ECE 320 - Homework #7

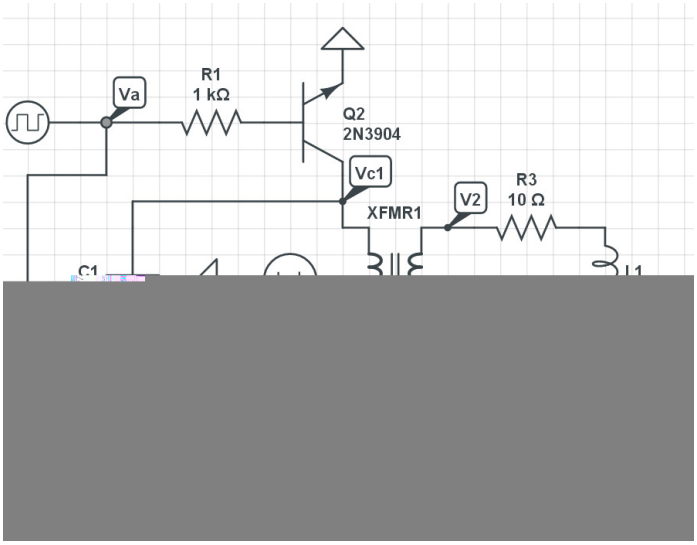
DC to AC, SCR, Boolean Logic. Due Monday, Octiber 11th

DC to AC

1) Let

- A = 0V / 5V square wave, 60Hz, 0 degree time delay
- B = 0V / 5V square wave, 60Hz, 180 degree time delay
- C1 = 10uF

Determine using CircuitLab the voltage V2 (i.e. the votlage across a DC motor, modeled as a 10 Ohm & 100mH load)



2) Adjust C1 so that the voltage across the motor is as close to a sine wave as possible (trial and error)

In theory, resosnance is

$$\omega = \frac{1}{\sqrt{LC}}$$

For 377 rad/sec (60Hz), L = 0.1H, C = 70uF. Adjusting to get a sine wave, C = 120uF

Simulation Results (problem 5)

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>> DC = mean(V2)
   8.7647
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