

**ANKARA YILDIRIM BEYAZIT UNIVERSITY**  
**CENG205- Electrical Circuit and Electronic Devices**

**Homework 2**

1. (40p) The circuit shown in Figure-1 has been operating for along time when the switch is positioned at "a". It is moved to position "b" at  $t=0$ .
  - (a) Obtain expressions for  $i(t)$  and  $v_C(t)$  valid for all values of  $t$ .
  - (b) Determine the energy remaining in the capacitor at  $t = 33 \mu\text{s}$ .

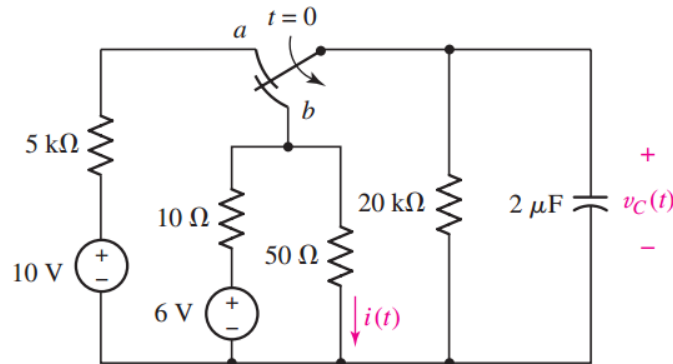


Figure 1 RC circuit analysis with natural and forced response

2. (40p) For the two-source circuit of Fig. 2, note that one source is always on.
  - (a) Obtain an expression for  $i(t)$  valid for all  $t$ .

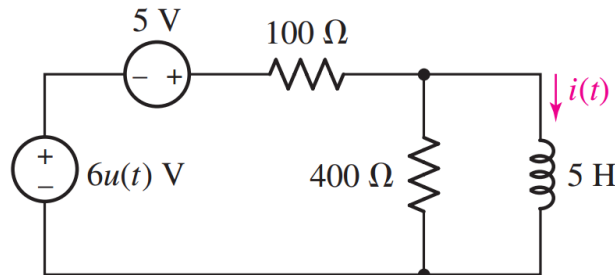
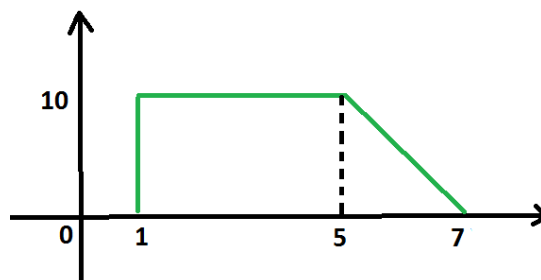


Figure 2 RL circuit analysis with natural and forced response

3. (20p) Find the representation of the following signal in terms of singularity functions (unit step, ramp and impulse function).



**Dead-line: January 3, 2017 at 13:00.**

**Late submissions will be graded as -50 point for each day. Please do not copy the homework from any of your friend. Such plagiarism tendency will be punished as -50 from this homework.**

**GOOD LUCK!**