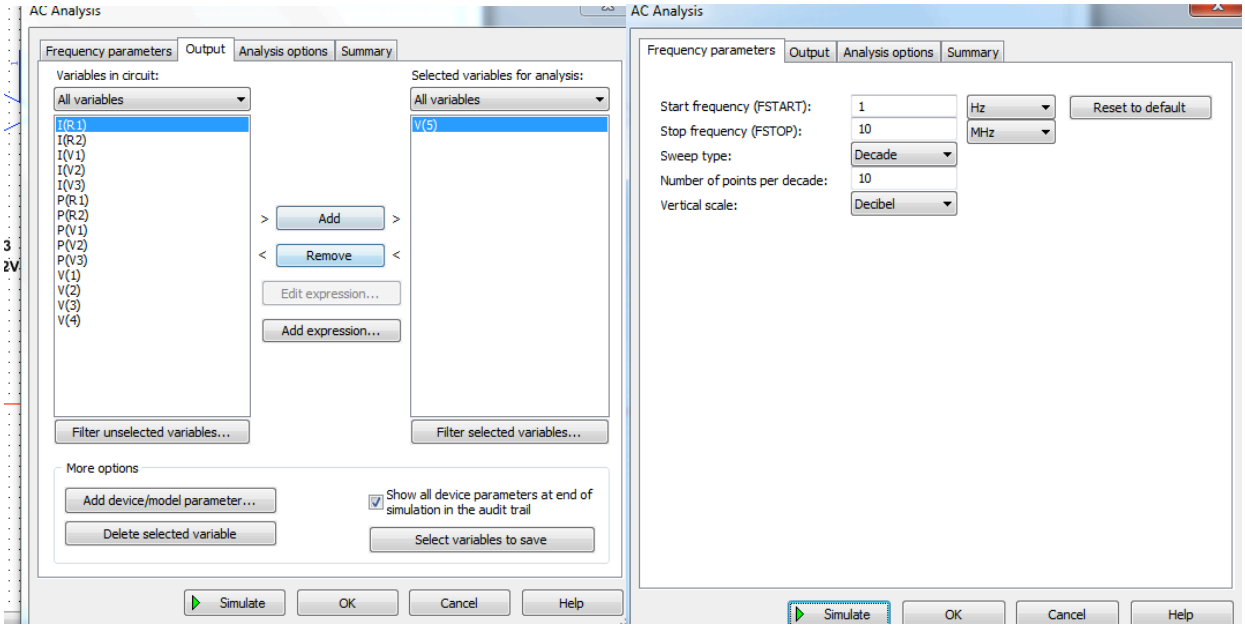
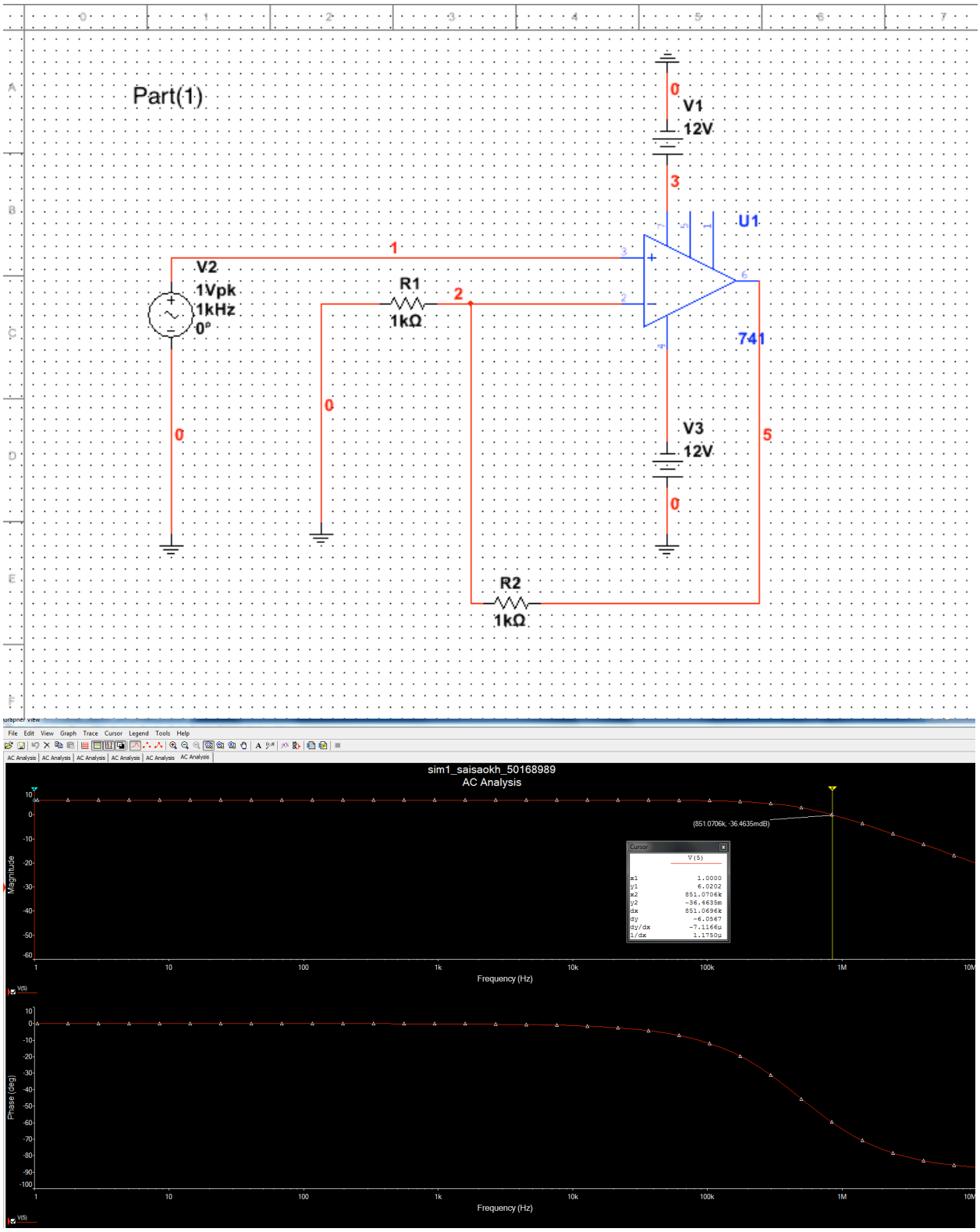
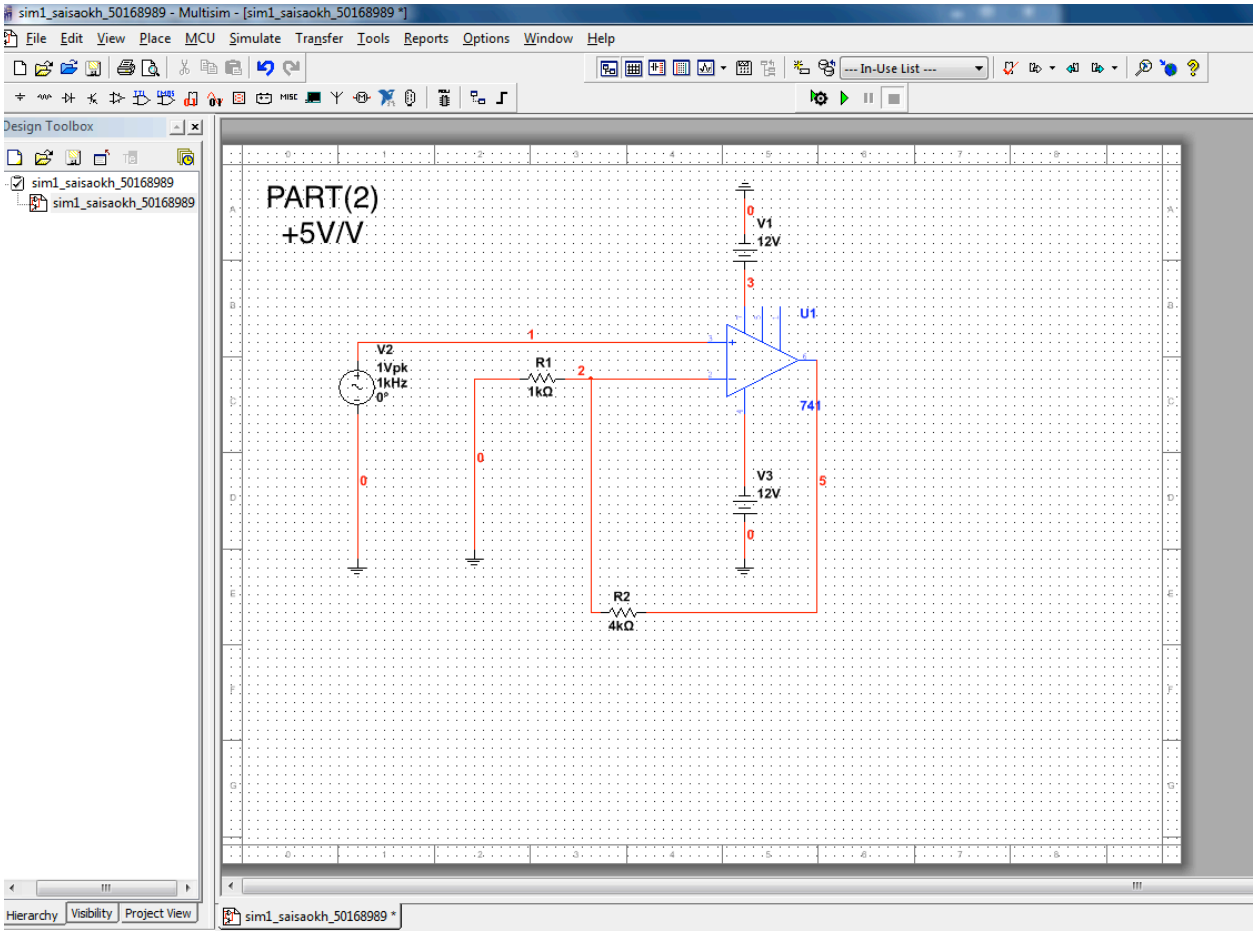
NAME: SAISAO KHAM(50168989)
INSTRUCTOR: PROFESSOR C.R.Wie
ASSIGNMENT: EE310 SIMULATION1
DUE DATE: 9/16/16 (Friday)
REC SESSION: R6

PART(2) A noninverting amplifier circuit with a DC gain





f0dB = 20 log(1) = 0 V/V

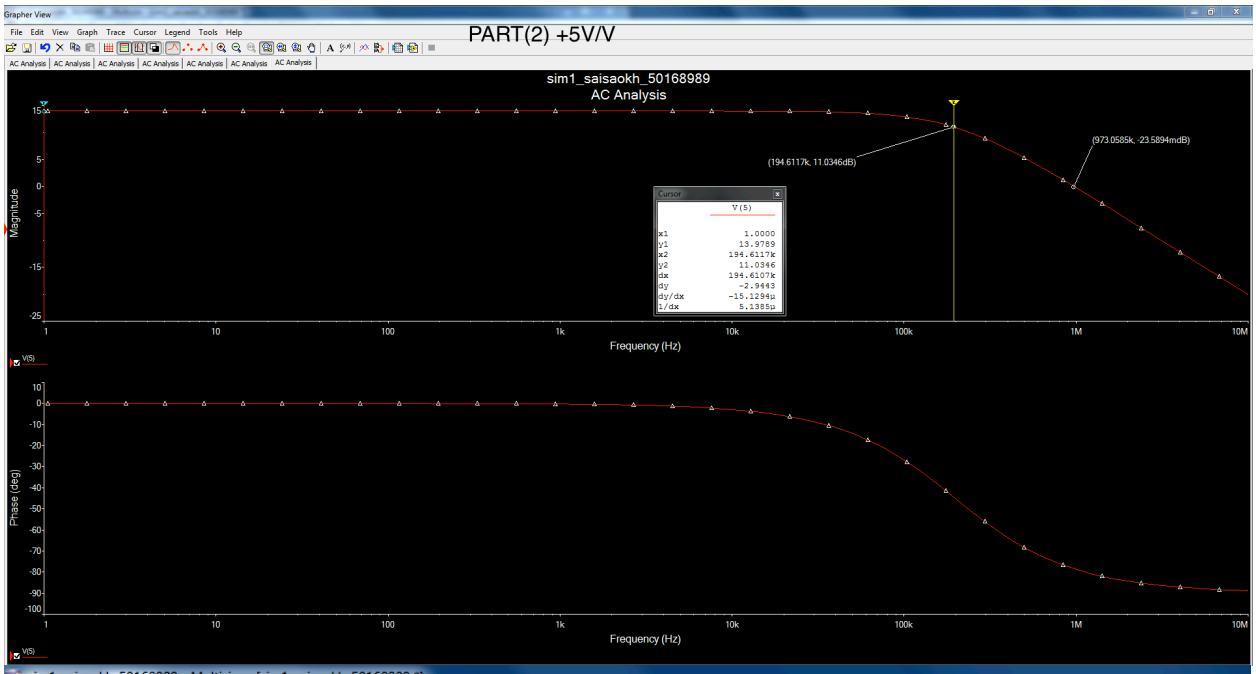


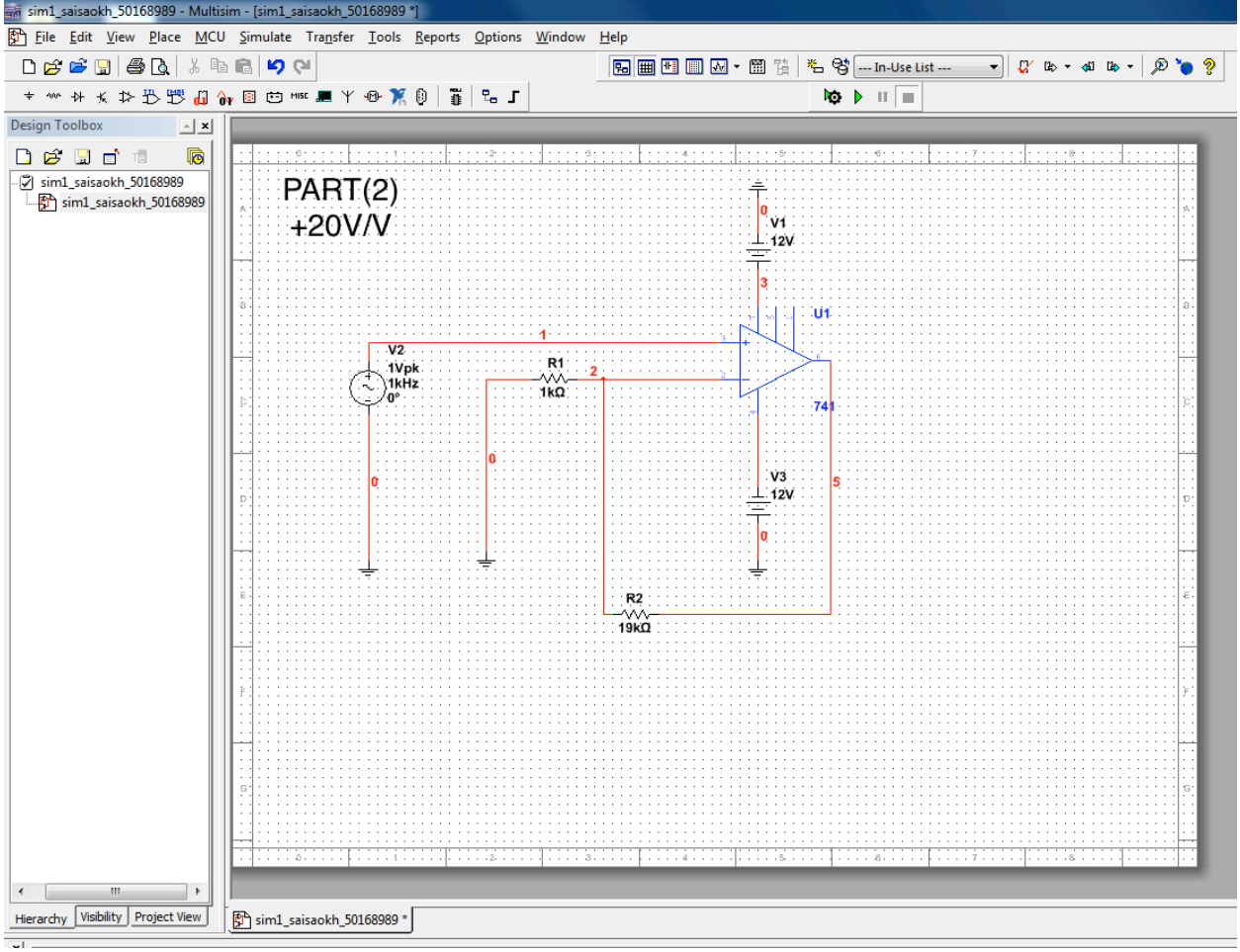
v0/vI = 1 + (RI/R2) = 1 + 4k /1k =5 v/v

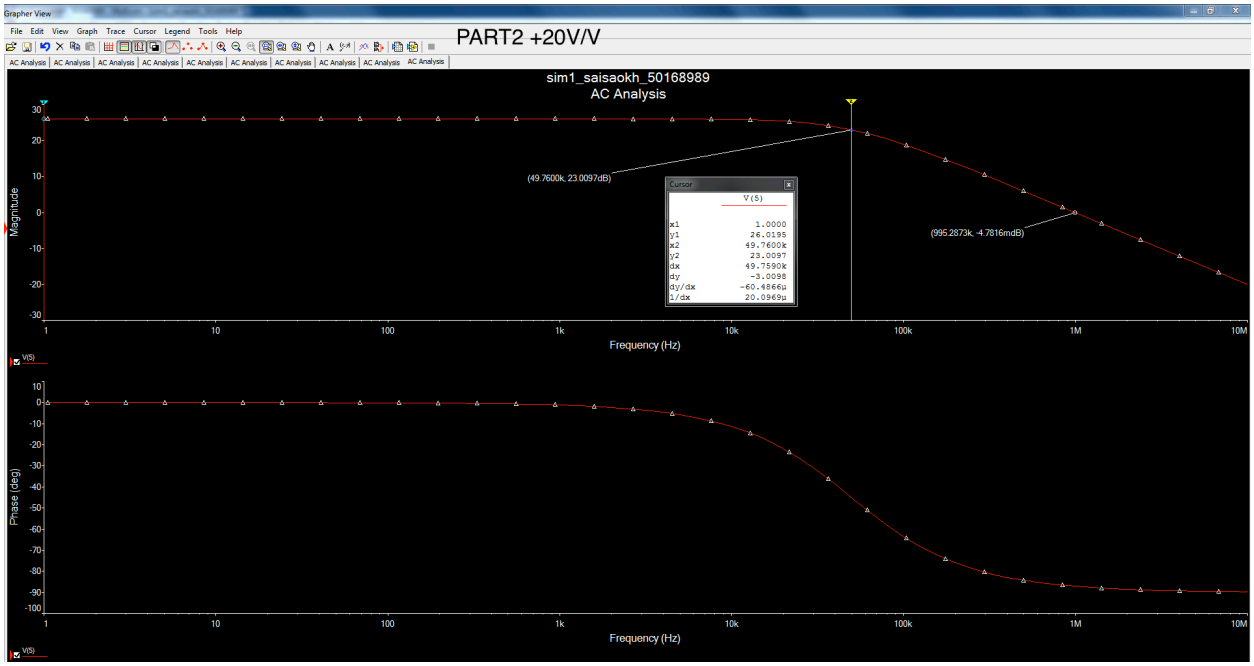
f0dB = 20 log(5) = 13.97

f-3dB = ft/(1+R2/R1)

f-3dB = 973.0585 / 5 = 194.617 k


PART(2) +5V/V
sim1_saisaokh_50168989
AC Analysis
(194.6117k, 11.0346dB)
(973.0585k, -23.5894mdB)
Magnitude
Frequency (Hz)
Phase (deg)
Frequency (Hz)


sim1_saisaokh_50168989 - Multisim - [sim1_saisaokh_50168989 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
--- In-Use List ---
Design Toolbox
sim1_saisaokh_50168989
sim1_saisaokh_50168989
PART(2)
+20V/V
V1
12V
U1
V2
1Vpk
1kHz
0°
R1
1kΩ
741
V3
12V
R2
19kΩ
Hierarchy
Visibility
Project View
sim1_saisaokh_50168989 *

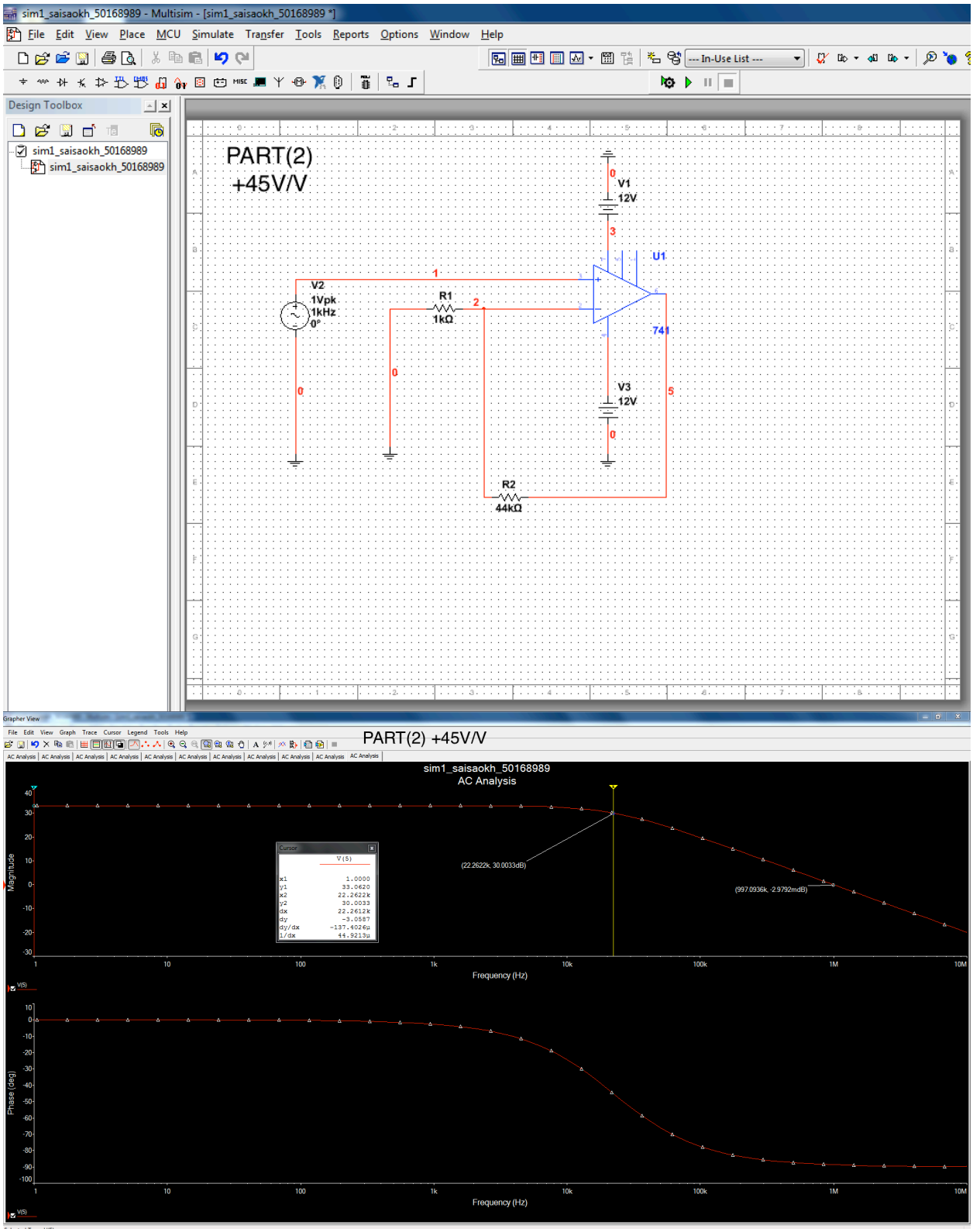


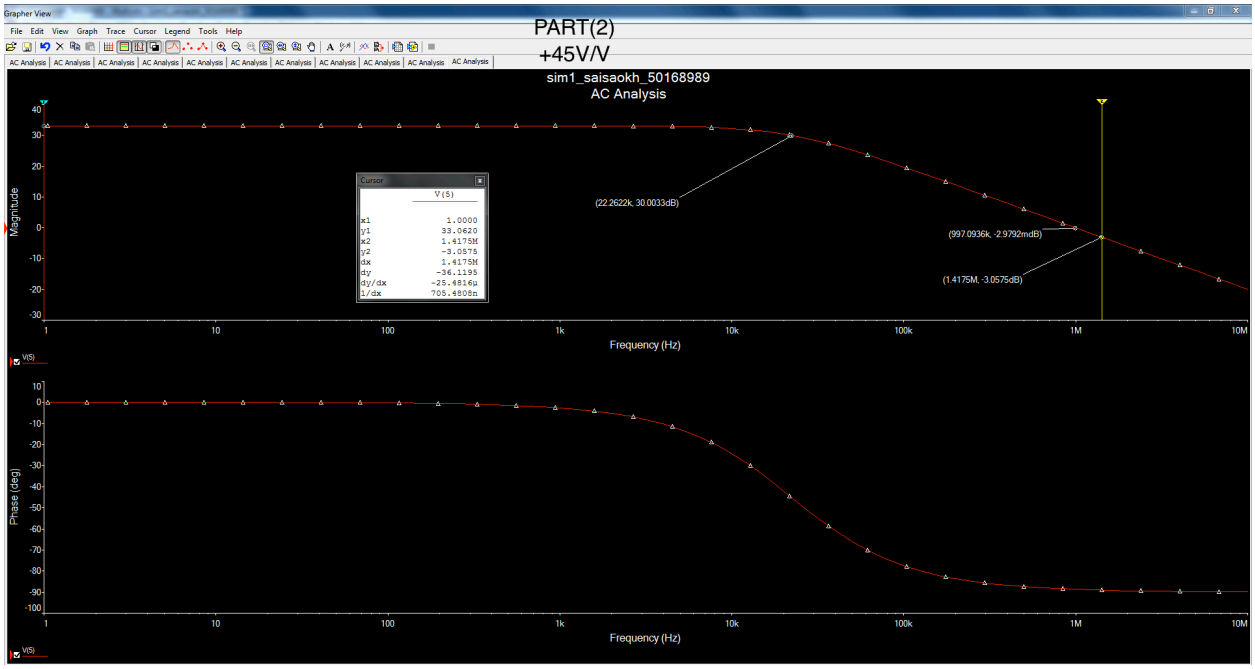
v0/vI = 1 + (RI/R2) = 1 + 19k /1k =20 v/v

f0dB = 20 log(20) = 26.02

f-3dB = ft/(1+R2/R1)

f-3dB = 995.2873 / 20 = 49.76 k


sim1_saisaokh_50168989 - Multisim - [sim1_saisaokh_50168989 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
--- In-Use List ---
Design Toolbox
sim1_saisaokh_50168989
sim1_saisaokh_50168989
PART(2)
+45V/V
V1
12V
V2
1Vpk
1kHz
0°
R1
1kΩ
U1
741
V3
12V
R2
44kΩ
0
1
2
3
5
Grapher View
PART(2) +45V/V
sim1_saisaokh_50168989
AC Analysis
Magnitude
Phase (deg)
Frequency (Hz)
(22.2622k, 30.0033dB)
(997.0936k, -2.9792mdB)
Cursor
V(5)
x1 1.0000
y1 33.0620
x2 22.2622k
y2 30.0033
dx 22.2612k
dy -3.0587
dy/dx -137.4026u
1/dx 44.9213u

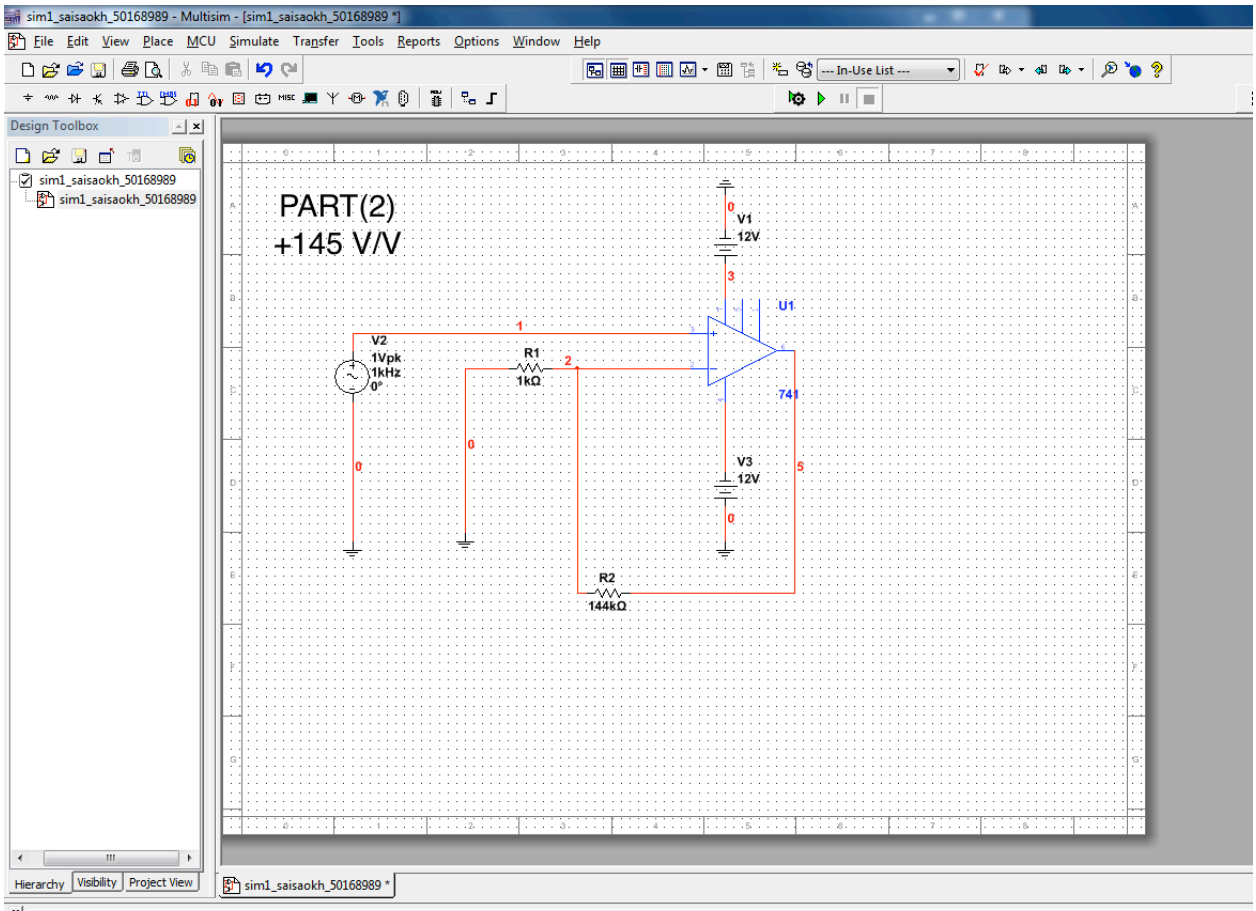


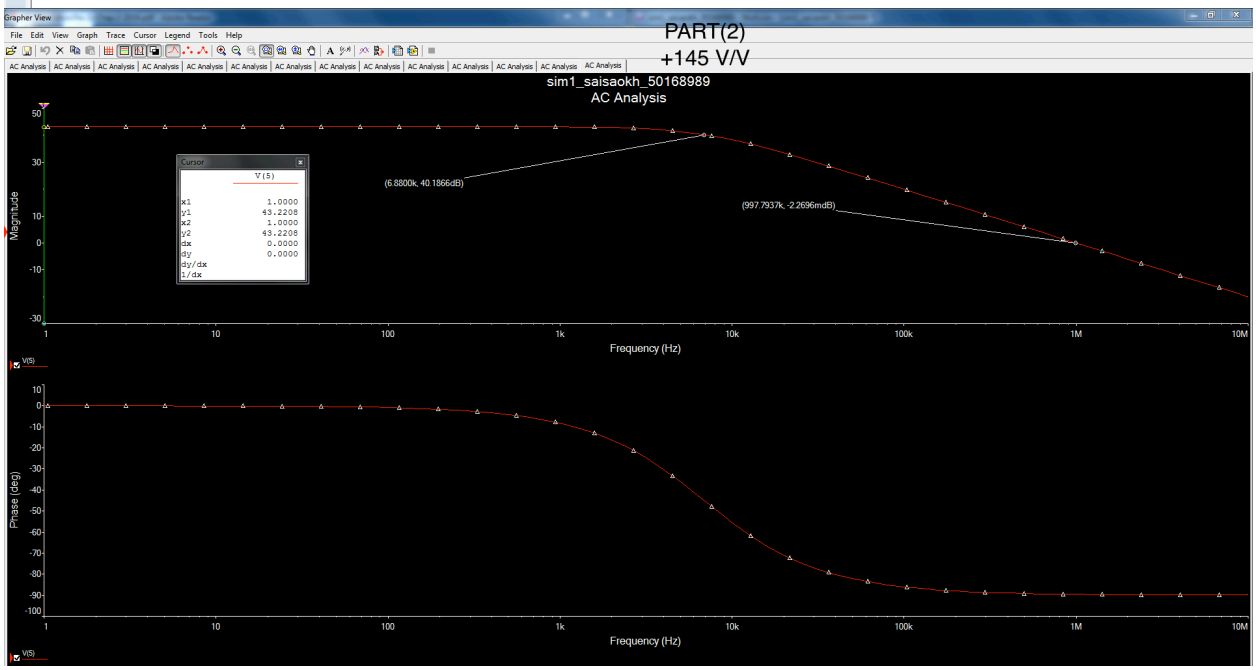
v0/vI = 1 + (RI/R2) = 1 + 44k /1k =45 v/v

f0dB = 20 log(45) = 33.06

f-3dB = ft/(1+R2/R1)

f-3dB = 997.036 / 45 = 22.157 k


sim1_saisaokh_50168989 - Multisim - [sim1_saisaokh_50168989 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
Design Toolbox
sim1_saisaokh_50168989
sim1_saisaokh_50168989
PART(2)
+145 V/V
V1
12V
V2
1Vpk
1kHz
0°
R1
1kΩ
U1
741
V3
12V
R2
144kΩ
Hierarchy
Visibility
Project View
sim1_saisaokh_50168989 *
Multisim - Thursday, September 08, 2016, 8:58:55 AM

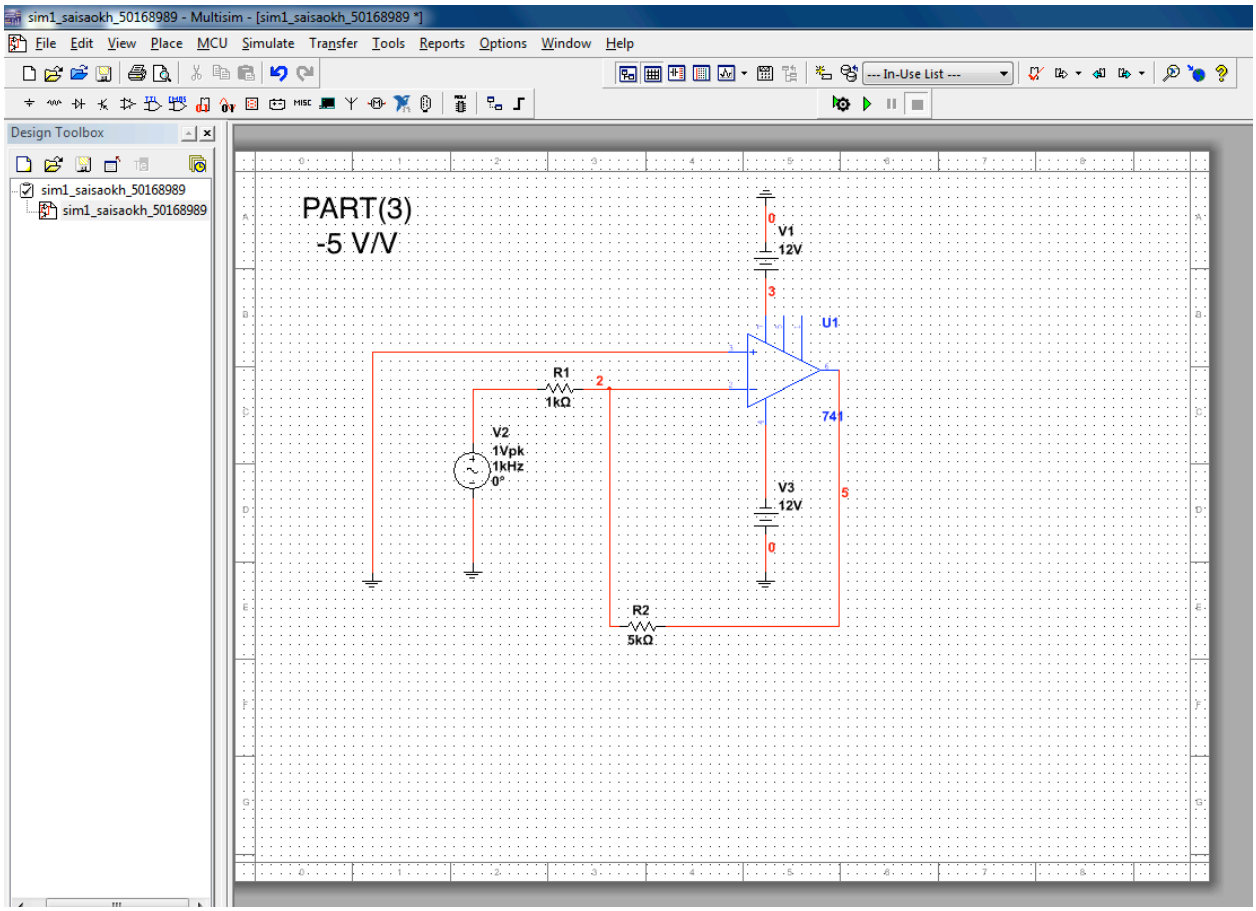

Grapher View
PART(2)
+145 V/V
sim1_saisaokh_50168989
AC Analysis
Cursor
(6.8800k, 40.1866dB)
(997.7937k, -2.2696mdB)
Magnitude
Frequency (Hz)
Phase (deg)
Frequency (Hz)

v0/vI = 1 + (RI/R2) = 1 + 144k /1k =145 v/v

f0dB = 20 log(145) = 43.227

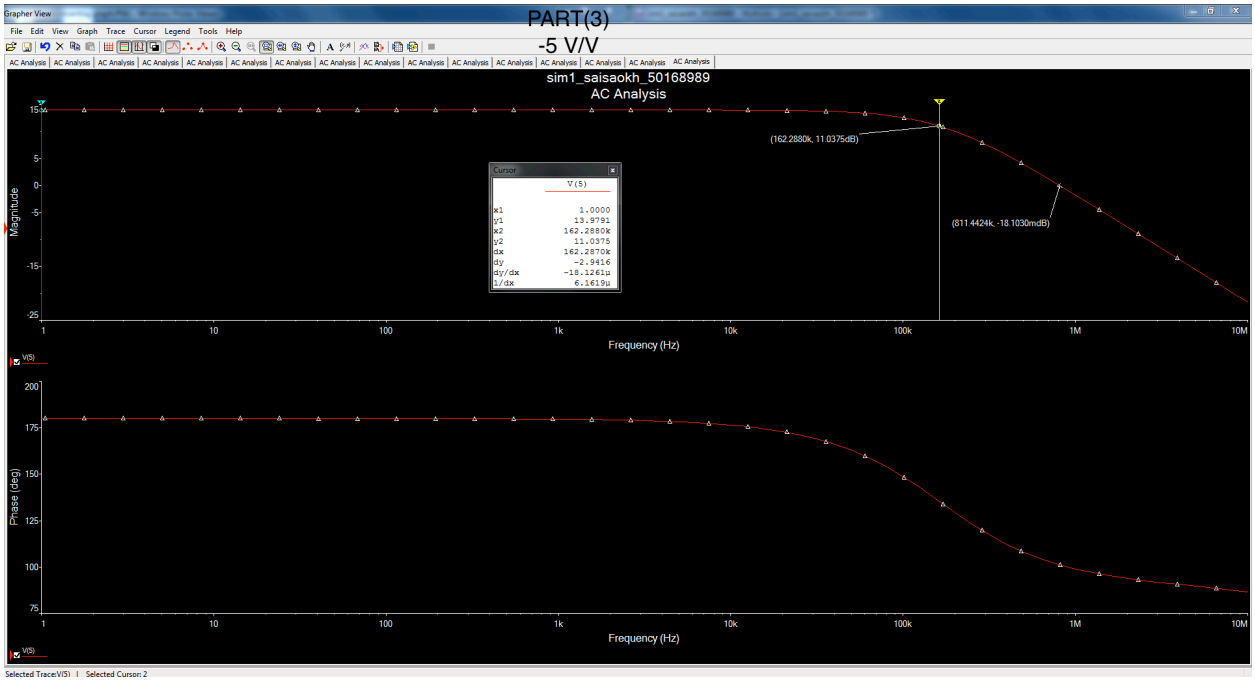
f-3dB = ft/(1+R2/R1)

f-3dB = 997.793 / 145 = 6.881 k



PART(3)

-5 V/V

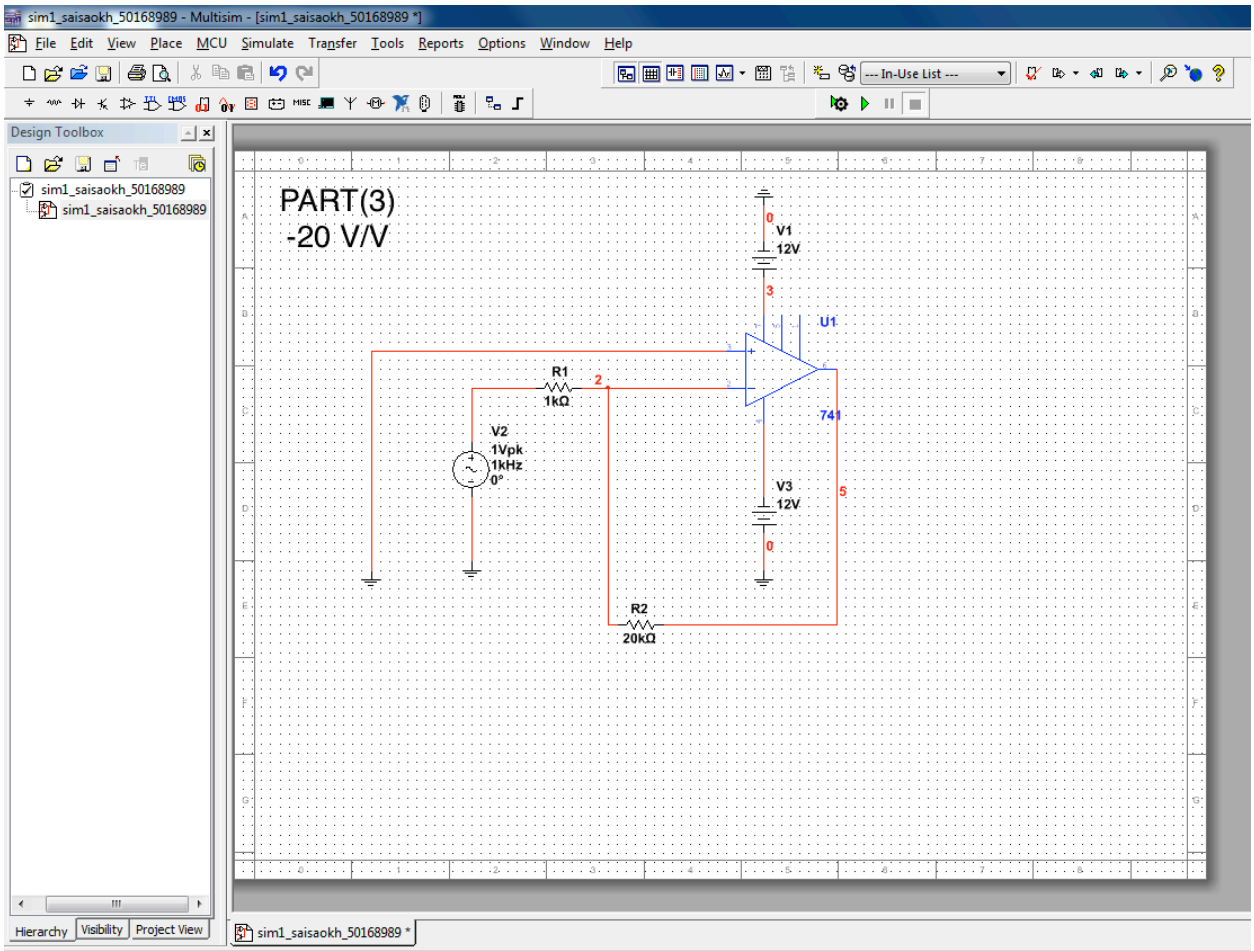


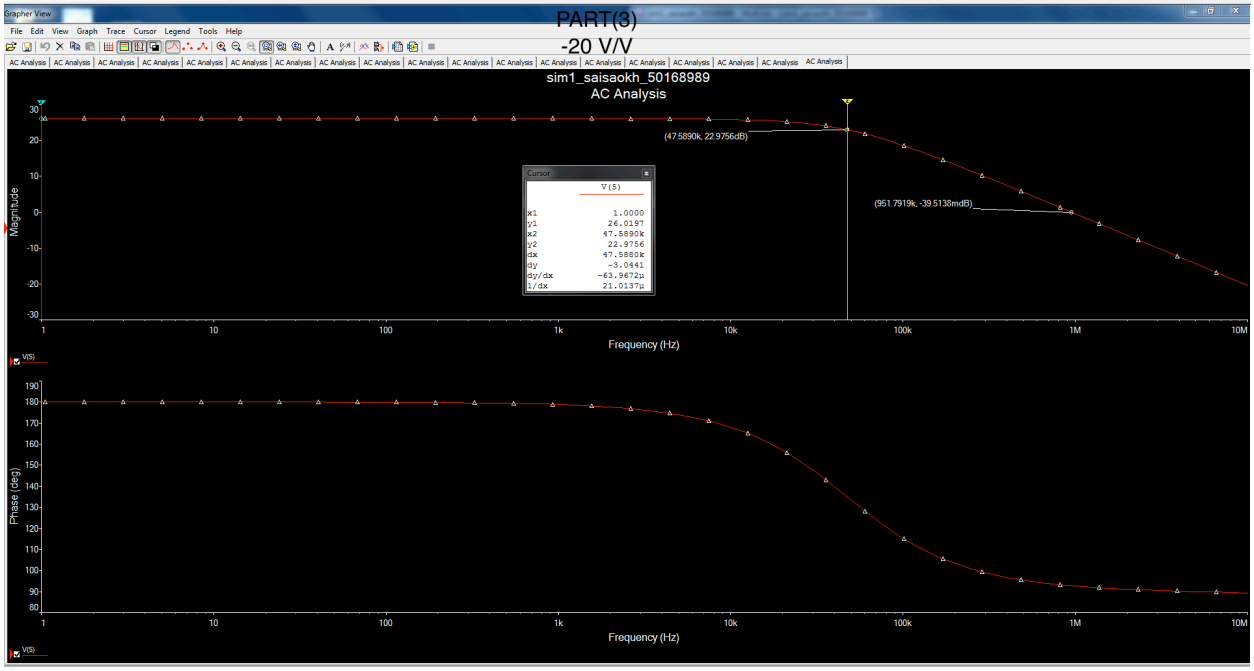
v0/vI = - (RI/R2) = -5k /1k = -5 v/v

f0dB = 20 log(-5) = 13.97

f-3dB = ft/(R2/R1)

f-3dB = 811.442 / 5 = 162.2884 k


sim1_saisaokh_50168989 - Multisim - [sim1_saisaokh_50168989 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
--- In-Use List ---
Design Toolbox
sim1_saisaokh_50168989
sim1_saisaokh_50168989
PART(3)
-20 V/V
V1
12V
U1
R1
1kΩ
V2
1Vpk
1kHz
0°
741
V3
12V
R2
20kΩ
Hierarchy
Visibility
Project View
sim1_saisaokh_50168989 *

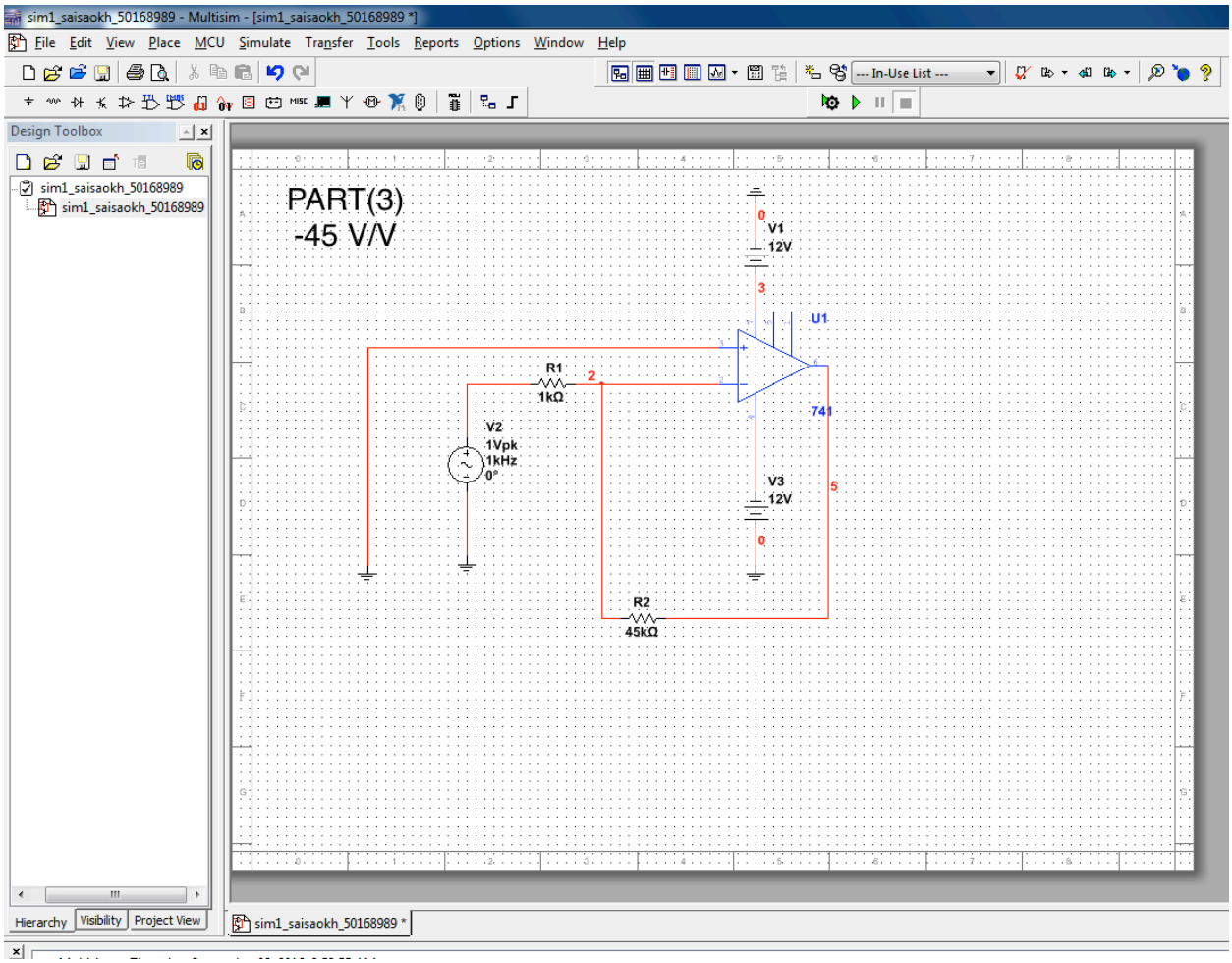

PART(3)
-20 V/V
sim1_saisaokh_50168989
AC Analysis
(47.5890k, 22.9756dB)
(951.7919k, -39.5138mdB)
Magnitude
Frequency (Hz)
Phase (deg)
Frequency (Hz)

v0/vI = - (RI/R2) = -20k /1k = -20 v/v

f0dB = 20 log(-20) = 26.02

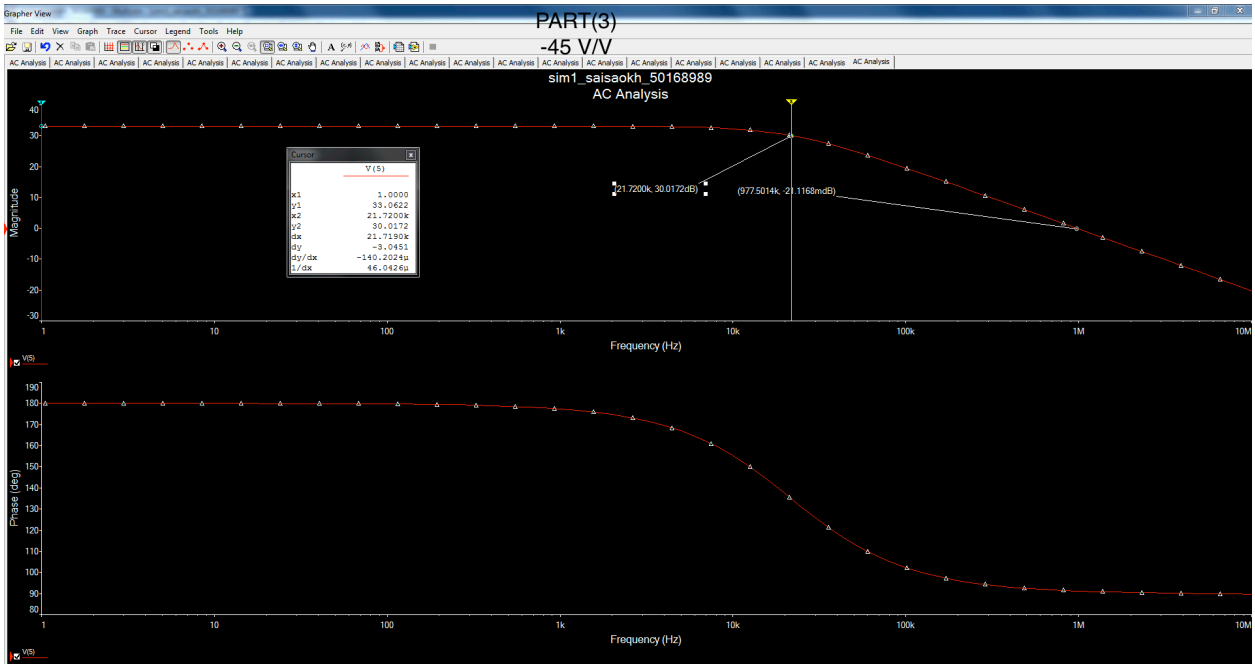
f-3dB = ft/(R2/R1)

f-3dB = 951.79 / 20 = 47.5895 k



PART(3)

-45 V/V

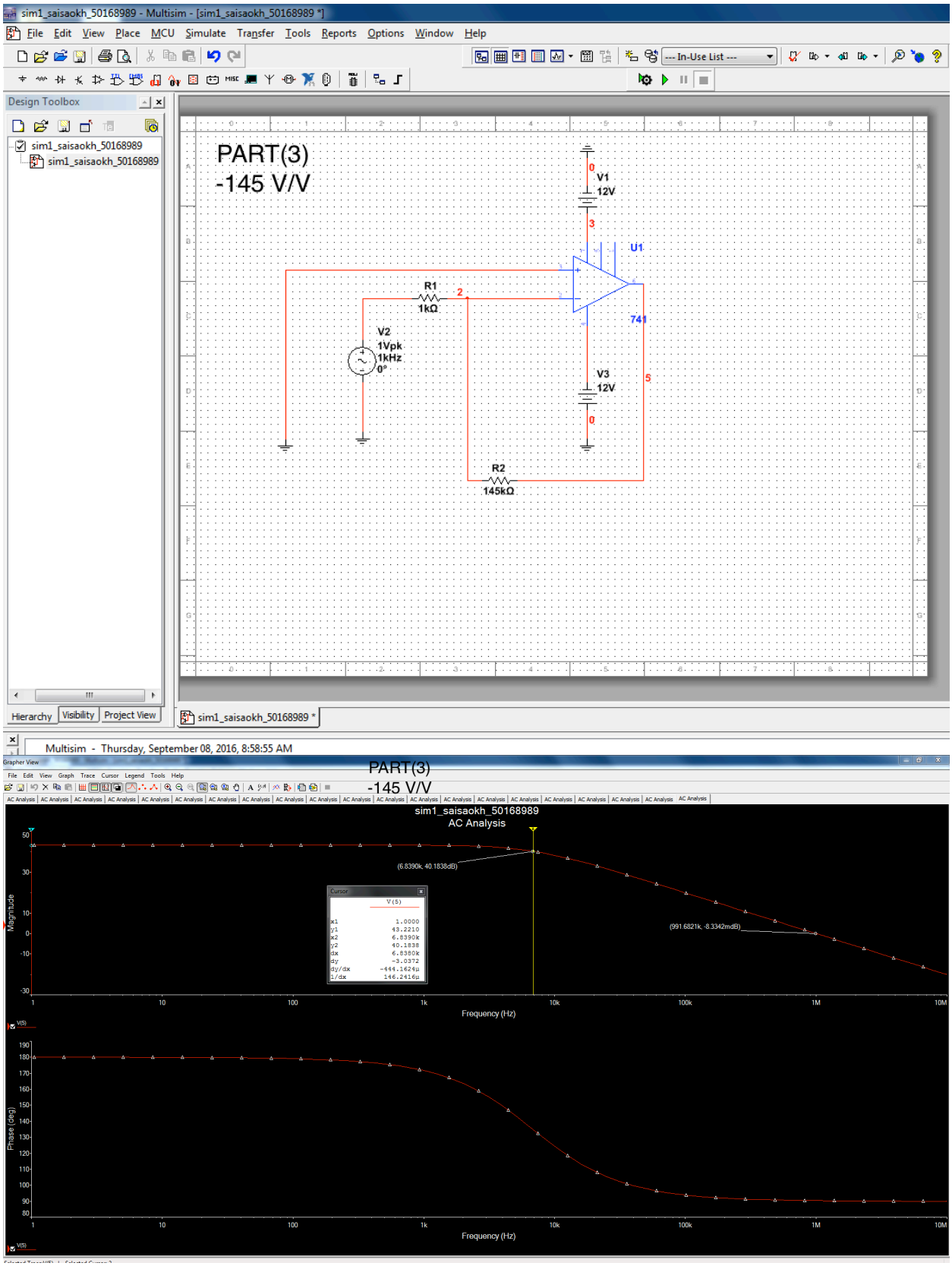


v0/vI = - (RI/R2) = -45k /1k = -45 v/v

f0dB = 20 log(-45) = 33.06

f-3dB = ft/(R2/R1)

f-3dB = 977.501 / 45 = 21.722 k


sim1_saisaokh_50168989 - Multisim - [sim1_saisaokh_50168989 *]
File Edit View Place MCU Simulate Transfer Tools Reports Options Window Help
Design Toolbox
sim1_saisaokh_50168989
sim1_saisaokh_50168989
PART(3)
-145 V/V
V1
12V
U1
R1
1kΩ
V2
1Vpk
1kHz
0°
741
V3
12V
R2
145kΩ
Hierarchy
Visibility
Project View
sim1_saisaokh_50168989 *
Multisim - Thursday, September 08, 2016, 8:58:55 AM
PART(3)
-145 V/V
sim1_saisaokh_50168989
AC Analysis
(6.8390k, 40.1838dB)
(991.6821k, -8.3342mdB)
Magnitude
Frequency (Hz)
Phase (deg)
Frequency (Hz)

$v0/vI = - (RI/R2) = -145k /1k = -145 v/v$

$f0dB = 20 \log(-145) = 43.227$

$f\text{-}3dB = ft/(R2/R1)$

$f\text{-}3dB = 991.682/ 145 = 6.839 k$