ECE100 Practice Midterm 2

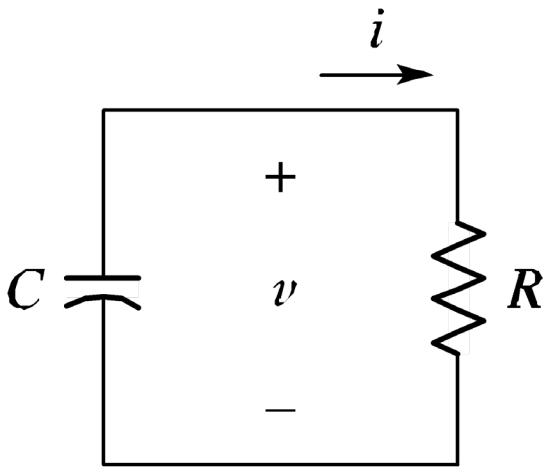
Department of Electrical and Computer Engineering, UCLA

Instructor: Prof. Gupta

1. Exam is closed book. Calculator and one double sided cheat-sheet is allowed.
2. Cross out *everything* that you don't want me to see. Points will be deducted for everything wrong!
3. No points will be given without proper explanations
4. Time allotted: 60 minutes (+5 minutes for question upload)

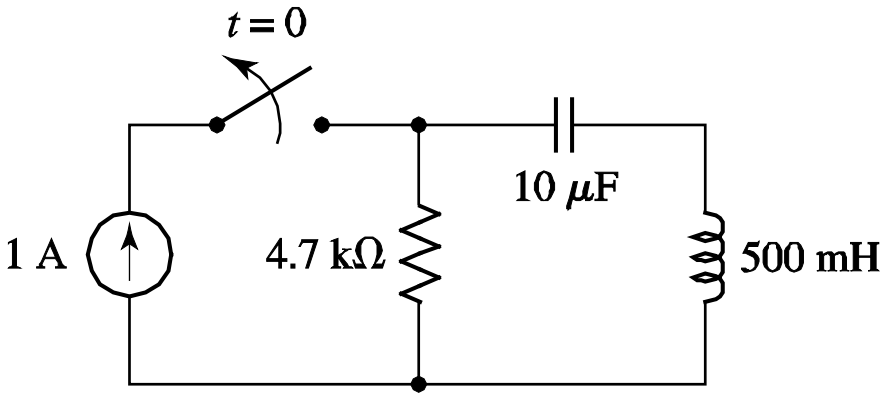
Q1. (2+4 = 6 points)

In the parallel RC circuit represented below, C = 1 μF and R = 100 MΩ. The capacitor is storing 1 mJ at t = 0. (a) Determine the circuit time constant. (b) Calculate i at 20 s.



Q2. (4+4=8 points)

The switch has been closed a long time (before being opened at t=0). (a) Determine the peak magnitude of the voltage that develops across the 500 mH inductor. (b) Find the current through the inductor.



Q3. 6 points

Analyze the ON/OFF states of all diodes (D_1 and D_2) in this circuit, using the ideal-diode model. Find v_x.