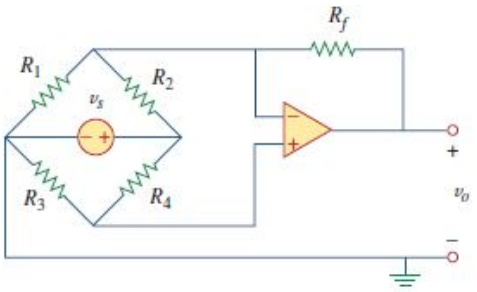
Issue Date: 28^{th} April, 2020 Due by: 5^{th} May, 2020 5:00 PM

ECE113 Basic Electronics
Quiz 3

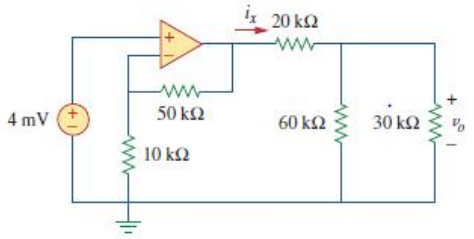
1) All Questions are compulsory.
2) Please use notations appropriately.
3) Maximum Marks:20 (4 marks each)
4) All the students are requested to submit soft copies of their assignments as per the deadline.
5) Please prepare a PDF and upload it over classroom.Mention your Name, Roll no, Section and Group(in the similar manner as you are attending the tutorial) clearly on each sheet of the assignment. Specify sheet number on the top of each sheet.

———-Questions———

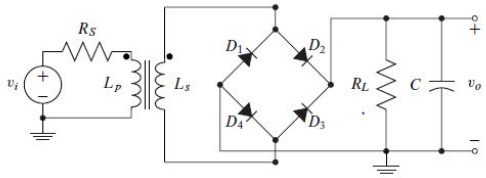
1. In the circuit shown below, find k in the voltage transfer function $v_o = \mathrm{k}v_s$.



2. Calculate i_x and v_o in the circuit of Figure shown below. Find the power dissipated by the 60-k resistor.



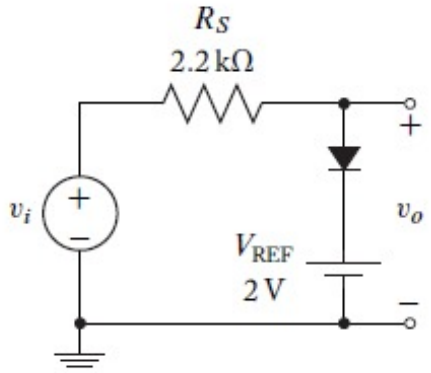
3. Consider the full-wave rectifier circuit as shown below with C = 47μ F and transformer winding ratio of 14:1. If the input voltage is 120 VAC (RMS) at 60 Hz, what is the load resistor value for a peak-to-peak ripple less than 0.5 V? What is the output DC voltage? Assume ideal diode.



4. For the clipping circuit shown, find the output waveform v_o for the input voltage,

$$v_i = 5\ \sin w_o t.$$

The diode has the following characteristics: $r_d = 15\ \Omega$; $V_d = 0.7$ V; and $r_r \approx \infty$



5. For the circuit shown in the figure, draw the waveform of output voltage V_o for the input voltage,

$$v_i = 5\ \sin w_o t.$$

Assume ideal diode D and lossless capacitor C.