**Electronics Lab**
**Lab Session 2: Diode Applications**

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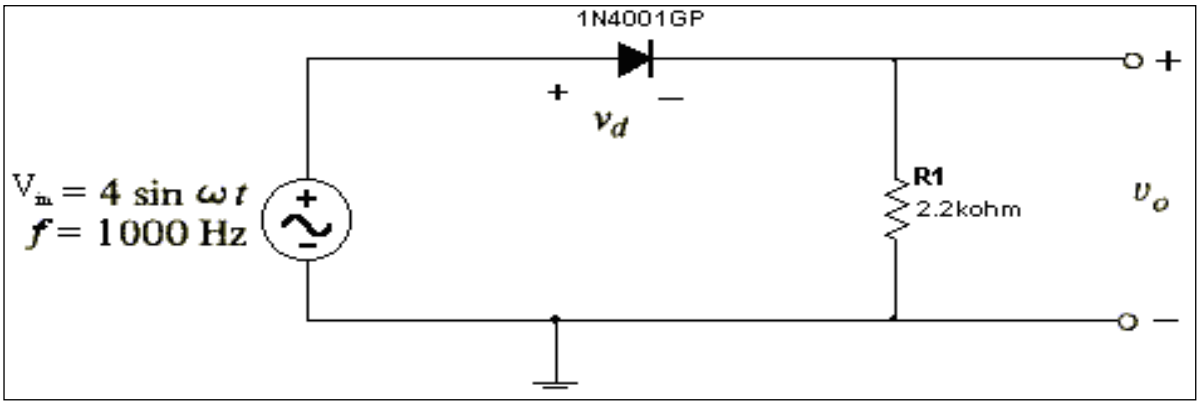
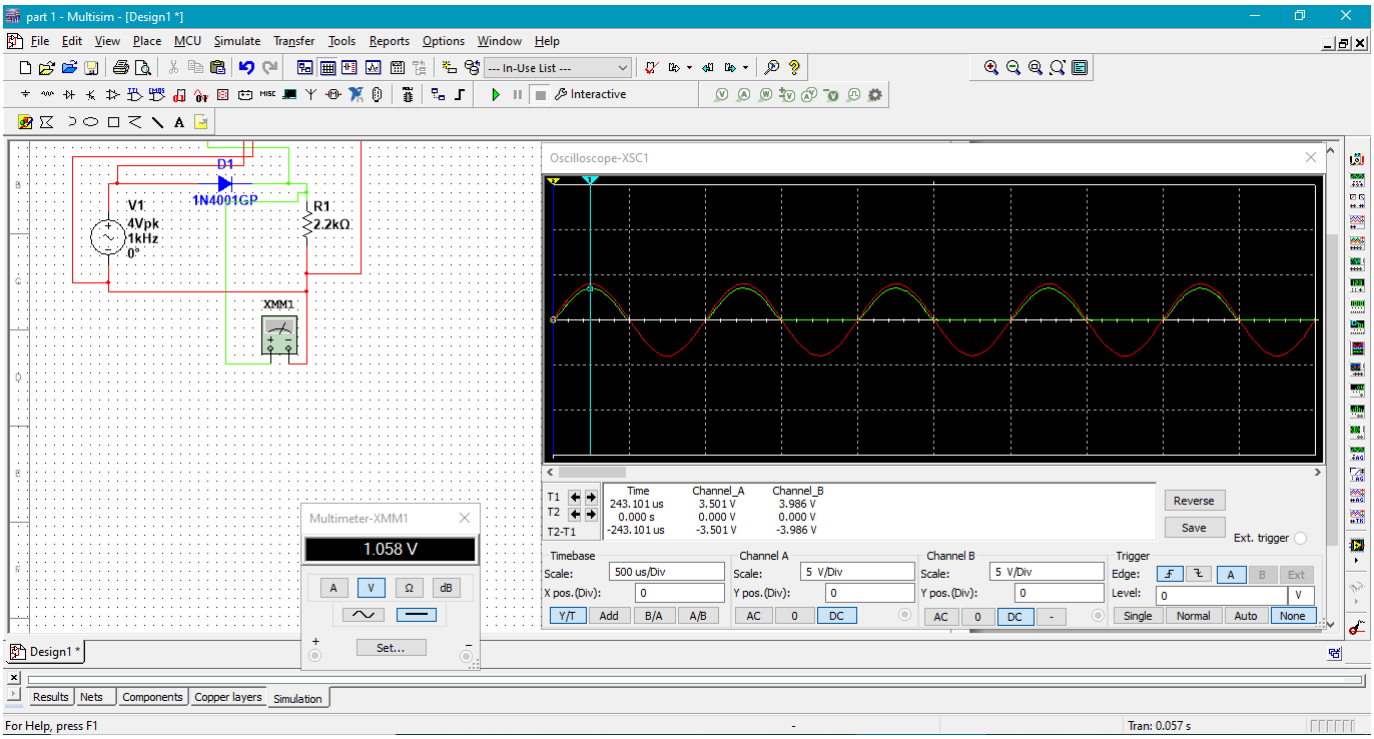
## Part 1: Half-Wave Rectification

1) Construct the circuit shown below and draw the input and output signal.




2) Measure the DC value of $V_O$ using the DC scale in the DMM. **$V_{ODC}$=.1.058 v…….....……..**

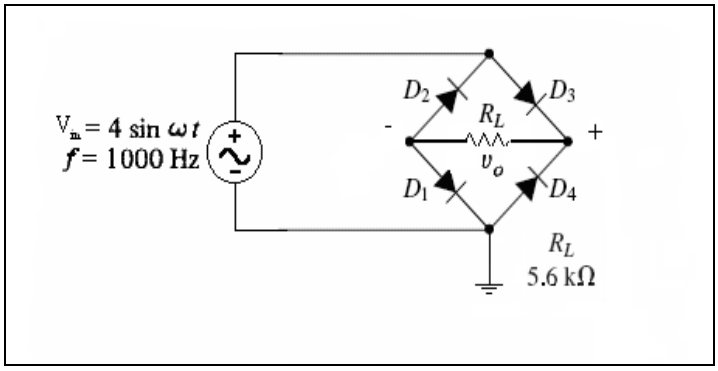
3) For step 1, calculate the DC level of the output waveform.

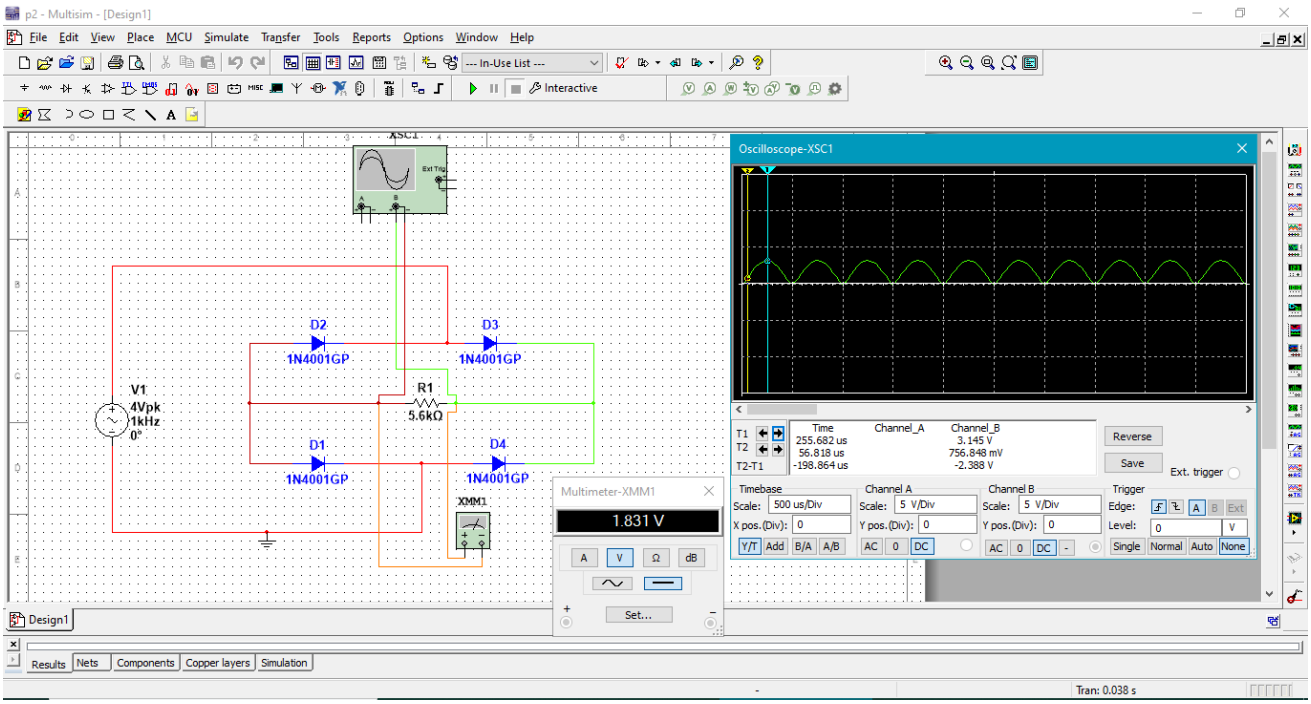
**Vavg1= ……..…..(3.501) \ pi =1.114 v.....……**

## Part 2: Full-Wave Rectification

**4)** Construct the circuit shown below. Draw the output waveforms. Then,

**5)** Measure the DC load voltage using DMM. **$V_{ODC}$ =……1.831 v…….....**



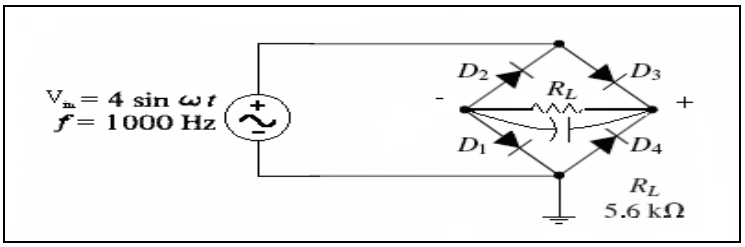




**6)** Calculate the DC level of the output waveform Vo.

**$V_{avg}$ = ……2(3.145) \ pi = 2.002 v ……..…**

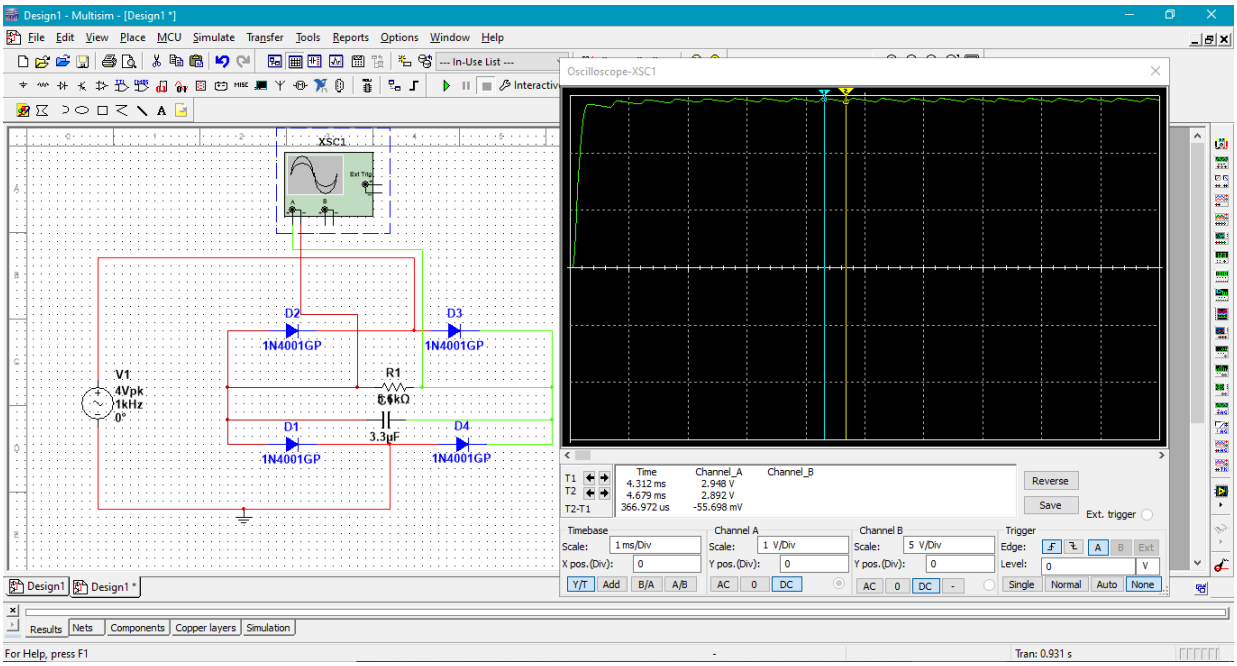
## Part 3: Rectifier Filtering

8) Construct the circuit shown below. Use the DMM to measure $V_O$, and record this value.



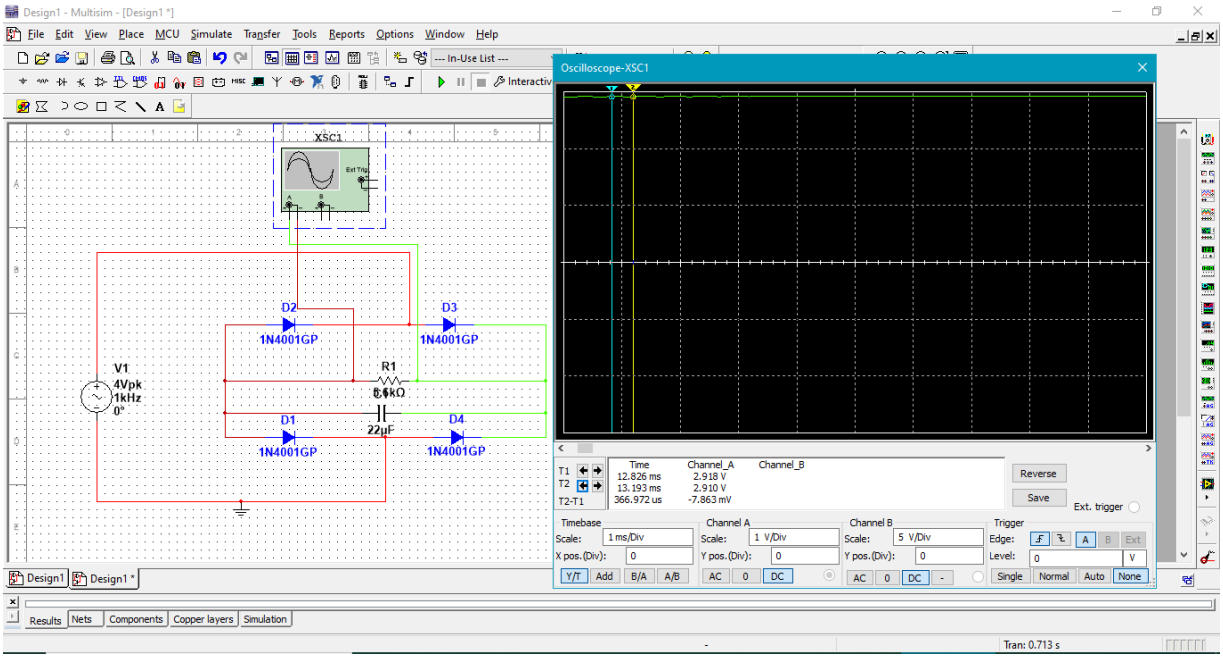

9) Use the oscilloscope to observe and measure the ripple voltage using **3.3 µF**.

**Vr =**……2.948-2.892=0.056 v……..



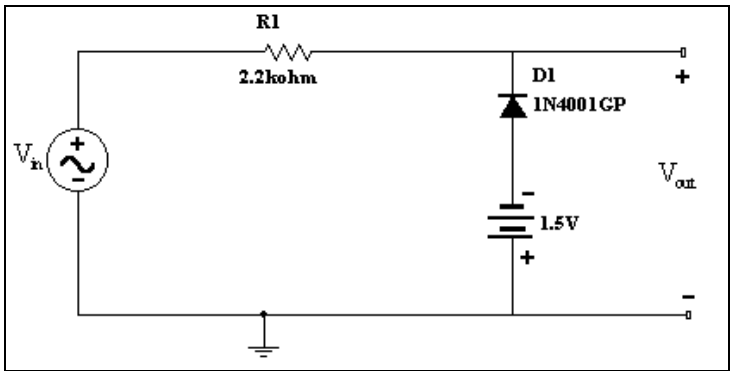

10) Use the oscilloscope to observe and measure the ripple voltage using **22 µF**.

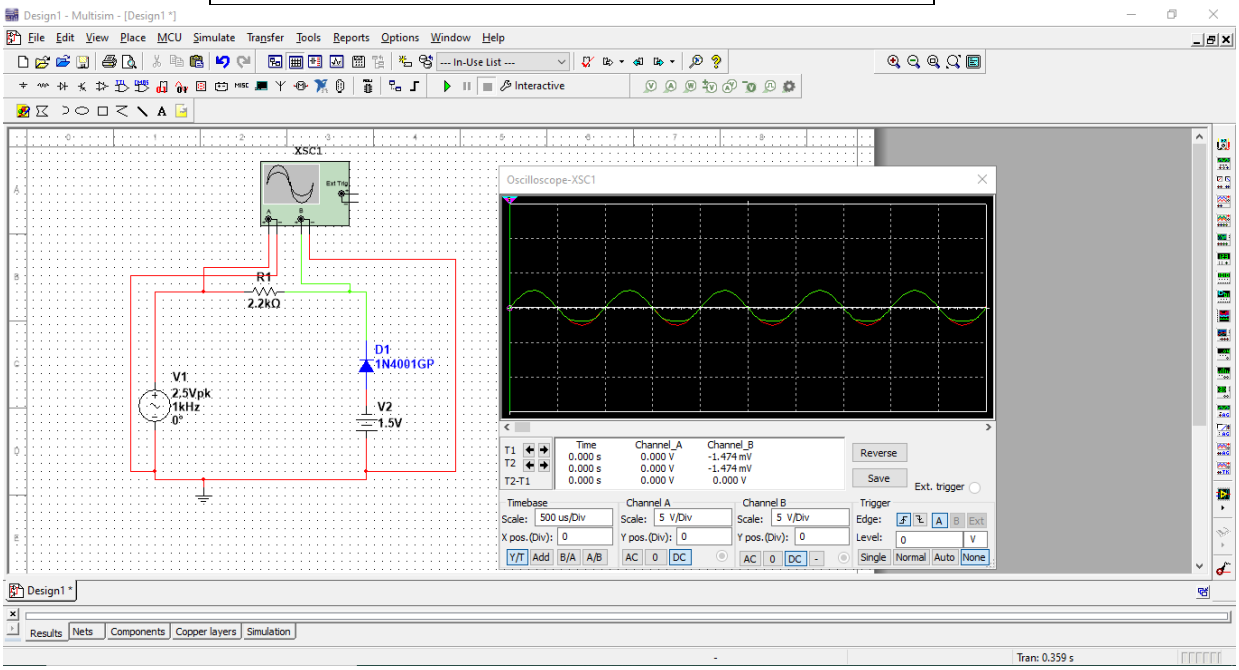
**Vr=**……2.918-2.910=0.008 v……..



## Part4: *The Shunt Clipper with a DC Battery*

1. **Construct the circuit shown below. The input signal is 5 $V_{p-p}$ sine wave at a frequency of 1KHz.**
2. **Draw the input and output signal.**



## *Part 5: the Clamper circuit with DC Battery*

1. **Construct the circuit shown in the figure and Set the function generator to a <u>1 KHz, 5-$V_{P-P}$</u> sine wave. Then sketch the output signal**