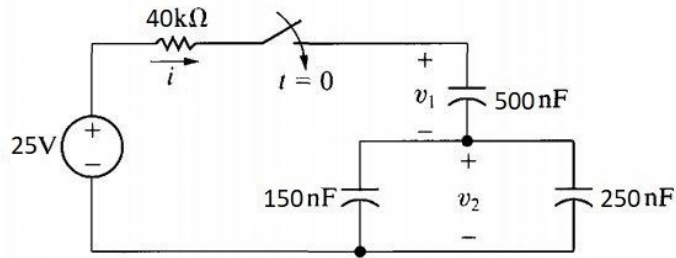
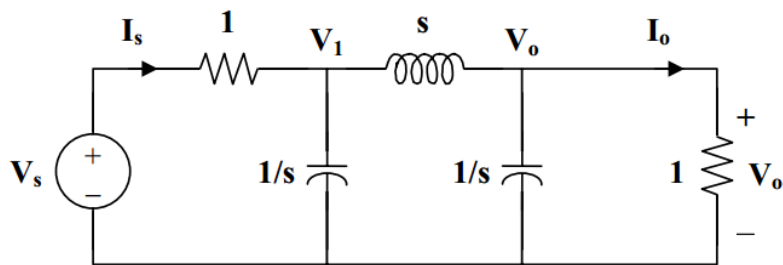


Fig. 2

- Draw the circuit in s – domain for $t > 0$
- Find the values of I , V_1 and V_2
- Obtain the expression of i , v_1 and v_2 in time domain.

Problem 3 (40 marks): Given the circuit in below figure, find the transfer function (in s – domain) of:



- $H_1(s) = V_o/V_s$
- $H_2(s) = V_o/I_s$
- $H_3(s) = I_o/I_s$
- $H_4(s) = I_o/V_s$