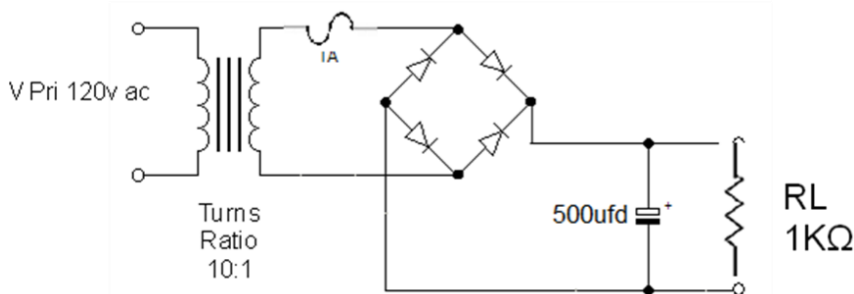




Solid State Electronics – Unit 5: Silicon Control Rectifier

Determining Output Based on Turns Exercise

Name _____



The primary input voltage of a full wave bridge is 120v ac RMS. The turns ratio of the transformer is 10:1. The transformer is a step down transformer. There are 12000 primary windings and 1200 secondary windings.

1. Determine the transformer secondary voltage.
2. Determine the amplitude of the pulsating DC output voltage of the rectifier based on the following equation.

$$(V_{fl Sec}) (\sqrt{2}) - 1.4v \leftarrow \begin{matrix} 2 \text{ diode drops} \\ \swarrow \end{matrix}$$

3. Determine the ripple produced due to the filter circuit using the following equation. [(amplitude of the pulsating DC output voltage)(t)] / [(RL) (C)] Where $t = 1/f = 1/120 \text{ hz.} = 8.333 \text{ milliseconds} = .00833 \text{ Seconds}$
4. Determine the DC output of the filtering circuit using the following equation. (amplitude of the pulsating DC output voltage) - (V Ripple p-p / 2)





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