Electronics Lab
Lab Session 6: Operational Amplifier

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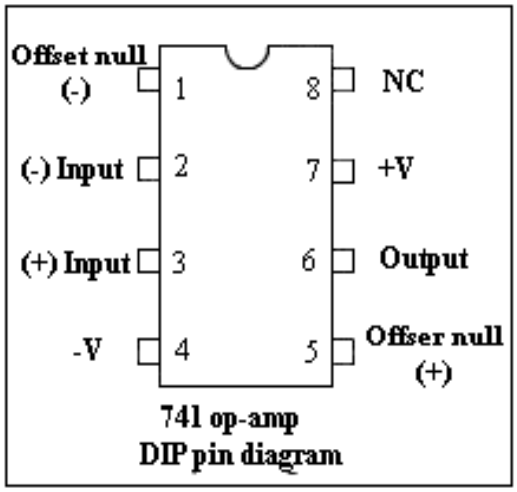
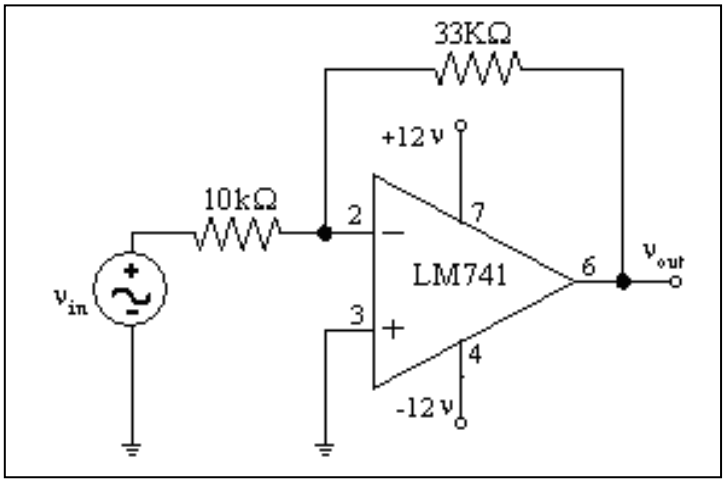
Part 1: Inverting Amplifier

1. Construct the circuit shown Connect a 500 Hz, 1 V_{p-p} sine wave.



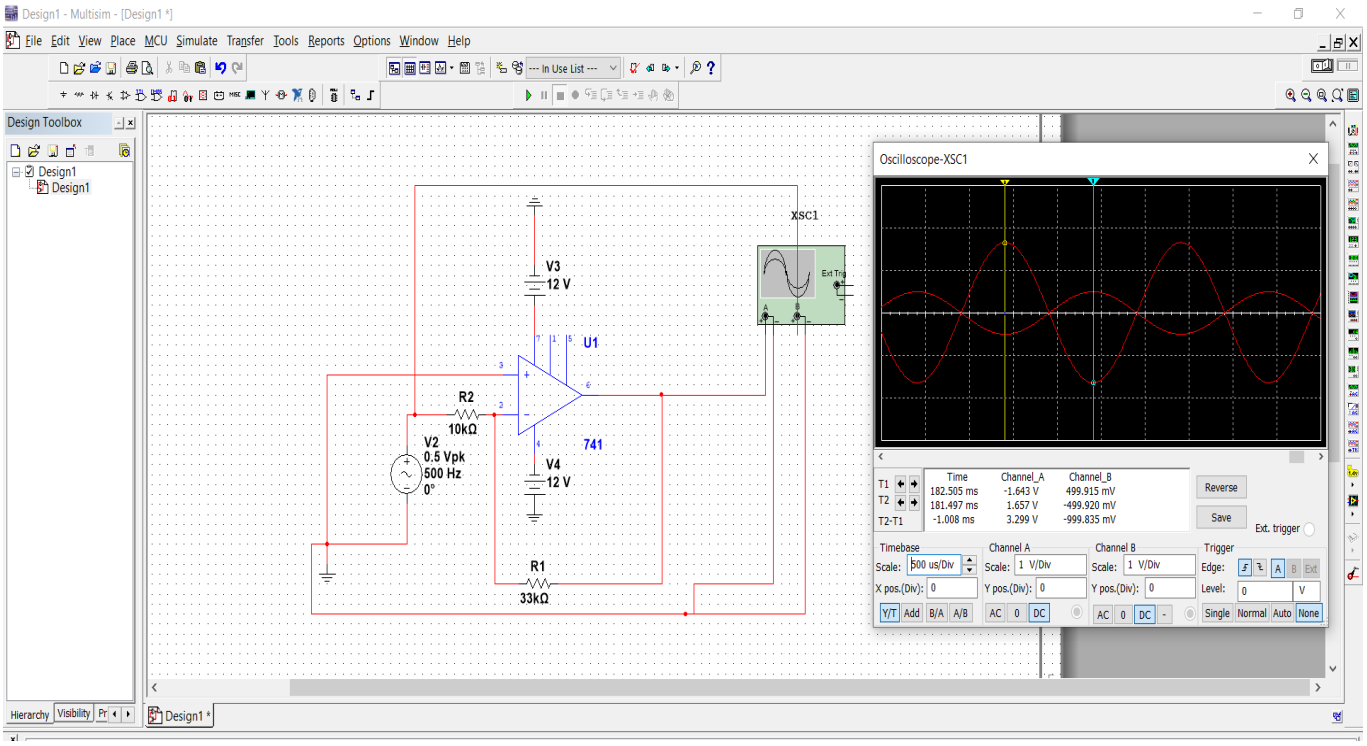


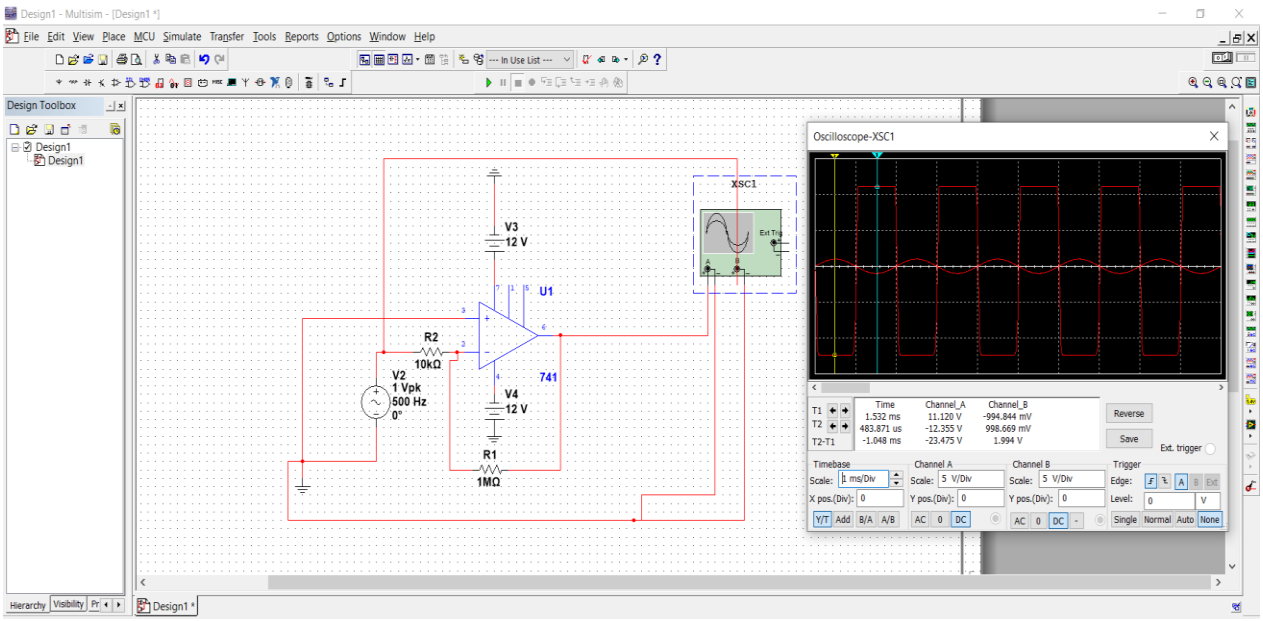
2. Measure and sketch the peak-to-peak values of the input and output Waveforms .

Vin=……0.998 V pp……. Vo=…3.299 v pp……. Phase Shift……180
AV=……3.305……..

3. Increase Vin to be 2 Vp-p and replace R_f =33KΩ with 1MΩ, Measure the peak-to-peak values of the input and outpu. Then, sketch both waveforms.

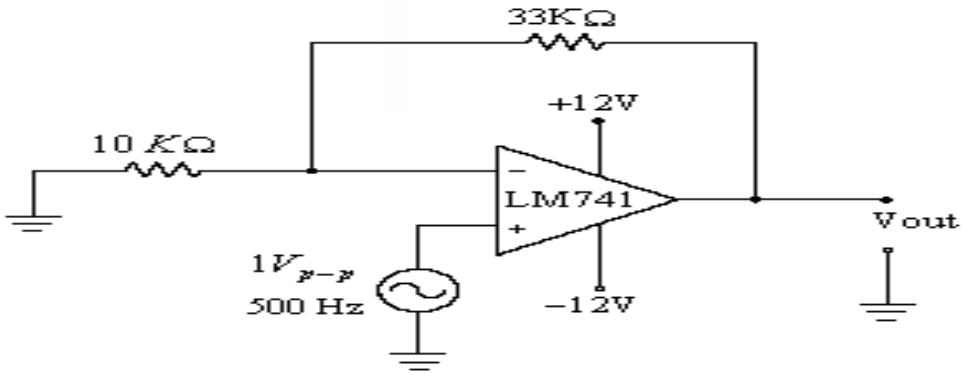
Vin=……1.994 v…..……..…. Vo=……23.47 v. AV=……11.7703……..…..


Design1 - Multisim - [Design1 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
Design Toolbox
Design1
Design1
Oscilloscope-XSC1
XSC1
V3
12 V
U1
R2
10kΩ
V2
0.5 Vpk
500 Hz
0°
741
V4
12 V
R1
33kΩ
Time Channel_A Channel_B
182.505 ms -1.643 V 499.915 mV
181.497 ms 1.657 V -499.920 mV
-1.008 ms 3.299 V -999.835 mV
Reverse
Save
Ext. trigger
Timebase
Scale: 500 us/Div
Channel A
Scale: 1 V/Div
Channel B
Scale: 1 V/Div
Trigger
Edge:
Level: 0 V
Hierarchy
Visibility
Design1 *


Design1 - Multisim - [Design1 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
Design Toolbox
Design1
Design1
Oscilloscope-XSC1
XSC1
V3
12 V
U1
R2
10kΩ
V2
1 Vpk
500 Hz
0°
741
V4
12 V
R1
1MΩ
Time Channel_A Channel_B
1.532 ms 11.120 V -994.844 mV
483.871 us -12.355 V 998.669 mV
-1.048 ms -23.475 V 1.994 V
Reverse
Save
Ext. trigger
Timebase
Scale: 1 ms/Div
Channel A
Scale: 5 V/Div
Channel B
Scale: 5 V/Div
Trigger
Edge:
Level: 0 V
Hierarchy
Visibility
Design1 *

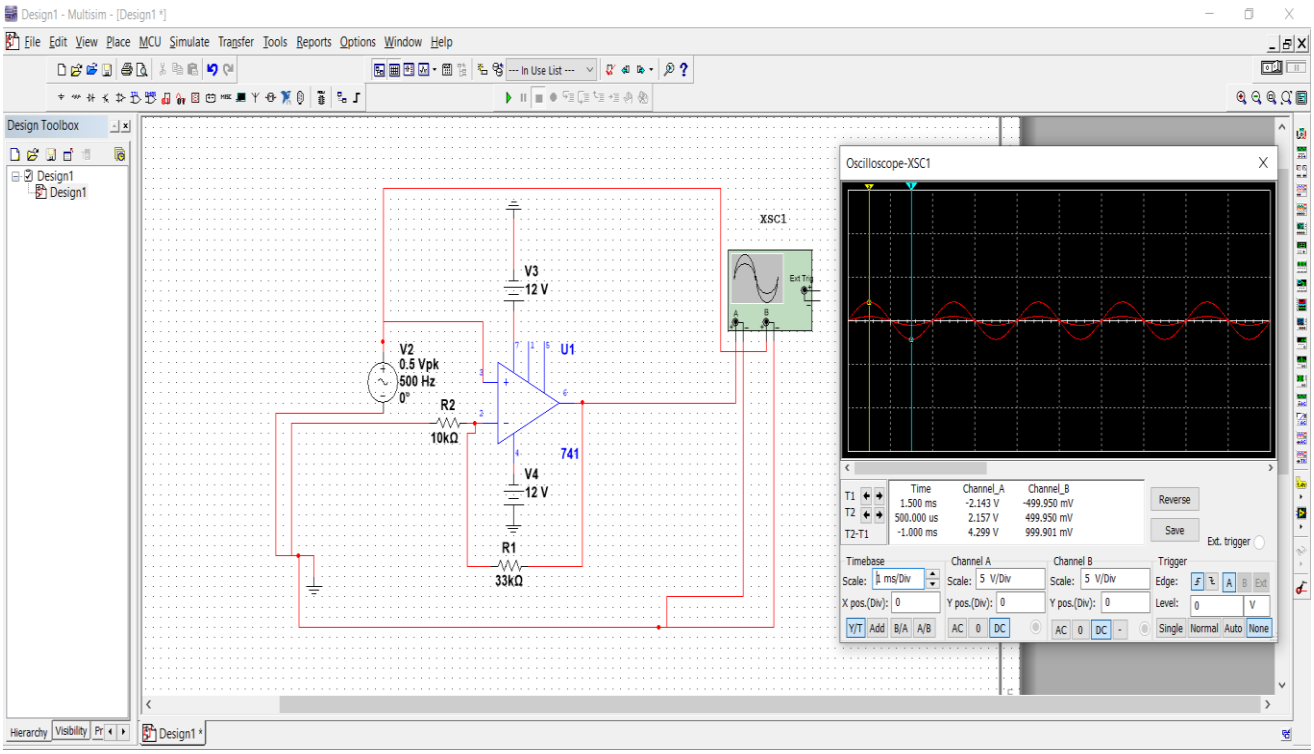
Part 2: Non-inverting Amplifier

1. Construct the circuit shown .Connect a 500 Hz, 1 V_{p-p} sine wave



2. Measure the peak-to-peak values of the input and output waveforms, and record their values. Then, sketch both waveforms.

Vin=..0.999 v….. Vo=……4.29 v…… AV=……4.294 v…..…..



Part 3: Summing Amplifier

1. Measure the peak-to-peak values of the input and output waveforms, and record their values. Then, sketch both waveforms.

Vin=…….1.99 v…..….. Vo=……3.99 v..…..…… AV…2.005 v……...