

Experiment No. I.

Aim:- To analyse and sketch frequency response of cascade RE amplifier

Date of performance- 9/1/20

~~20~~ Date of correction:- 20 23/1/20

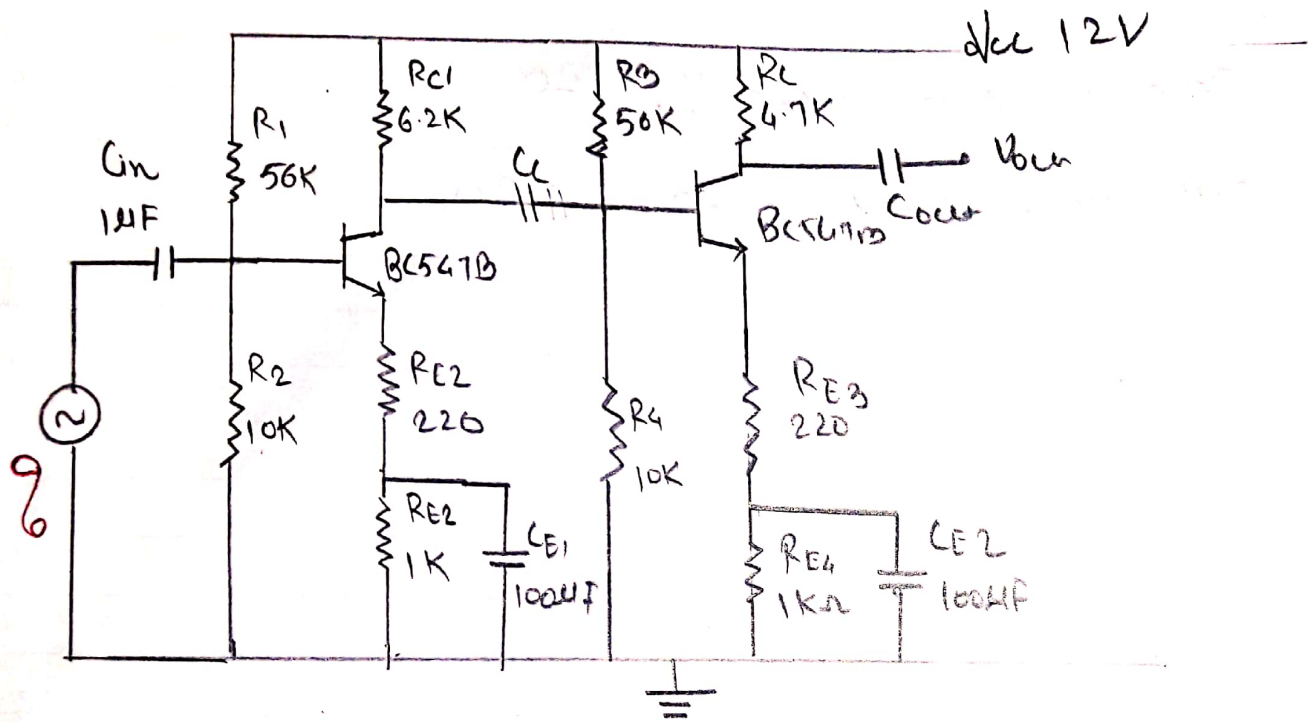
10
10

gibson
23/1/2020

Sumit Sanyal

Roll No:- 52

Sumit Sakpai



Experiment No. 1.

9/11/20

Frequency Response of Cascade Amplifier.

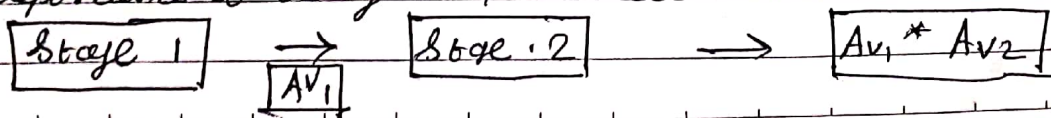
Aim:- To analyze and sketch frequency response of Cascaded RC amplifier.

Requirements:- DC power supply 0-30V, 0-2A Variable, Function generator, CRO, transistor BC 547B, bread board, resistors, capacitors, digital multimeter, connecting wires, probes.

Theory:- The A popular connection of amplifier stages is the cascade connection. A cascade connection is a series connection with output of one stage applied as the input to the second stage. The output of one stage applied as the input to the second stage. The cascade connection increases the bandwidth (BW) of the amplifier and also provides a multiplication of the gain of each individual stage for a larger overall gain. As overall voltage gain $A_v = A_{v1} * A_{v2}$

Functions of multistage amplifier are to obtain the desired characteristics of amplifier in terms of its input impedance, output impedance, voltage gain and current gain.

An RC Coupled two stage cascade amplifier the drop in gain at low frequencies is due to the increasing reactance of C_{out} , C_E and C_{in} while its upper frequency limit is determined by both the parasitic capacitive elements of network and frequency dependence of the gain of the active device.



$$V_{in} = 20\text{mV}$$

$$20 \log_{10} A_v$$

Sr NO	Frequency (Hz)	Output Voltage V_o	Gain A_v	Gain in dB $A_v (\text{dB})$
1	10	2 V	100	40
2	20	4 V	200	46.02
3	50	4.2 V	210	46.44
4	100	4.4 V	220	46.84
5	200	4.6 V	230	47.23
6	500	4.6 V	230	47.23
7	700	4.6 V	230	47.23
8	1K	4.6 V	230	47.23
9	2K	4.6 V	230	47.23
10	5K	4.6 V	230	47.23
11	7K	4.6 V	230	47.23
12	10K	4.6 V	230	47.23
13	20K	4.6 V	230	47.23
14	50K	4.6 V	230	47.23
15	70K	4.6 V	230	47.23
16	100K	4.6 V	230	47.23
17	200K	4.6 V	230	47.23
18	500K	4.4 V	220	46.84
19	700K	4.2	210	46.02
20	1M	4	200	40

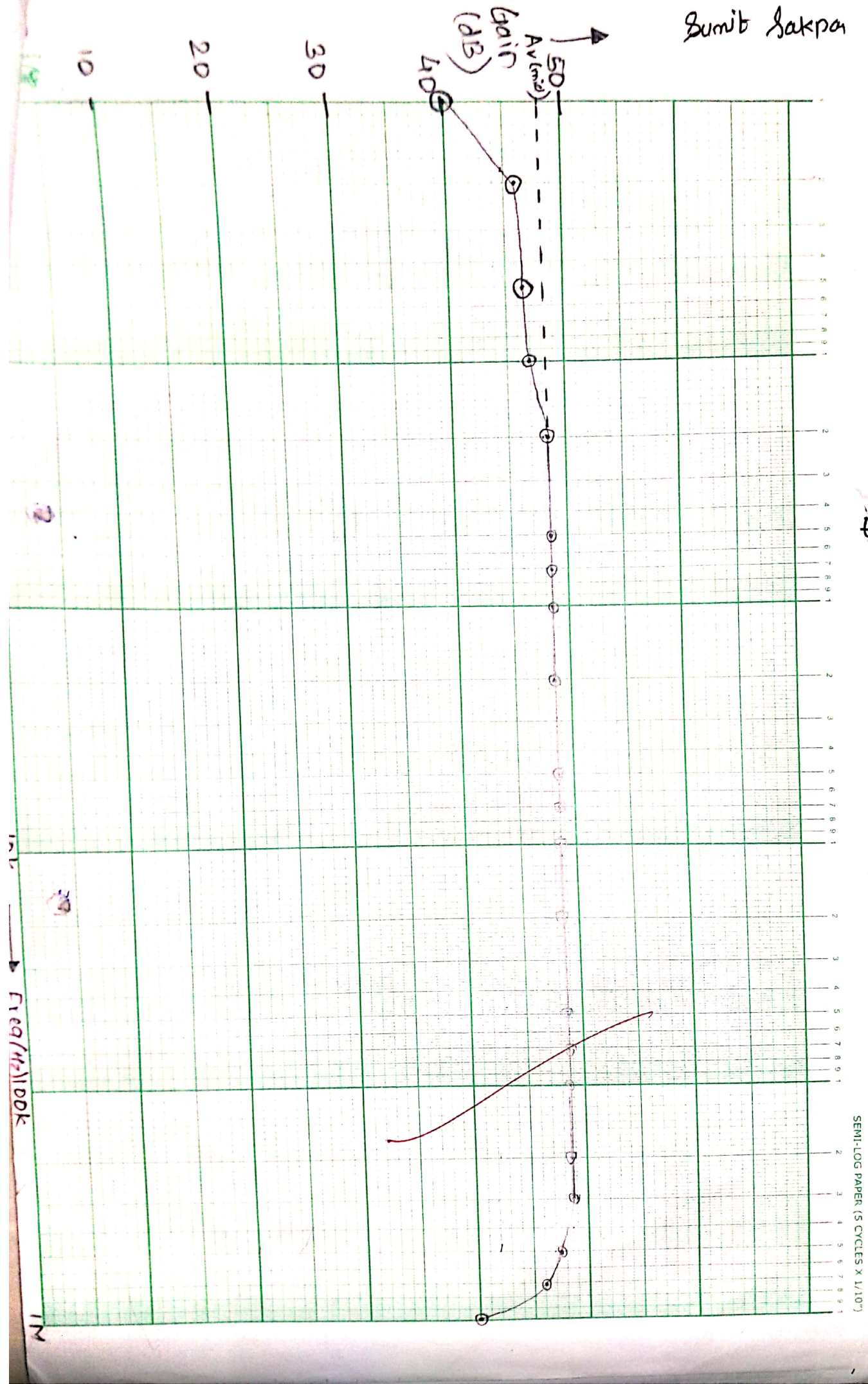
Procedure:-

- Connect the circuit as shown in the fig. 1
- Verify the connections
- Switch on the DC power supply.
- Without applying signal from the function generator we measure I_{C1} and V_{C1} . This will be the Q point for the stage 1. Similarly measure I_{C2} & V_{C2} . This will be the Q point for the stage 2.
- Adjust sinusoidal input voltage to 20mV using function generator and CRO
- Vary the signal input frequency and note down the corresponding output voltage V_o . Keep input signal constant for each frequency at 20mV.
- Plot voltage gain (A_v) & voltage gain in dB for each reading

Conclusion:- We observe that drop in gain at low frequency is due to C_E & C_{in} .

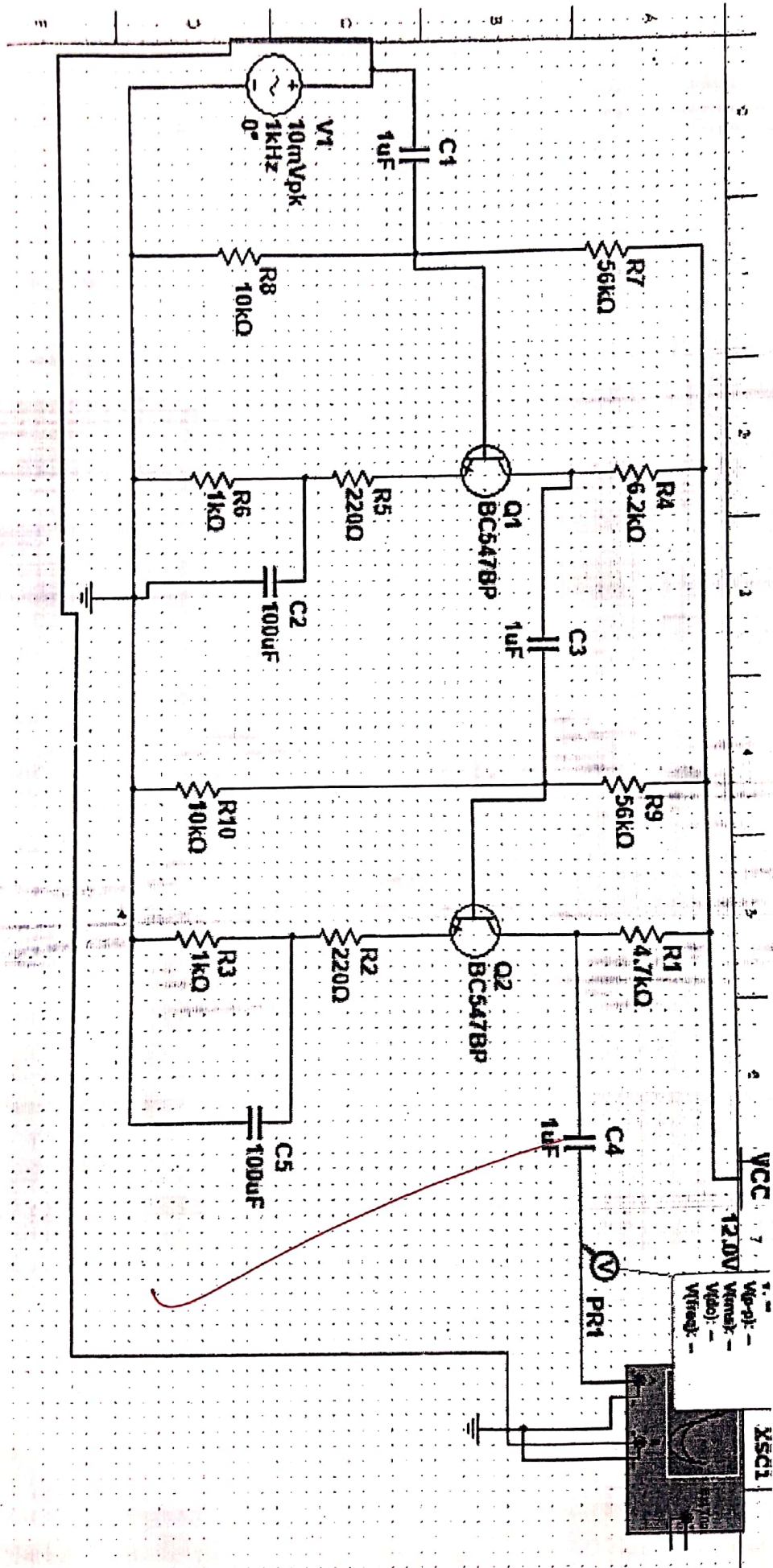
Expt 1 :- Frequency Response of CC network

Sumit Sakpa



Sumit Bupral

EXPERIMENT 1: CE-CE CASCADE



Sumit Sukpa

EXPERIMENT 1 : CE-CE CASCADE

