Assignment – 03

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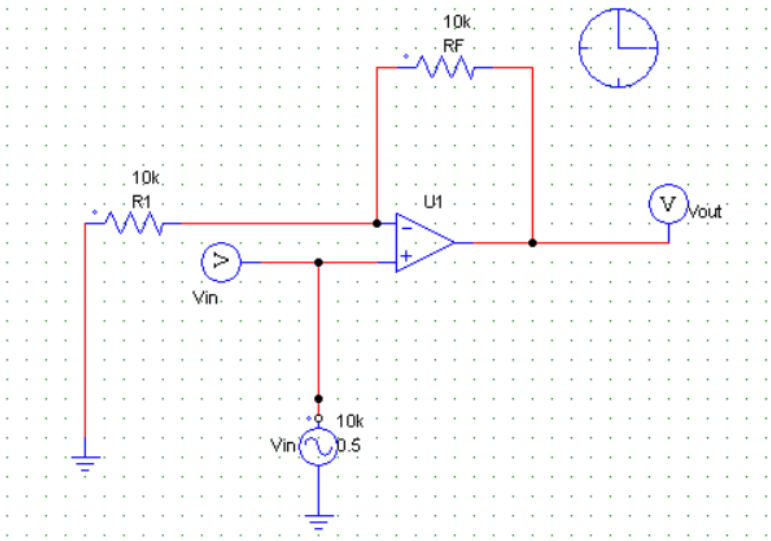
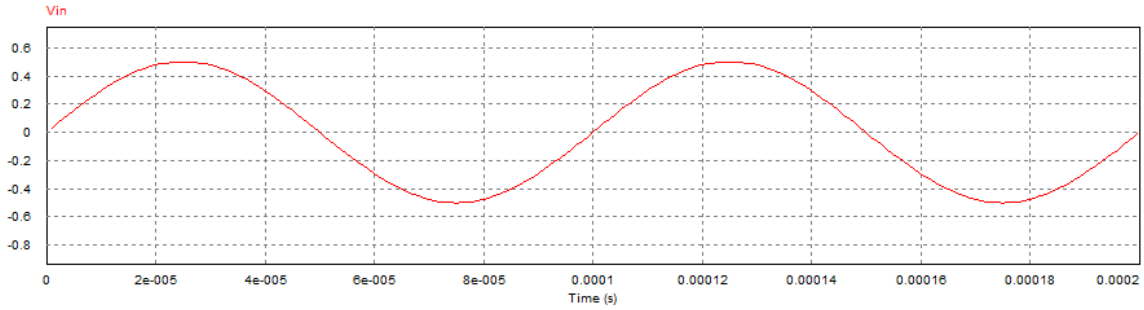
Department – Computer Science and Engineering

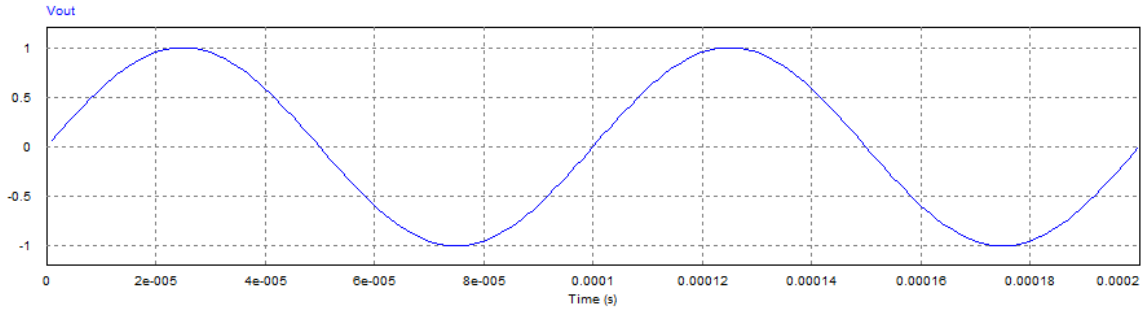
Course Number - EEE 4484

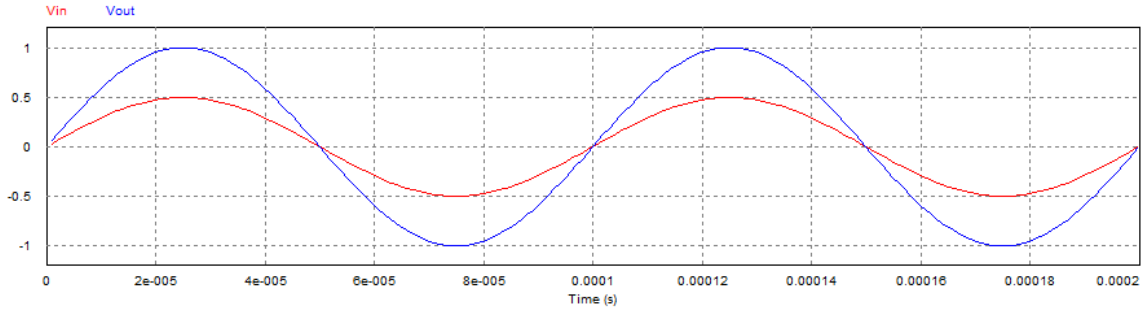
Experiment No. - 03

Task – 2

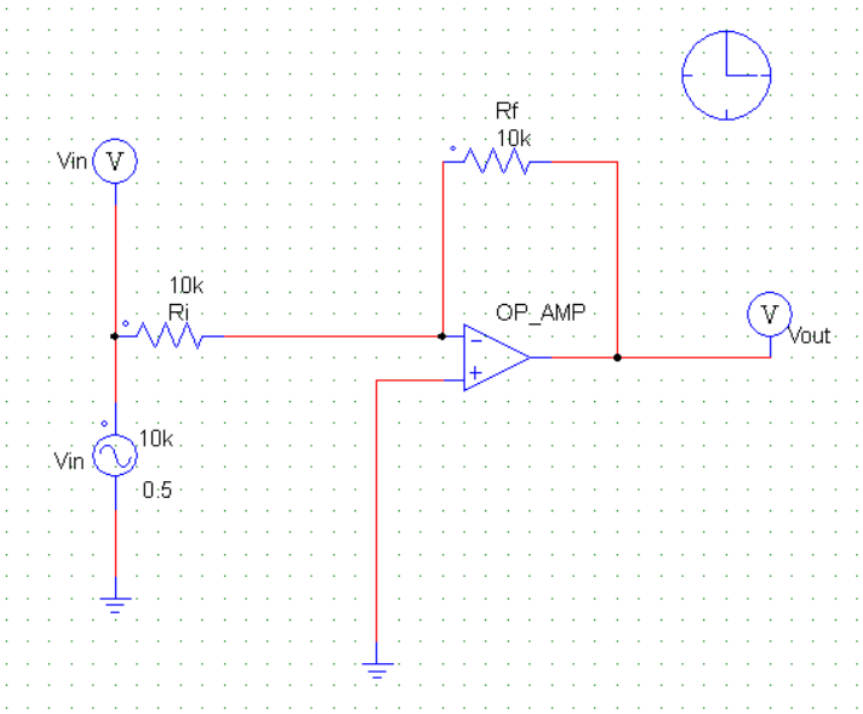

10k
RF
10k
R1
U1
Vout
Vin
10k
Vin
0.5

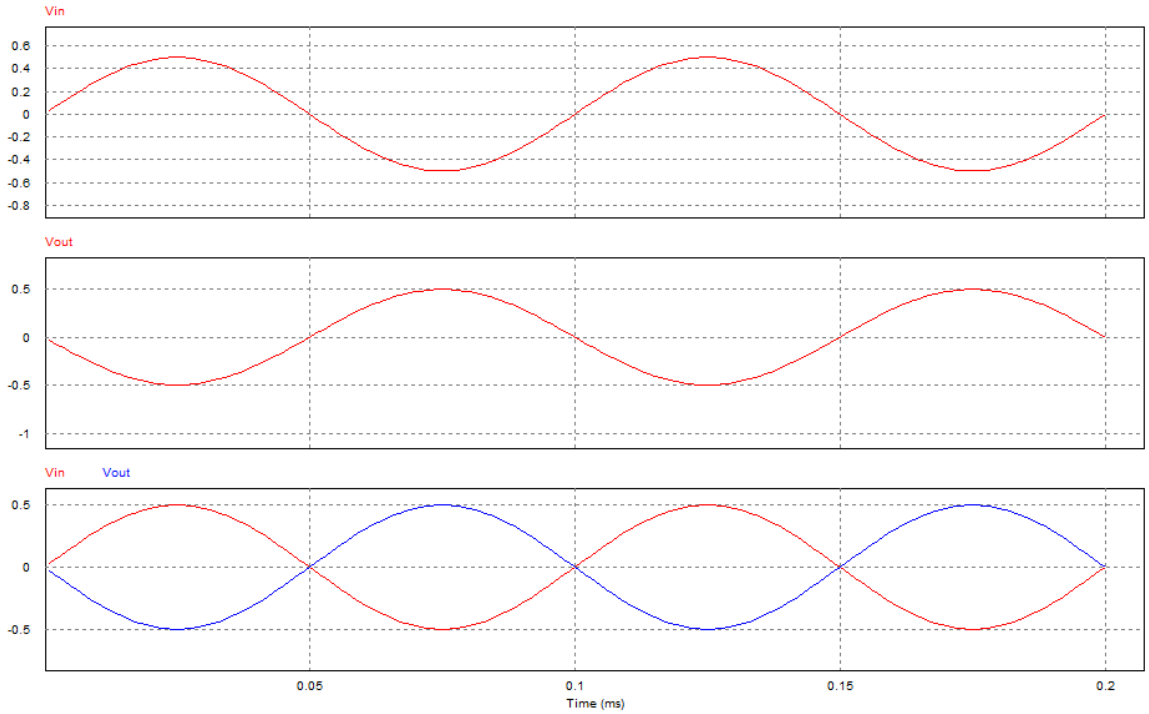

Vin
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
2e-005
4e-005
6e-005
8e-005
0.0001
0.00012
0.00014
0.00016
0.00018
0.0002
Time (s)


Vout
1
0.5
0
-0.5
-1
0
2e-005
4e-005
6e-005
8e-005
0.0001
0.00012
0.00014
0.00016
0.00018
0.0002
Time (s)

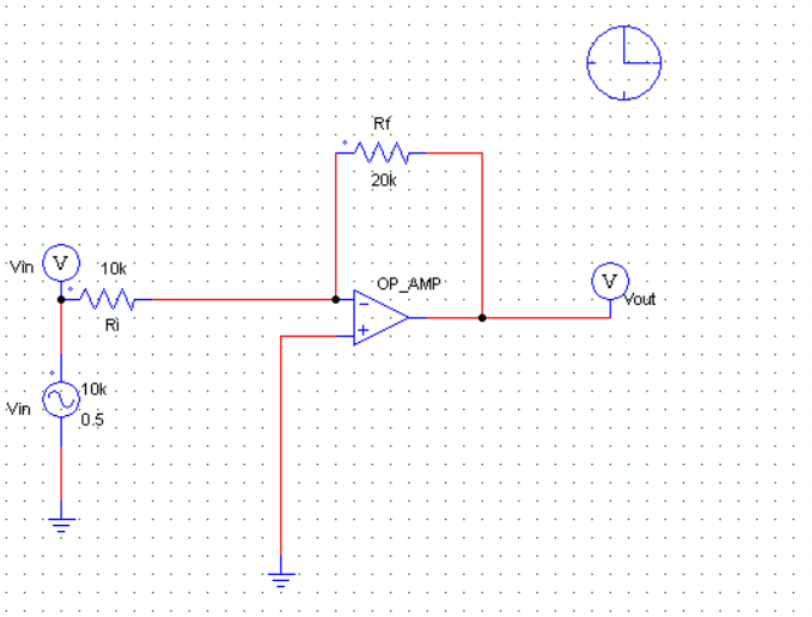

Vin
Vout
1
0.5
0
-0.5
-1
0
2e-005
4e-005
6e-005
8e-005
0.0001
0.00012
0.00014
0.00016
0.00018
0.0002
Time (s)

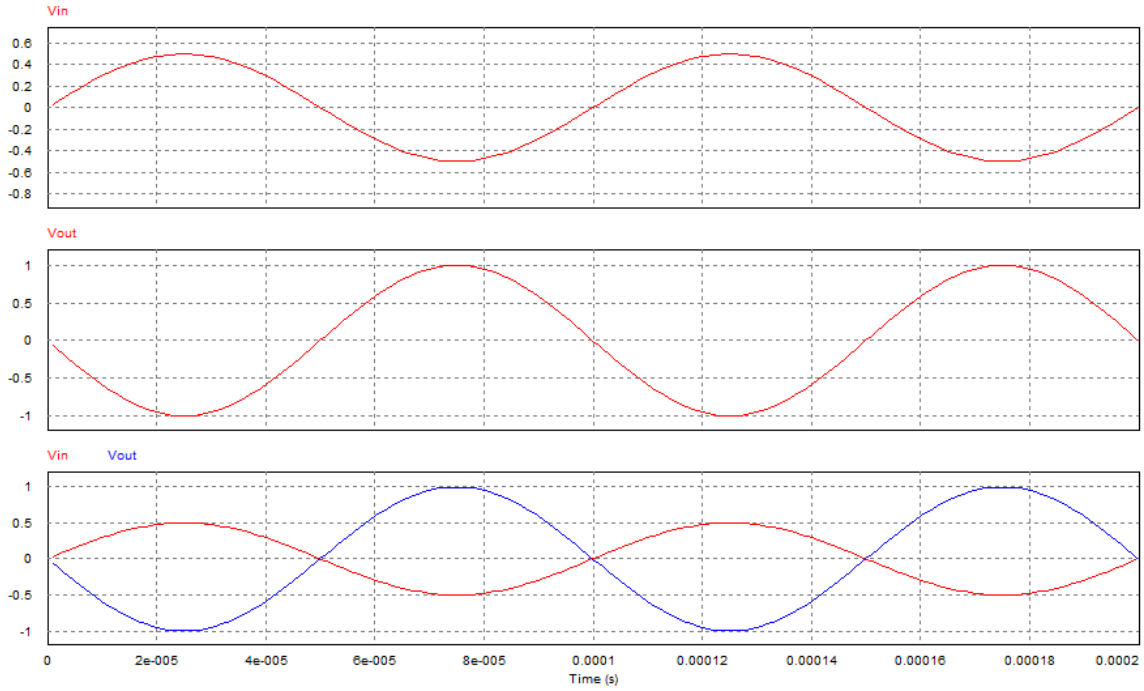
Task - 3


Rf
10k
Vin
V
10k
Ri
OP_AMP
V
Vout
10k
Vin
0.5

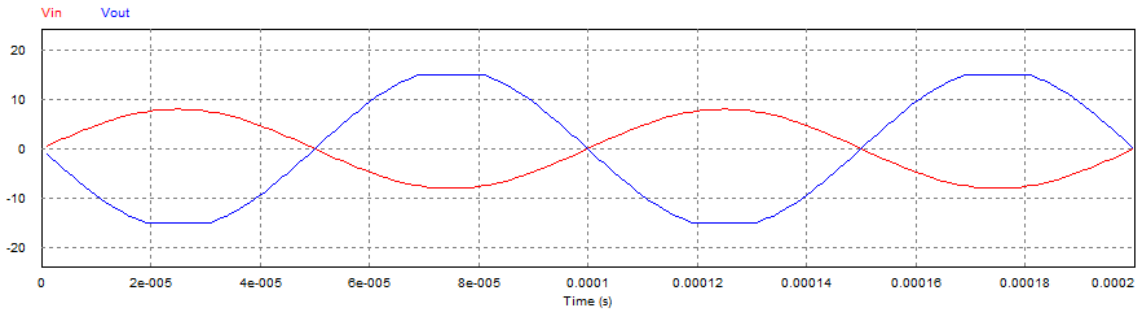

Vin
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
Vout
0.5
0
-0.5
-1
Vin
Vout
0.5
0
-0.5
0.05
0.1
0.15
0.2
Time (ms)

Task - 4

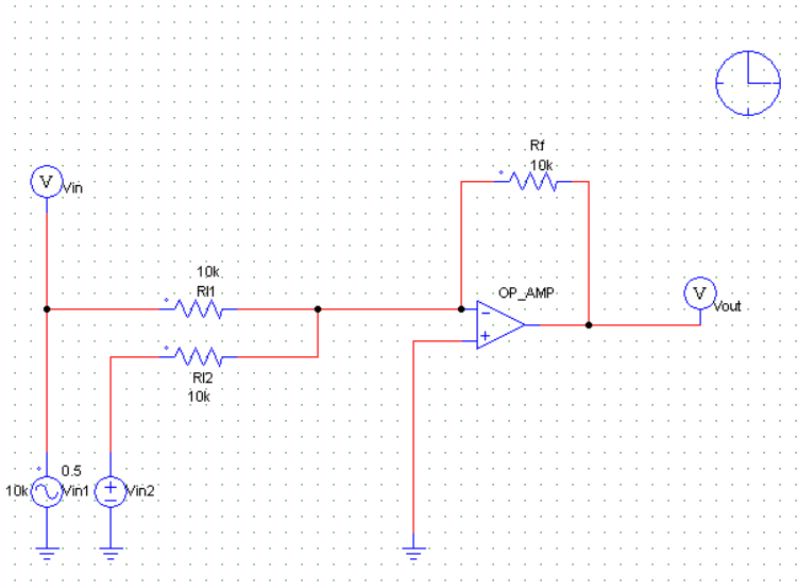




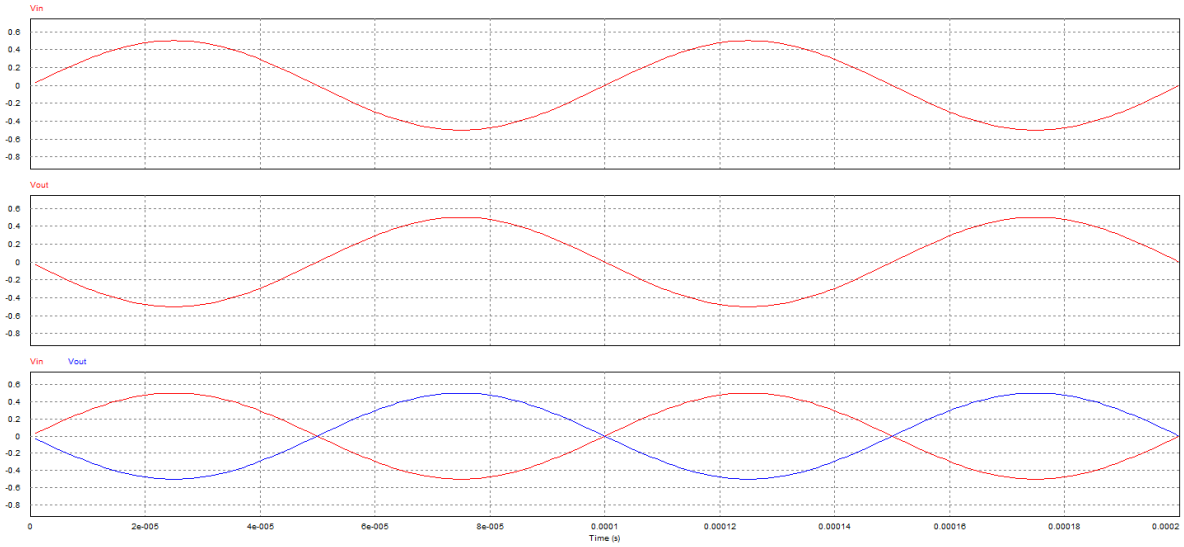
The input peak voltage is increased to 8V and the graph is taken. **At any input peak voltage greater than 7.5 volt, output clipping occurs**. Because the power supplied to the amp is +15 and -15. So, output voltage must be within this range. The op-amp amplifies the signal by 2 times. So, when input peak voltage is more than 7.5 V, output peak voltage become more than 15 V. The op-amp is unable to create waves greater than the supplied power and so, the output wave is clipped.



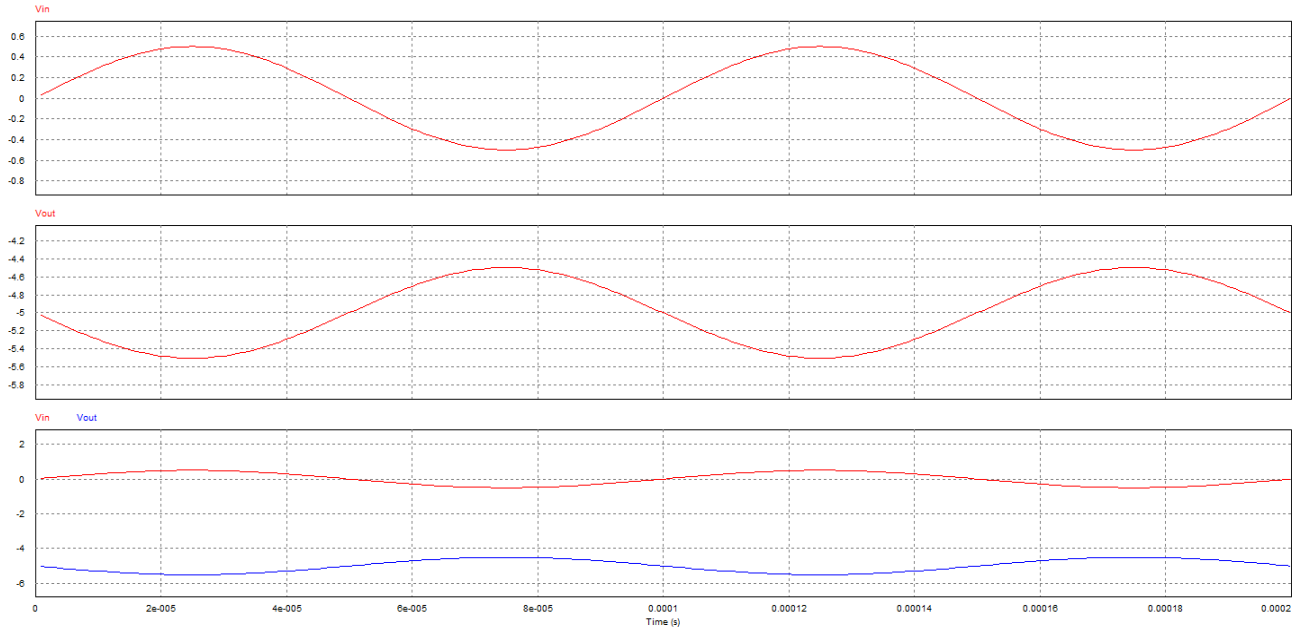
Task – 5



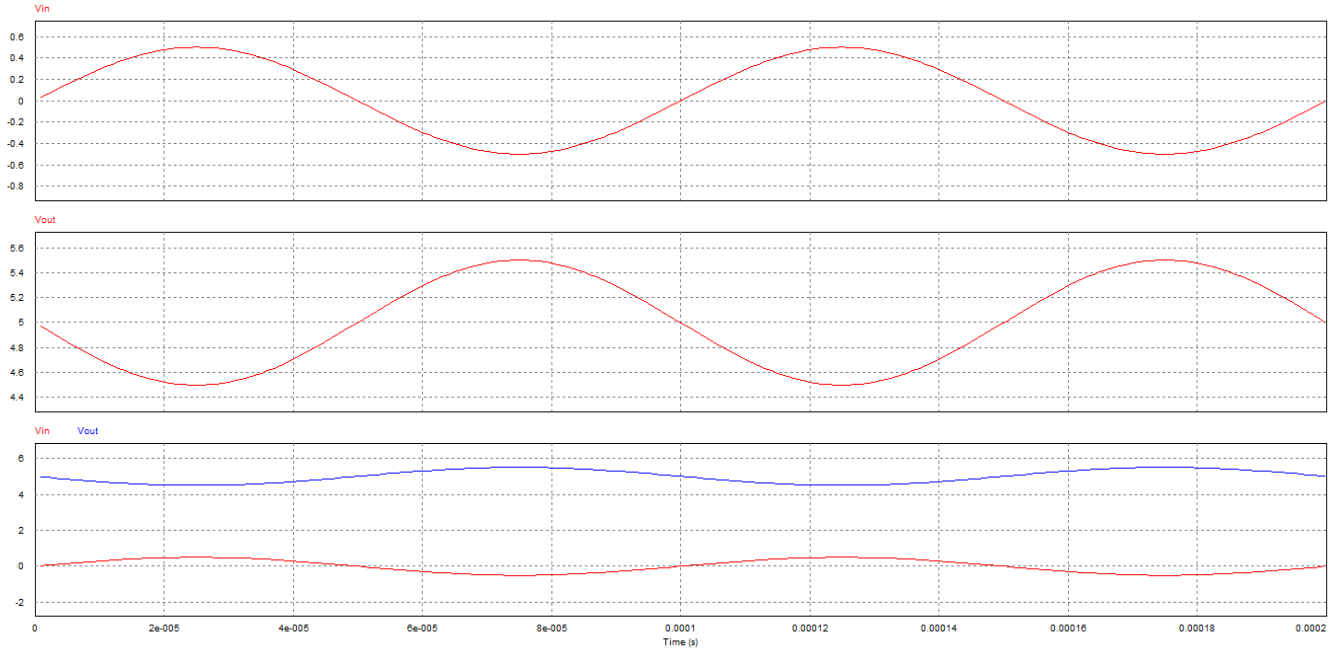
When Vin2 = 0V



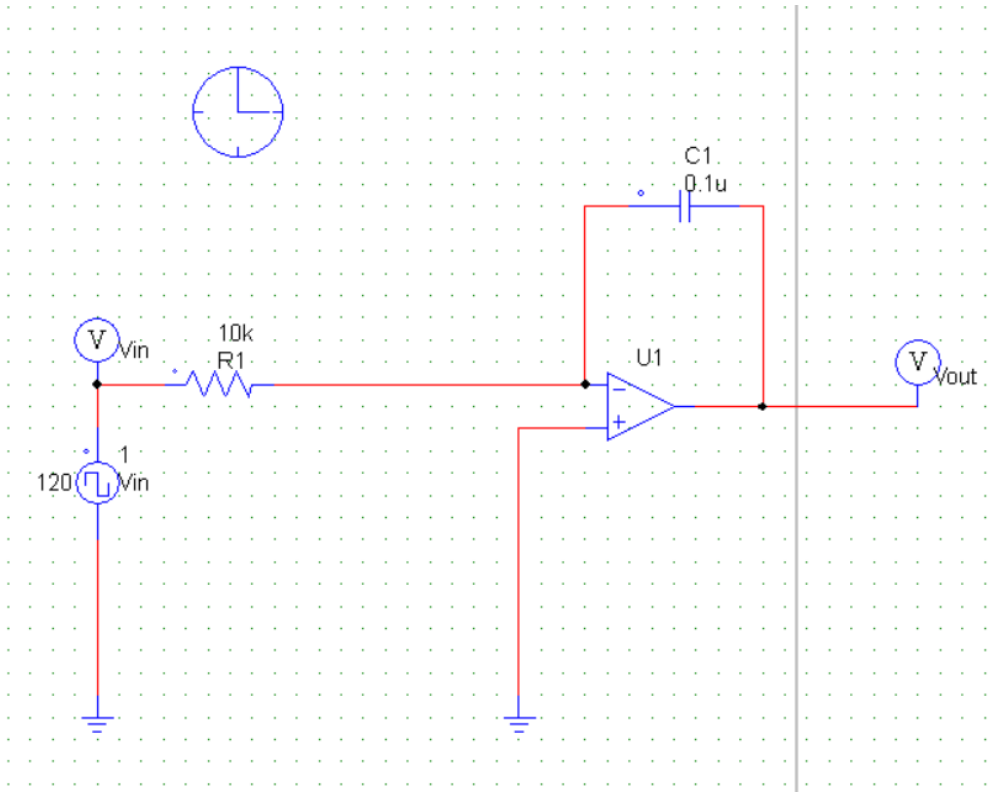
Vin2 = 5V

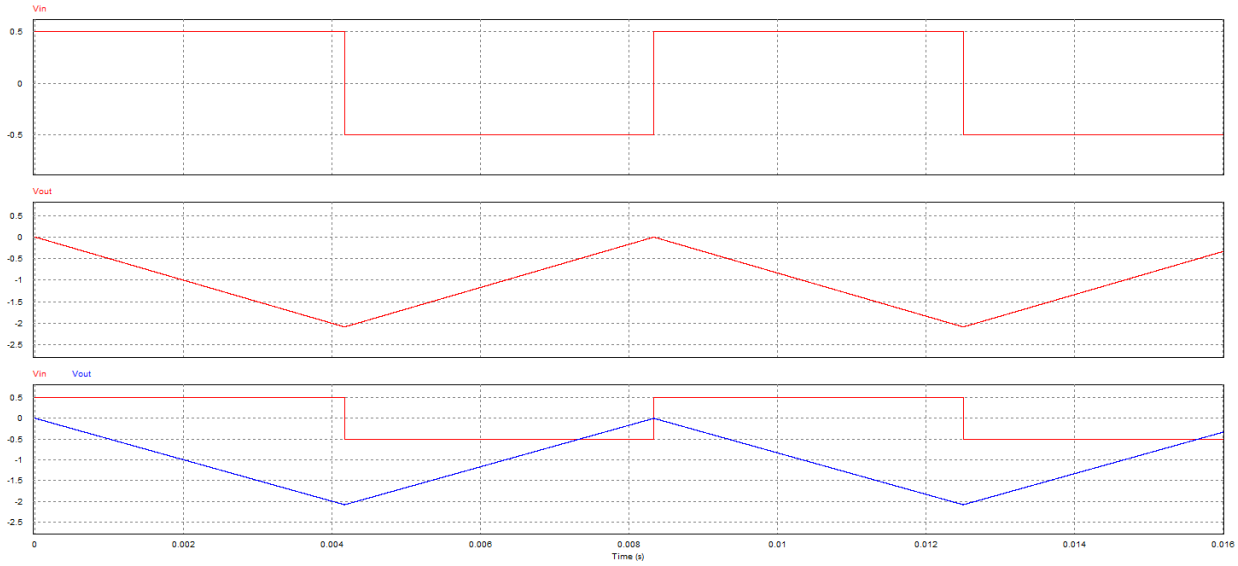


Vin2 = -5V

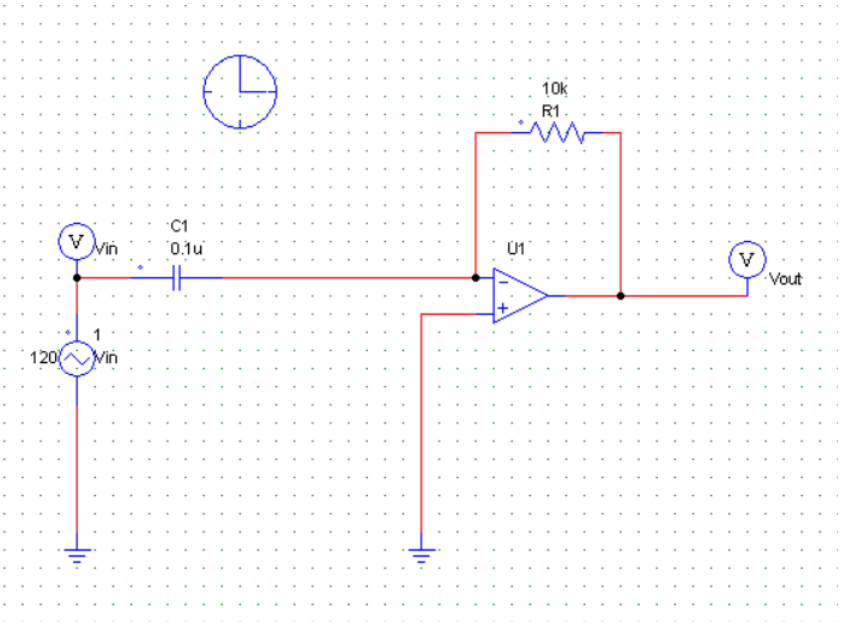


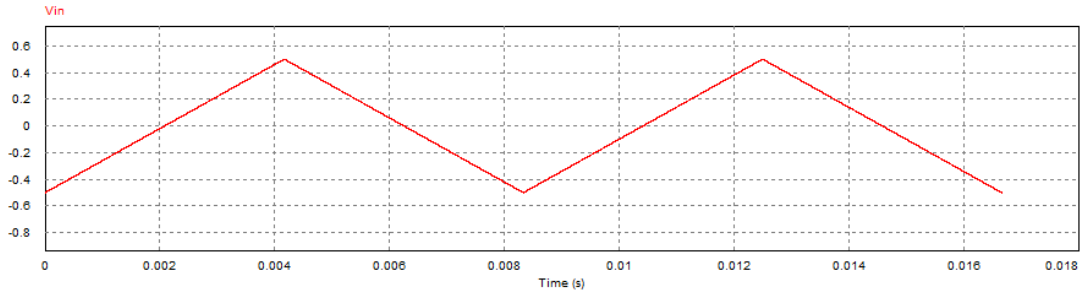
Task – 6

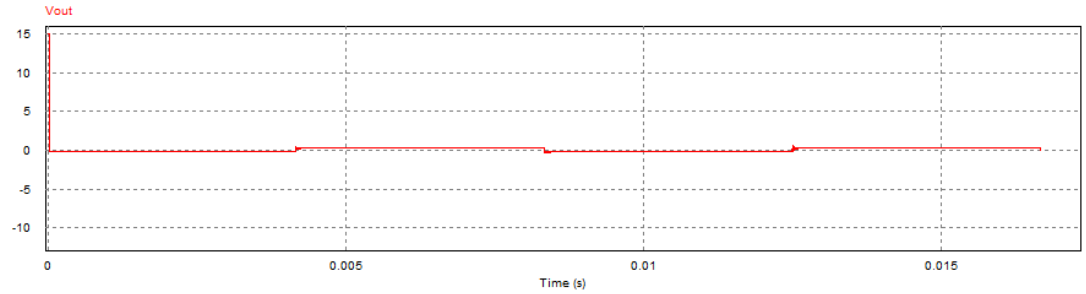

C1
0.1u
V
Vin
10k
R1
U1
V
Vout
1
120
Vin

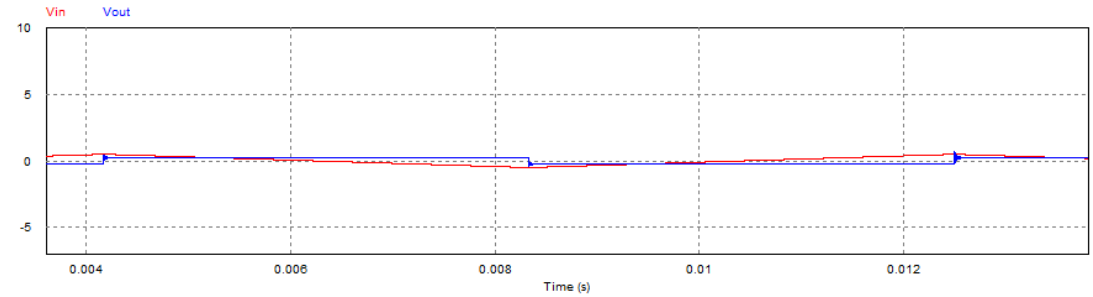

Vin
0.5
0
-0.5
Vout
0.5
0
-0.5
-1
-1.5
-2
-2.5
Vin
Vout
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
0.002
0.004
0.006
0.008
0.01
0.012
0.014
0.016
Time (s)

Task – 7


10k
R1
C1
0.1u
U1
Vin
Vout
1
120
Vin


Vin
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
0.002
0.004
0.006
0.008
0.01
0.012
0.014
0.016
0.018
Time (s)


Vout
15
10
5
0
-5
-10
0
0.005
0.01
0.015
Time (s)


Vin
Vout
10
5
0
-5
0.004
0.006
0.008
0.01
0.012
Time (s)