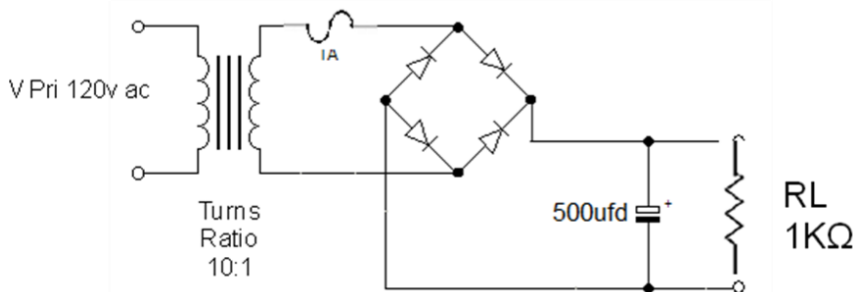




Solid State Electronics – Unit 5: Silicon Control Rectifier

Determining Output Based on Turns Exercise – Answer Key

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. **12 volts**
2. Determine the amplitude of the pulsating DC output voltage of the rectifier based on the following equation.

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

7.08656 volts

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 $t = 1/f = 1/120 \text{ hz.} = 8.333 \text{ milliseconds} = .00833 \text{ Seconds}$

0.1180620896 volts p-p

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)

7.027528952 volts DC





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