



## ***Electronics and Communications Department***

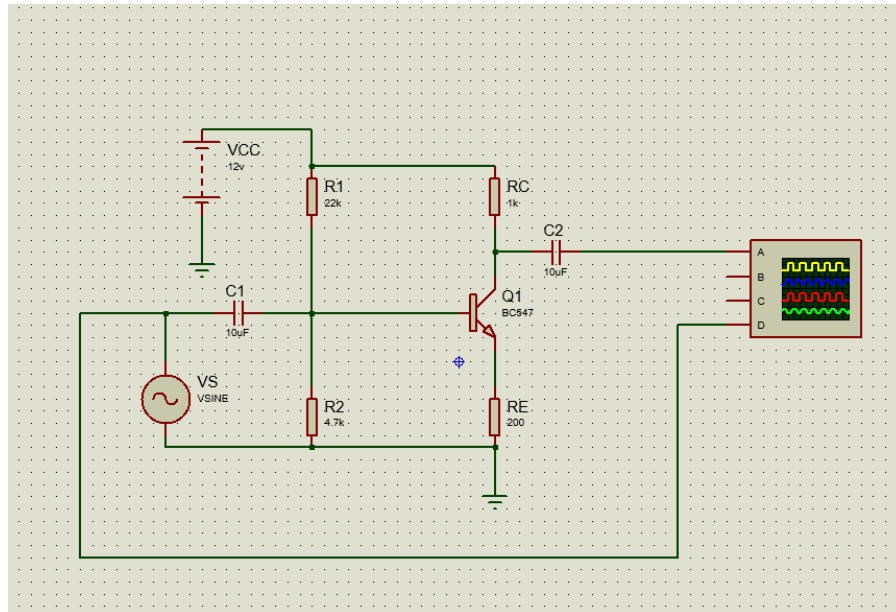
### **LAB 2&3 Notes**

### **FREQUENCY RESPONSE**

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- **Part 1: Frequency response of Single-Stage CE Amplifier**

- **Circuit:**



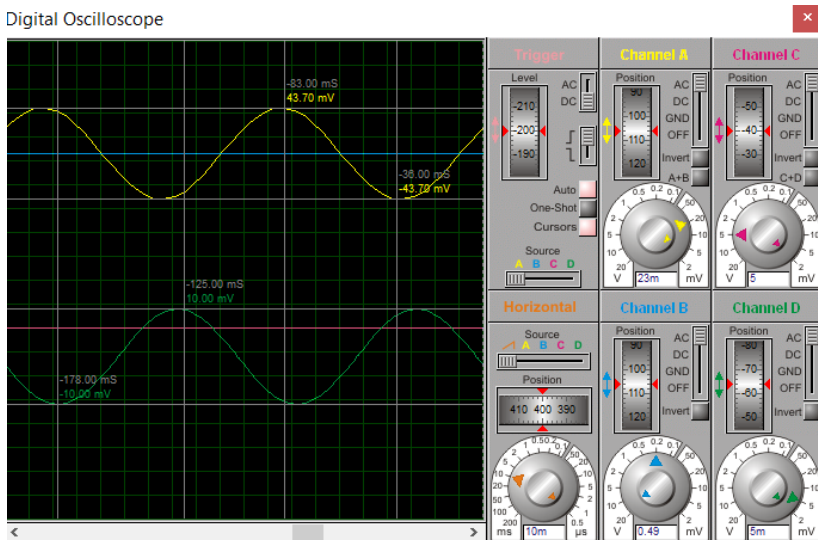
- **at Frequency= 10 Hz:**

output Voltage=43.88 mV

Voltage Gain=43.88/10=4.388

Gain in dB=12.8 dB

Digital Oscilloscope



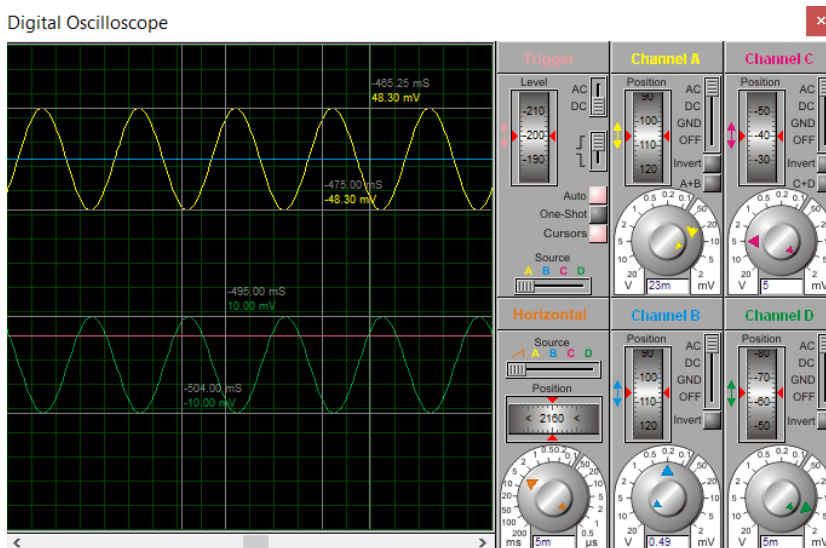
- at Frequency= 50 Hz:

output Voltage=48.38 mV

Voltage Gain=48.38/10=4.838

Gain in dB=13.7 dB

Digital Oscilloscope

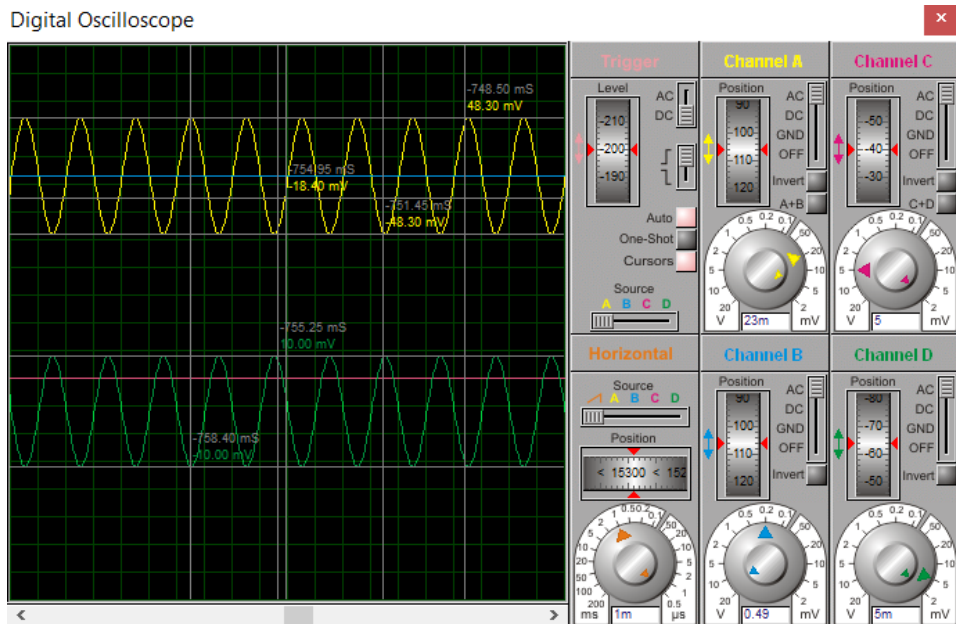


- at Frequency= 500 Hz:

output Voltage=48.38 mV

Voltage Gain=48.38/10=4.838

Gain in dB=13.7 dB

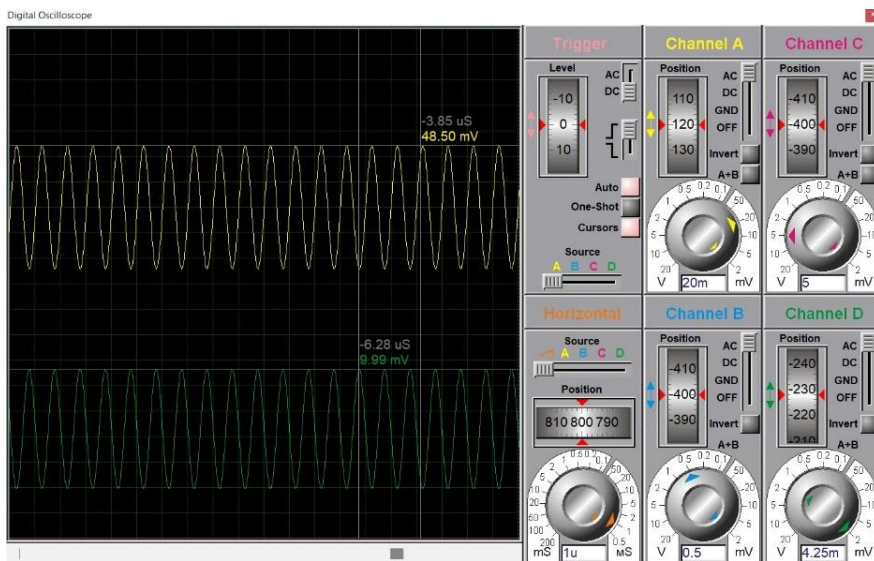


- **at Frequency= 1 MHz:**

output Voltage=48.5 mV

Voltage Gain=48.5/10=4.85

Gain in dB=13.71 dB

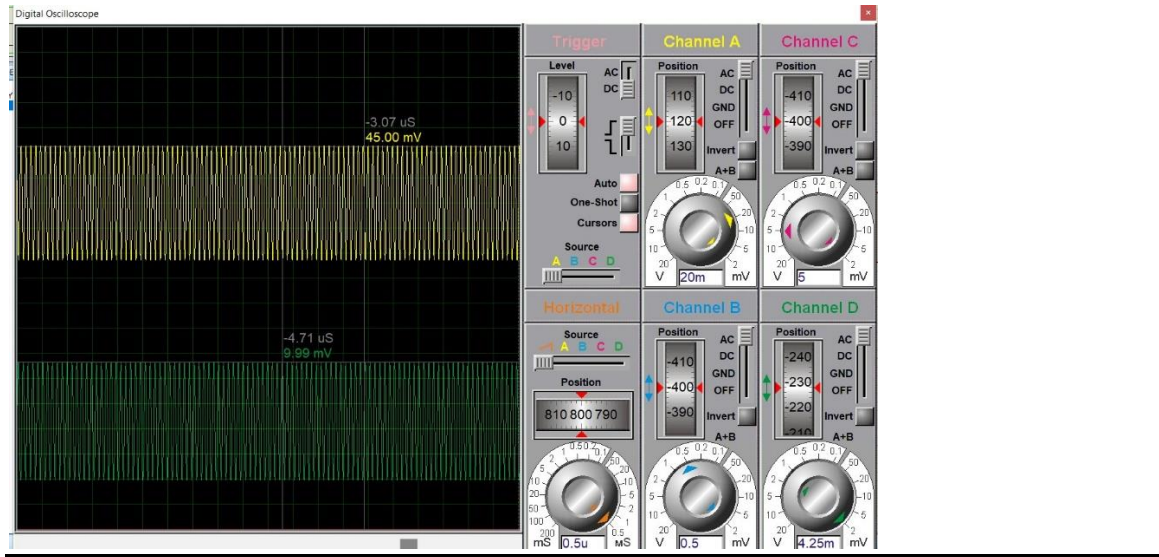


- **at Frequency= 10 MHz:**

output Voltage=45 mV

Voltage Gain=4.5

Gain in dB=13.06 dB

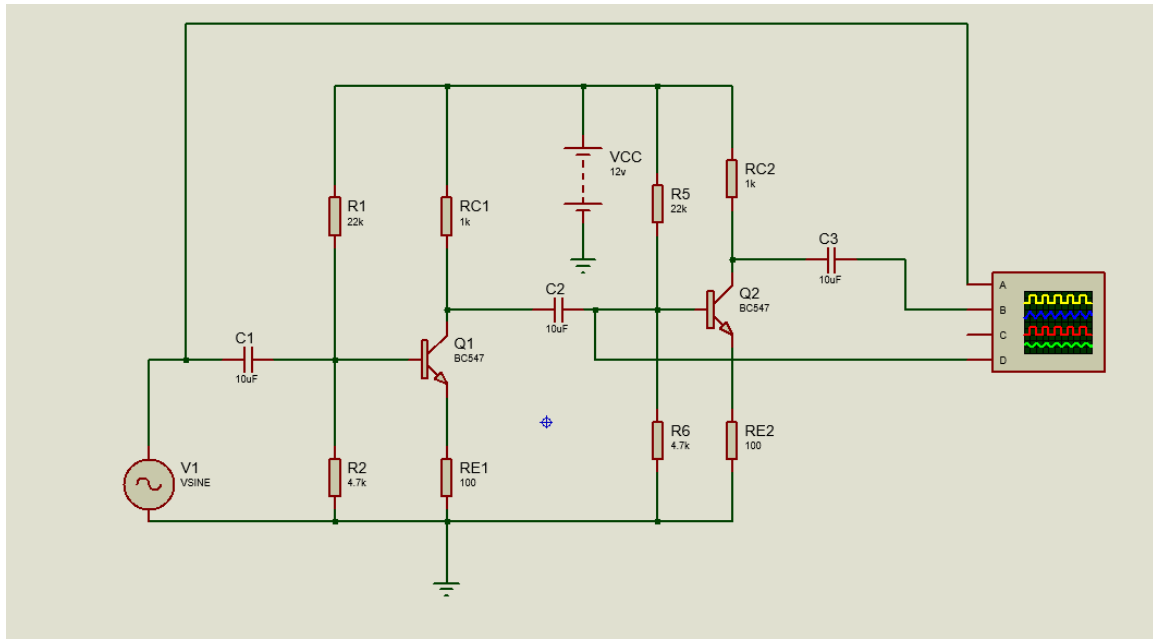


○ **Table:**

Frequency (Hz)	Vout (mV)	Gain	Gain in dB
10 Hz	43.88 mV	4.388	12.8 dB
50 Hz	48.38 mV	4.838	13.7 dB
500 Hz	48.38 mV	4.838	13.7 dB
1 MHz	48.5 mV	4.5	13.71 dB
10 MHz	45 mV	4.5	13.06 dB

- **Part 2: Frequency response of Two-Stage CE Amplifier**

- **Circuit:**



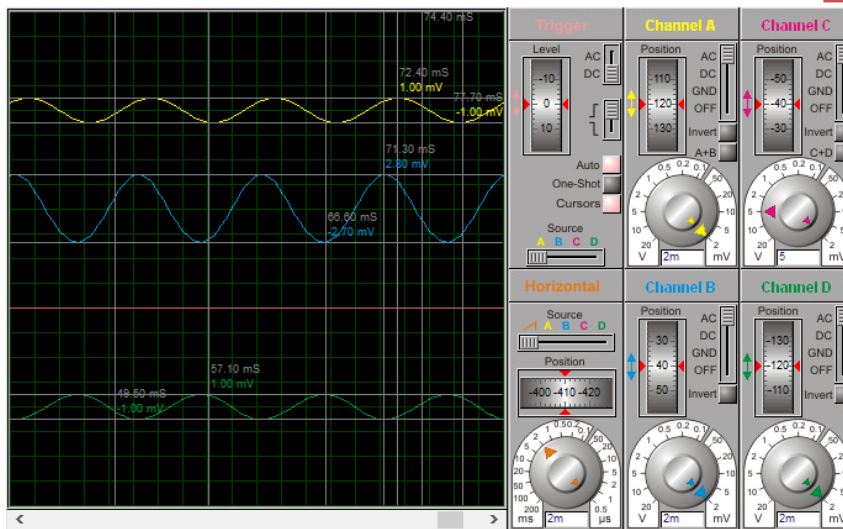
- **at Frequency= 100 Hz:**

output Voltage  $V_3 = 2.80 \text{ mV}$

Voltage gain  $V_3/V_1 = 2.8$

Gain in dB = 8.9 dB

Digital Oscilloscope



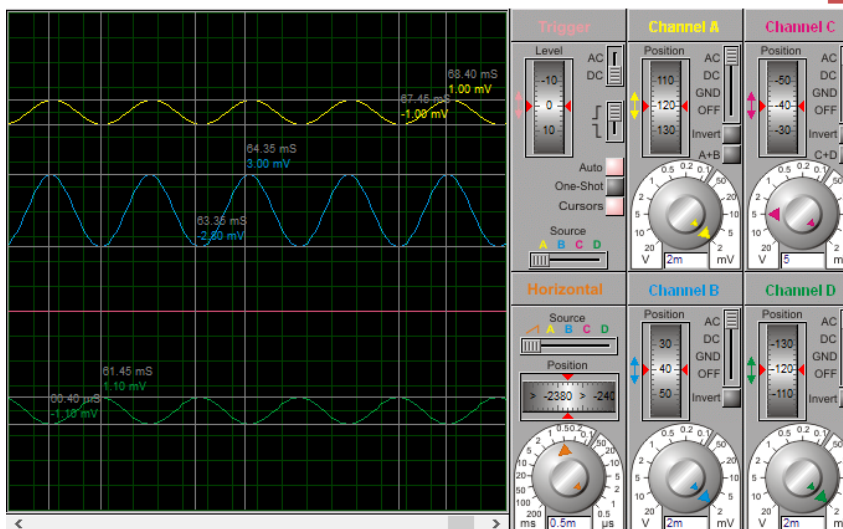
- at Frequency =500 Hz:

output Voltage  $V_3=3$  mV

Voltage Gain  $V_3/V_1=3$

Gain in dB=9.5 dB

Digital Oscilloscope



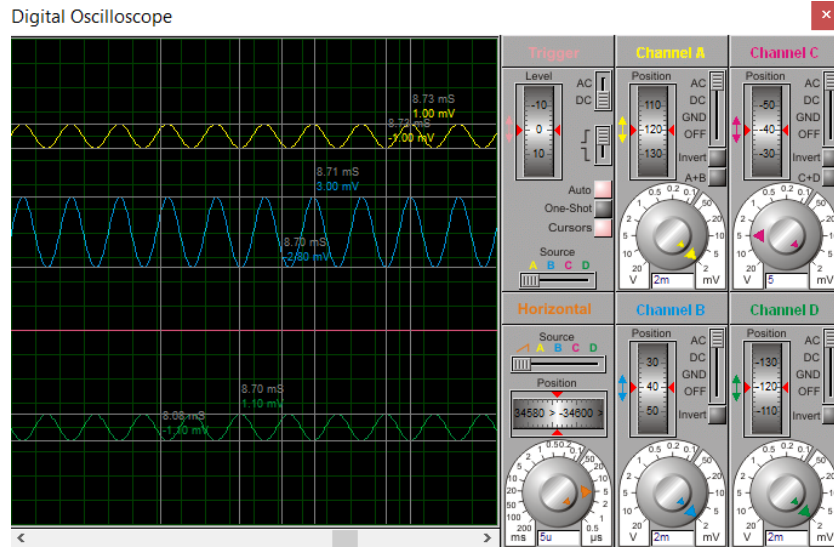


- at Frequency=100 KHz:

output Voltage  $V_3=3\text{ mV}$

Voltage Gain  $V_3/V_1=3$

Gain in dB=9.5 dB

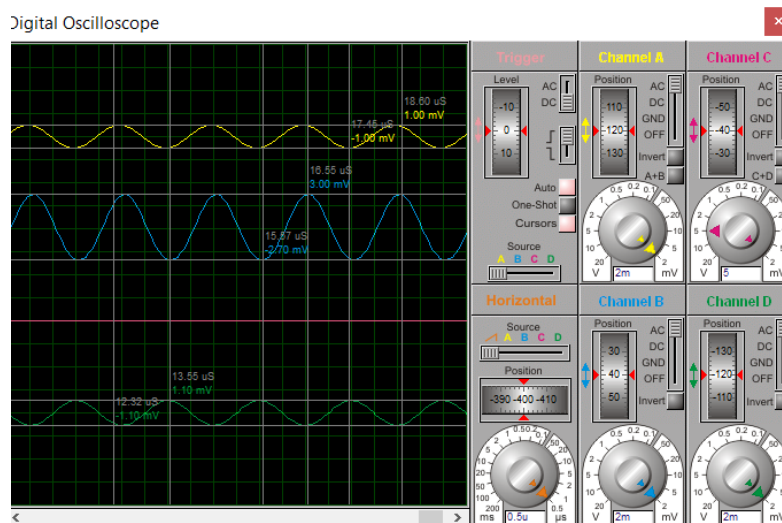


- at Frequency =500 KHz:

output Voltage  $V_3=3\text{ mV}$

Voltage Gain=3

Gain in dB=9.5 dB

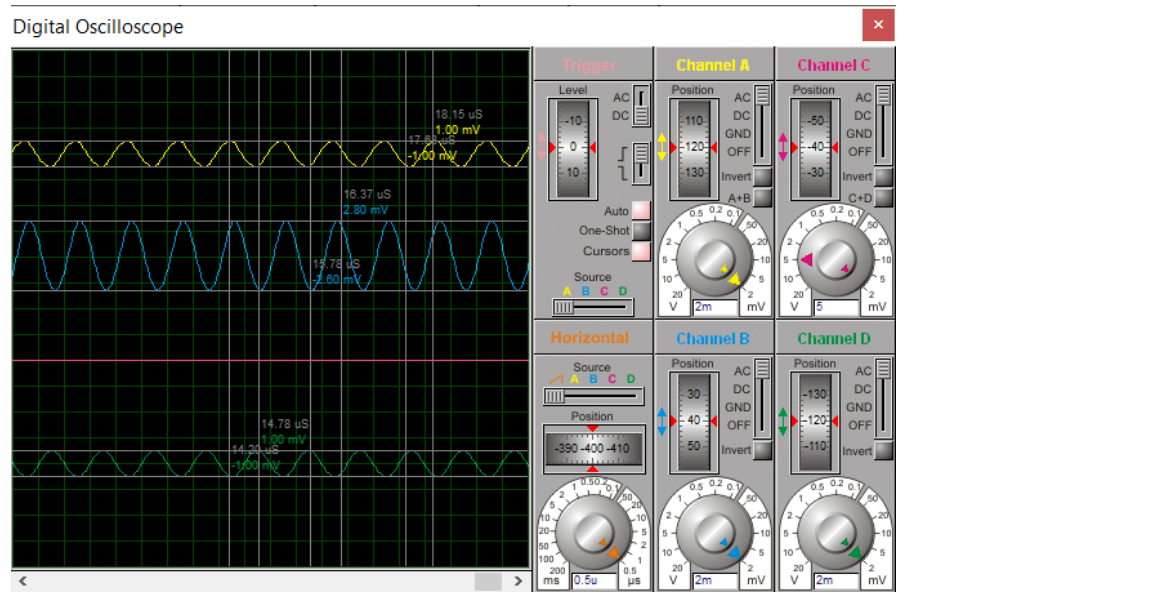


- at Frequency= 1MHz:

output Voltage  $V_3=2.8 \text{ mV}$

Voltage Gain  $V_3/V_1=2.80$

Gain in dB=8.9 dB



- **Table:**

Frequency (Hz)	Output Voltage $V_3$ (mV)	Gain	Gain in dB
100 Hz	2.80 mV	2.8	8.9 dB
500 Hz	3 mV	3	9.5 dB
100 KHz	3 mV	3	9.5 dB
500 KHz	3 mV	3	9.5 dB
1 MHz	2.80 mV	2.8	8.9 dB