Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

LAB REPORT

Course No : **EEE-2142**

Course Title : **Electronics Device & Circuits Lab**

Experiment No : **07**

Experiment Name : Frequency Response of a CE (Common Emitter) Amplifier Circuit and Measurement of Input and Output Impedance.

Submitted By-

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Department : **CSE**

Section : **B (B2)**

Group No : **06**

Date of Performance : **08/09/2020**

Date of Submission : **14/09/2020**

Experiment No: 07

Name of the Experiment:

Frequency Response of a CE (Common Emitter) Amplifier Circuit And Measurement of Input And Output Impedance.

Objective:

Study of the Frequency Response of a CE (common Emitter) Amplifier Circuit And Measurement of Input And Output Impedance.

Equipments And Components:

Serial no.	Component Details	Specification	Quantity
1.	Transistor	C828	1 piece
2.	Resistor	100Ω, 560Ω, 1KΩ, 33KΩ, 100KΩ	1 piece each
3.	POT	10 KΩ	1 unit
4.	Capacitor	10 μF, 47 μF	2 pieces, 1 piece
5.	Trainer Board		1 unit
6.	DC Power Supply		1 unit
7.	Oscilloscope		1 unit
8.	Digital Multimeter		1 unit
9.	Chords and wire		as required

Experimental Setup :

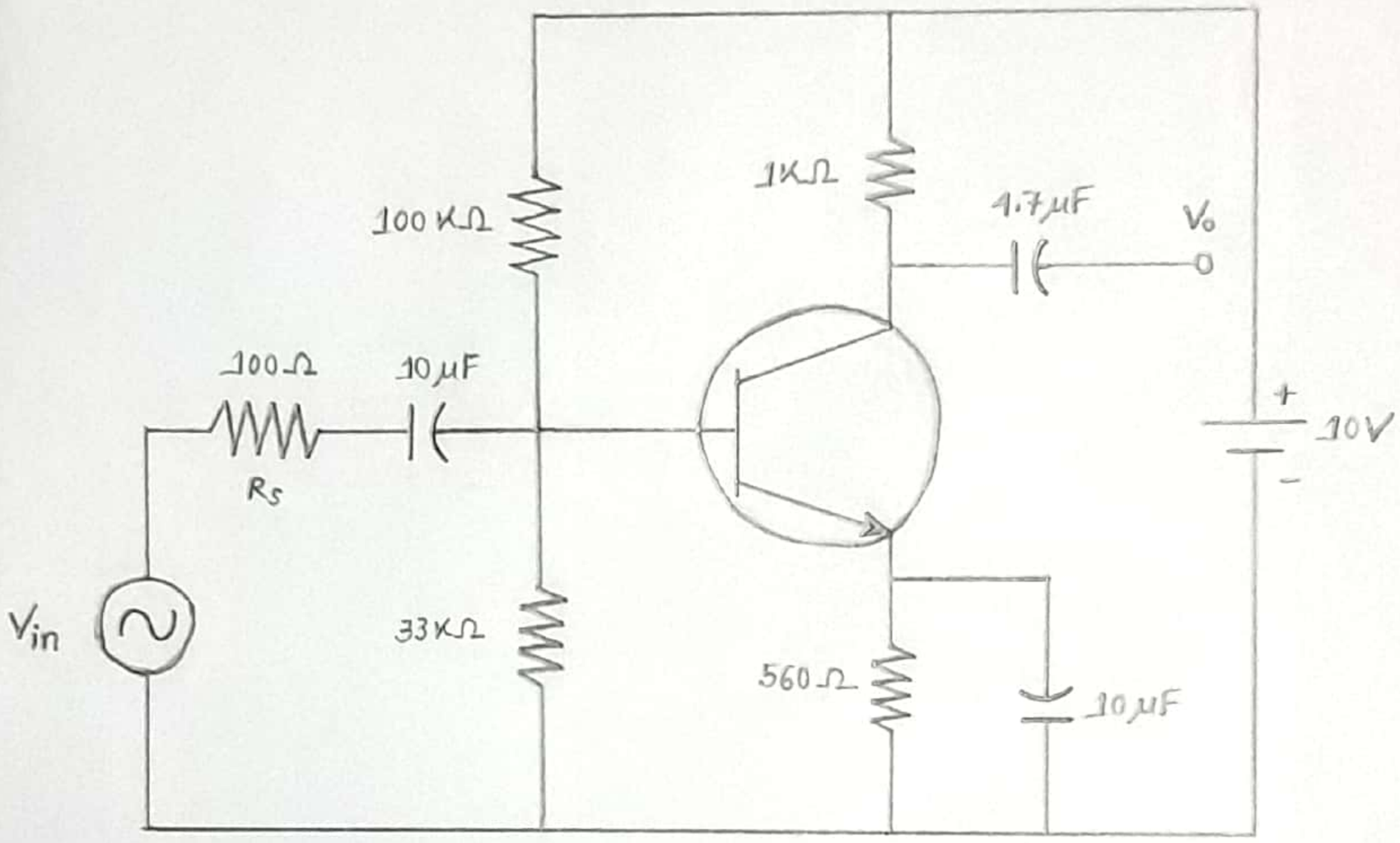


Figure : Experimental Circuit

Data sheet :

Table 1 : Data for Fixed Bias Circuit

V_{in} (volt)	V_{RS} (volt)	R_S (Ω)	$I_{in} = V_{RS}/R_S$ (Amp)	$R_{in} = V_{in}/I_{in}$ (Ω)	R_o (Ω)
0.048	0.010	100	1×10^{-4}	480	0.937

Table 2 : Data for self Bias Circuit

Frequency, f (Hz)	Vin (P-P) (volt)	Vo (P-P) (volt)	Gain = Vo/Vin	Gain (dB)
100		0.302	6.29	15.97
200		0.547	11.39	21.13
300		0.774	16.125	24.14
400		0.960	20	28.02
500		1.305	27.18	28.68
900		1.618	33.70	30.55
1K	0.048	1.753	36.52	31.25
2K		2.079	43.31	32.73
3K		2.155	44.89	33.04
6K		2.068	43.08	32.68
10K		1.609	33.52	30.50
30K		0.527	10.97	20.81
60K		0.216	4.5	13.06
80K		0.143	2.97	9.45

Report :

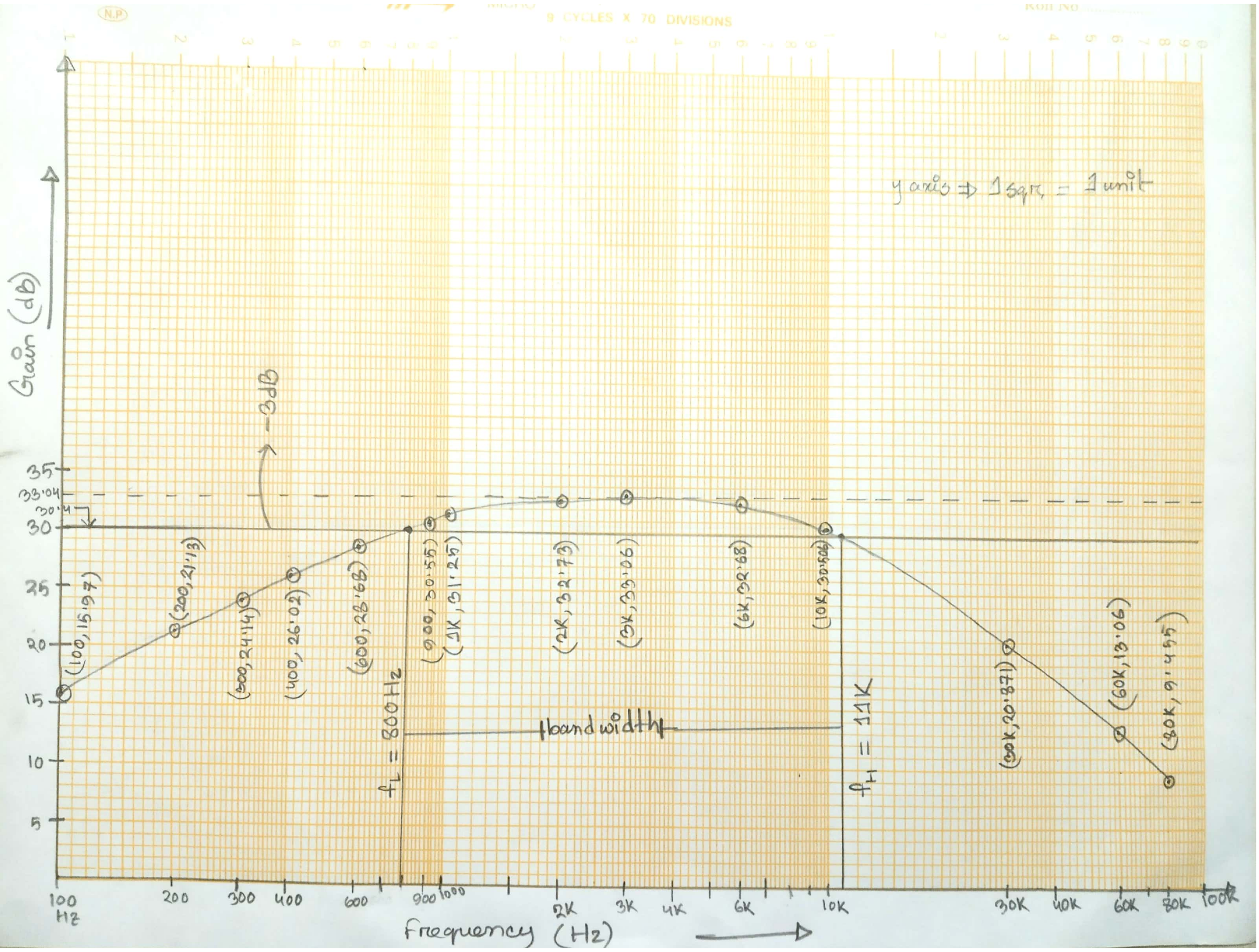
① Draw the gain vs. frequency curve on a semilog paper.

Ans: The gain vs. frequency curve on a semilog paper is attached with the report.

② Determine the bandwidth from the plot. Also mark the $-3dB$ points on the plot.

Ans: The bandwidth and the $-3dB$ points are marked on the graph.

y axis ⇒ 1 sqr = 1 unit



③ Compare the input and output impedance of CE (common Emitter) configuration with CB (Common Base) and CC (Common Collector) configurations.

Ans: Input and Output impedance of CE configuration with CB and CC are:

Impedance	Common Emitter	Common Base	Common Collector
Input	Medium	Low	High
Output	High	Very High	Low

Discussion :

In this experiment, we have studied the frequency response of a CE (Common Emitter) Amplifier Circuit and Measurement of input and output impedance. We have connected the circuit properly and output observed very carefully. Also we have filled up the data table very sincerely. Thus, we have completed the experiment successfully.