To Study active filters using

Analog Electronics Lab Experiment -7

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Lab Section: P5
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1. Objective

To study the Active Filters using OP AMP (IC-741)

1) Half Wave Rectifier
2) Full Wave Rectifier
3) Positive Clipper
4) Negative Clipper

Report the following:

1) Circuit diagrams for all configurations.

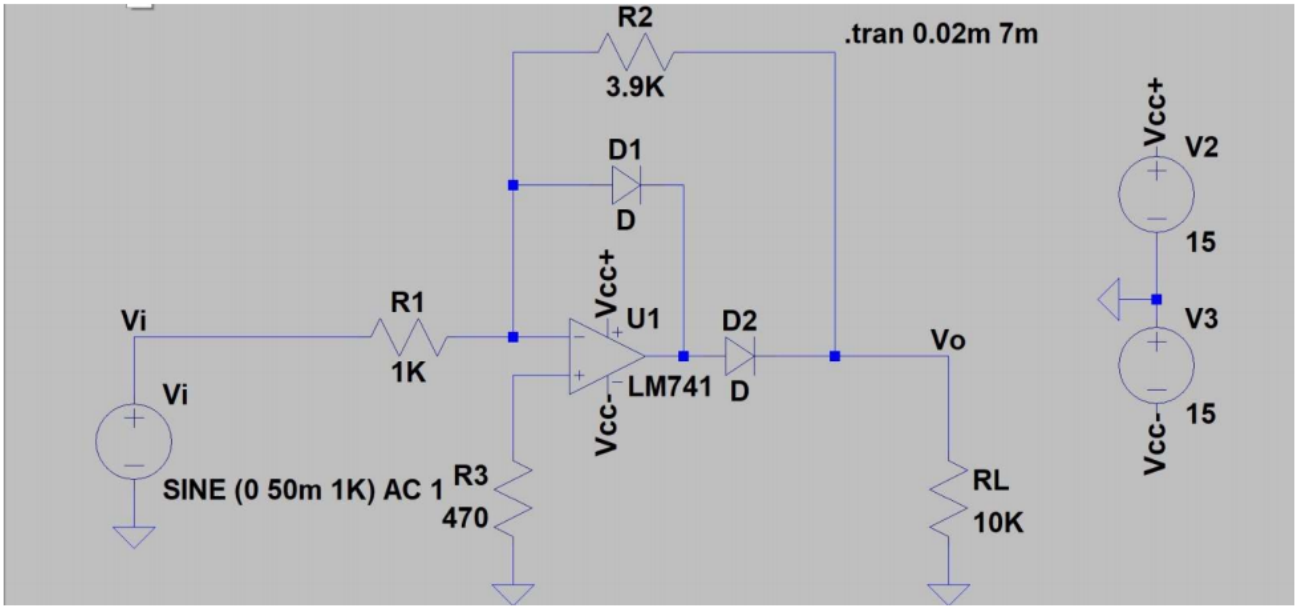
2) Waveforms for all four configurations.

Assumptions:

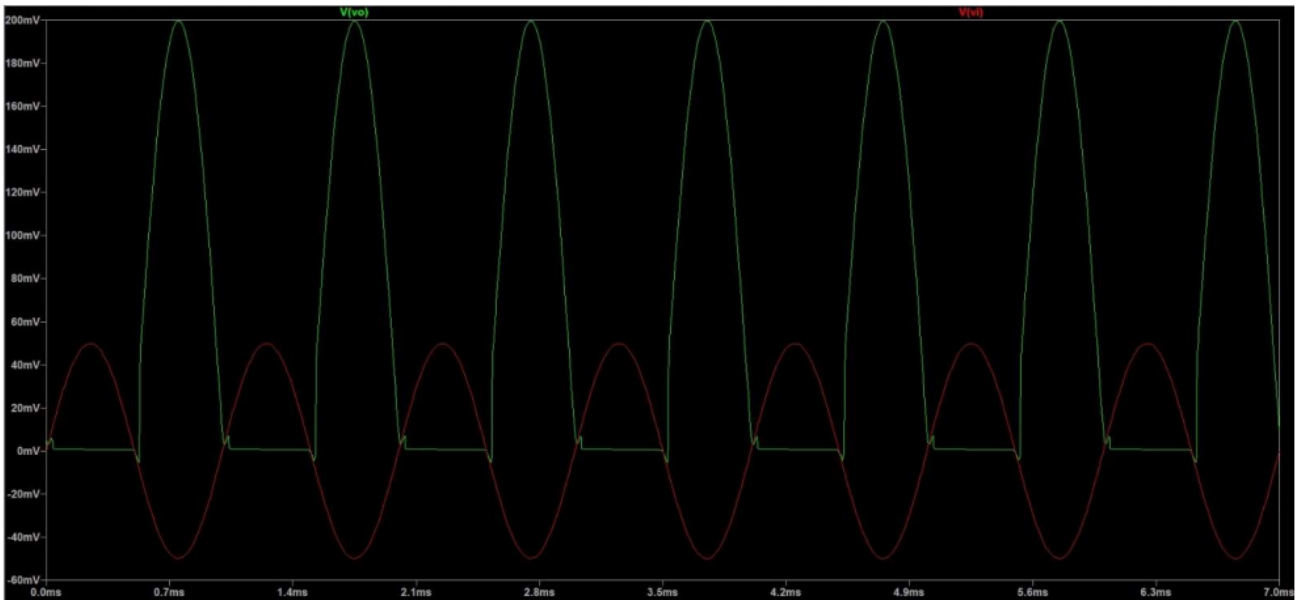
1) Ideal behaviour of the OPAMP.
2) All the calculations to be done at 1kHz frequency.

2. High Wave Rectifier

1. **Circuit Diagram**:



2. **Resultant Curve and simulation result**



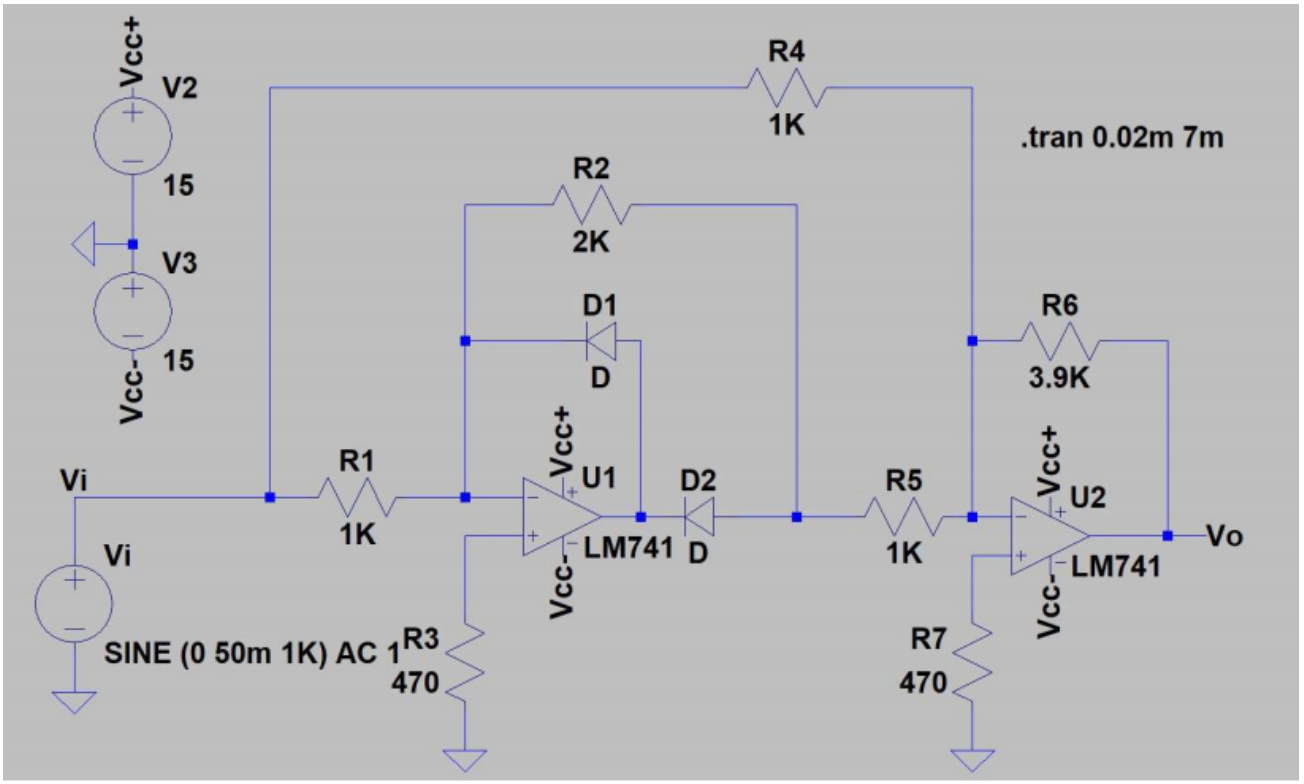
Simulated gain= (Vo/Vi)= (-199.78/50)= -3.99

3. **Hand Calculations**

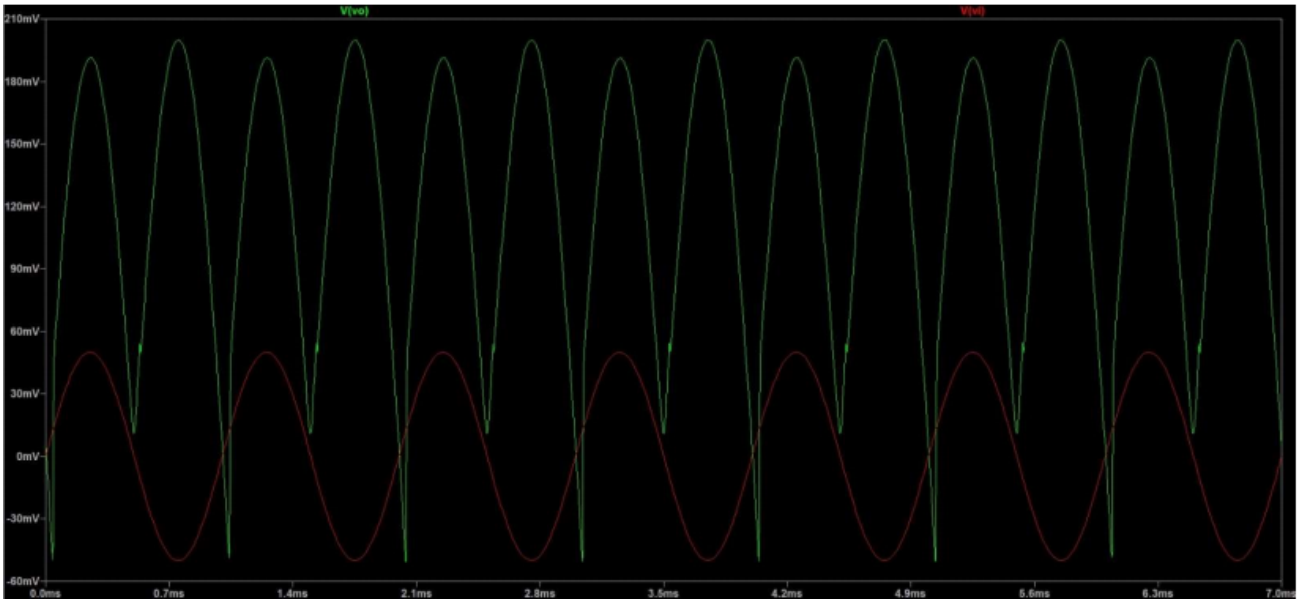
Theoretical gain= -(R2/R1)= -(3.9k/1k)= -3.9

3. Full Wave Rectifier

1. **Circuit Diagram**:



2. **Resultant analysis and simulated result**



Simulated gain (for positive half cycle)= (191.415mV/50mV)= 3.82

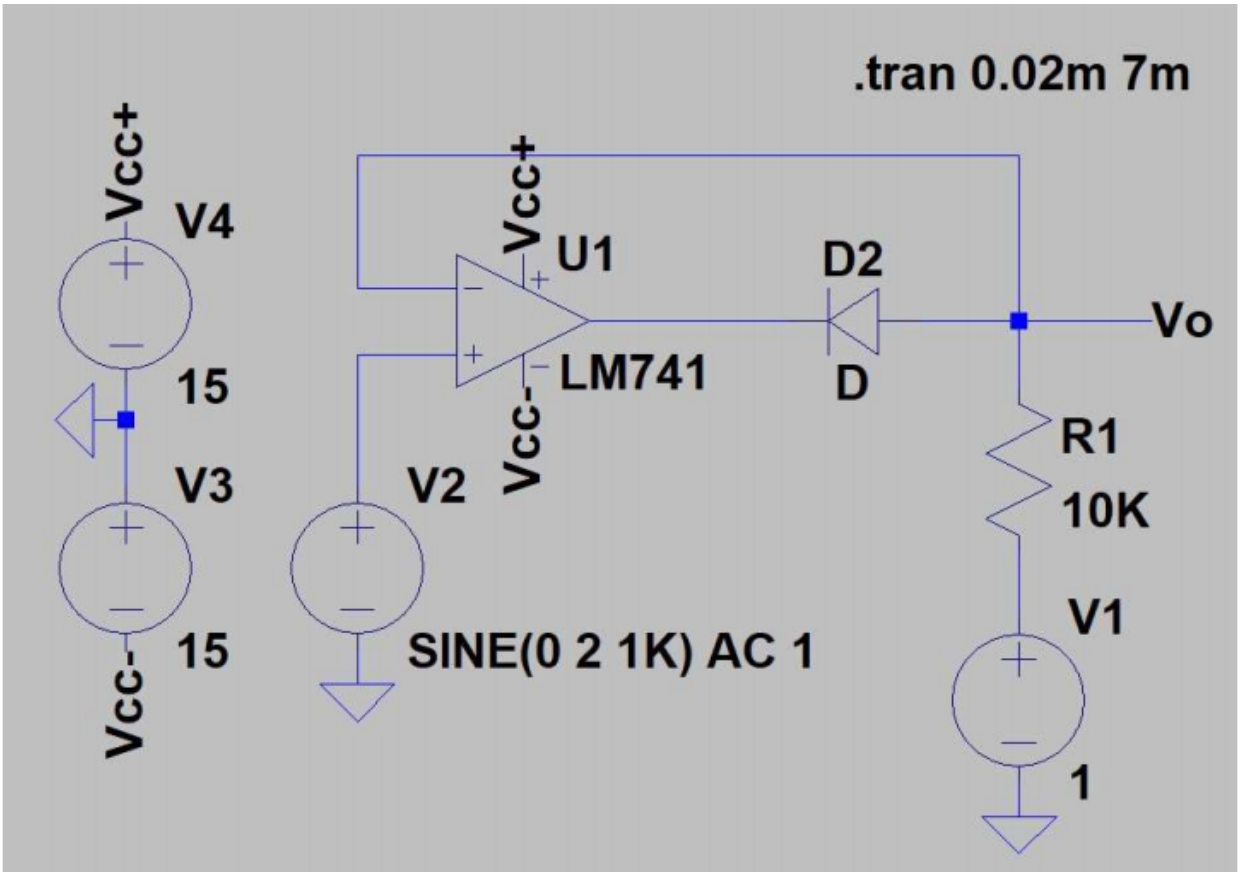
Simulated gain (for negative half cycle)= -(199.9mV/50mV)= -3.99

3. **Hand Calculations**

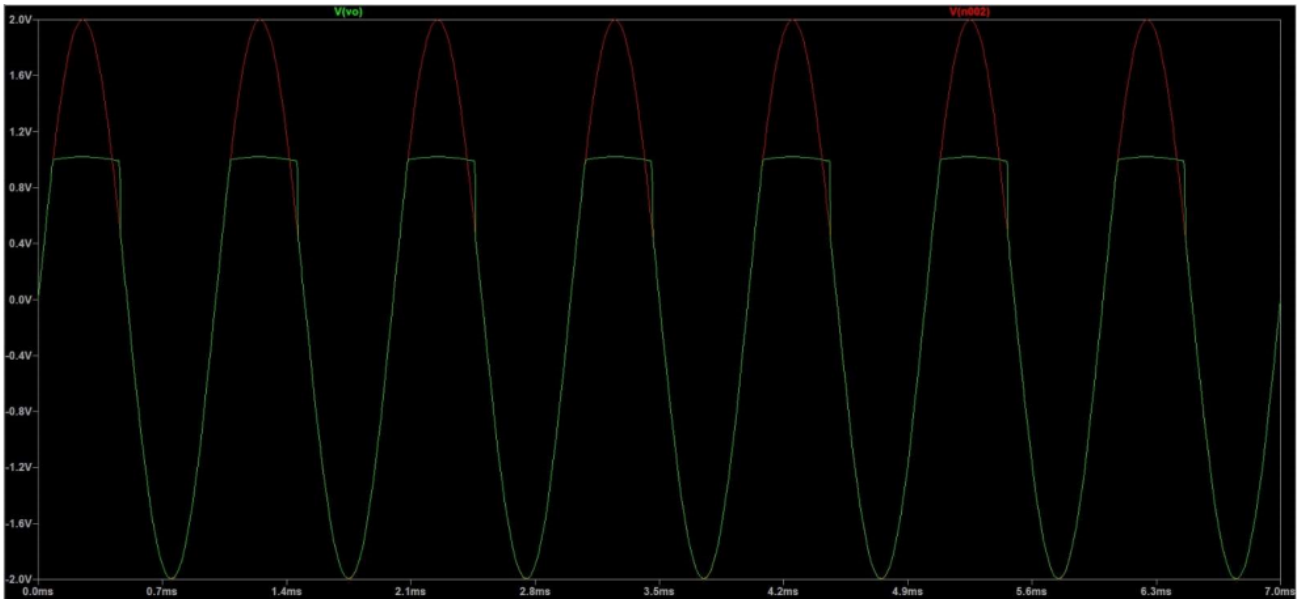
Magnitude of Theoretical gain= (R6/R4)= (3.9k/1k)= 3.9

4. Positive Clipper

1. **Circuit Diagram**:

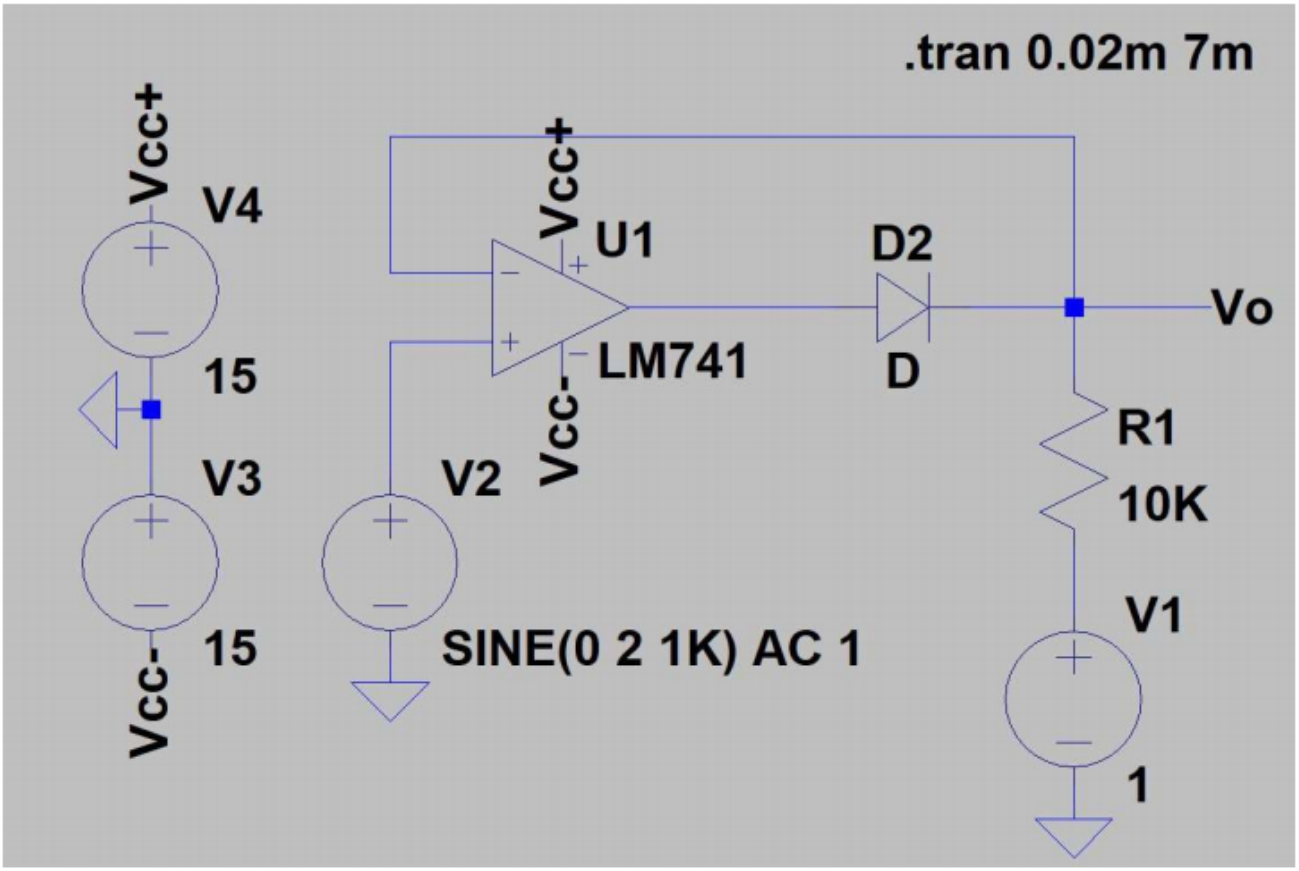


2. **Resultant analysis and simulation results**



5. Negative Clipper

1. **Circuit Diagram**:



2. **Resultant analysis and simulation results**