

21BDS0340

Abhinav Dinesh Srivatsa

Electronics Lab

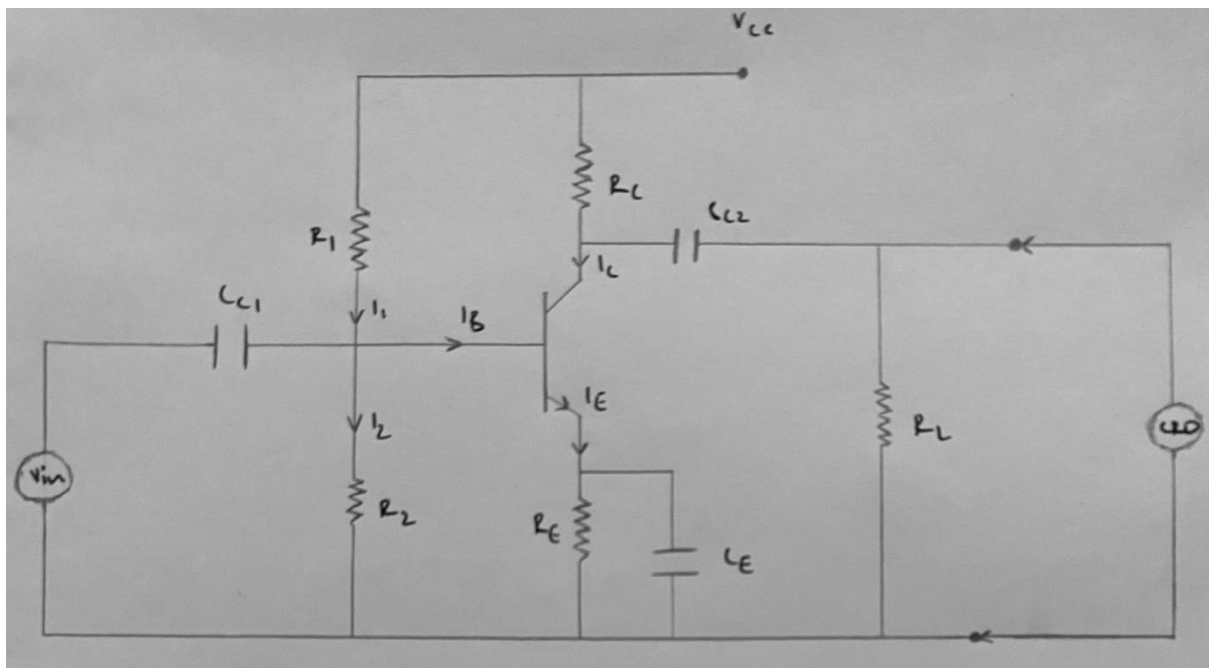
Task 4

Exercise No.: 1

Date: 09/04/22

Common Emitter Amplifier

Circuit Diagram



Components Required

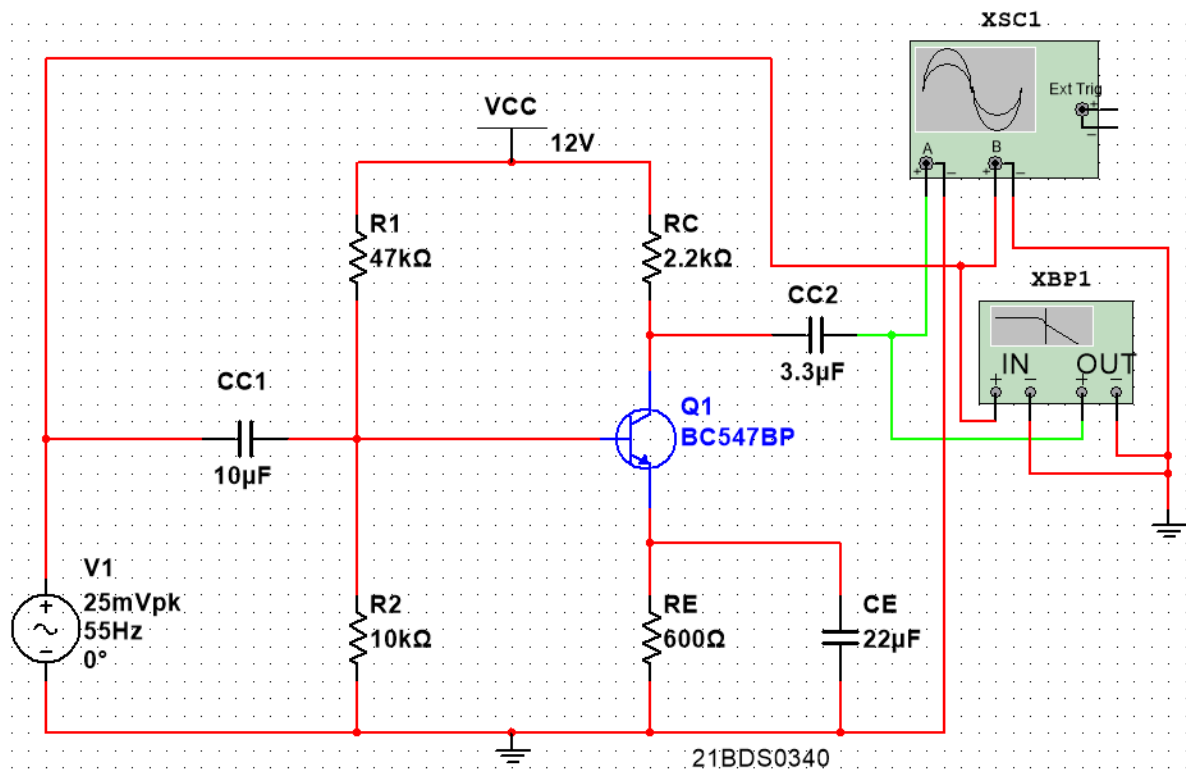
Basic – Resistors, Capacitors

Sources – Power Sources – V_{CC} , Ground, AC_Voltage

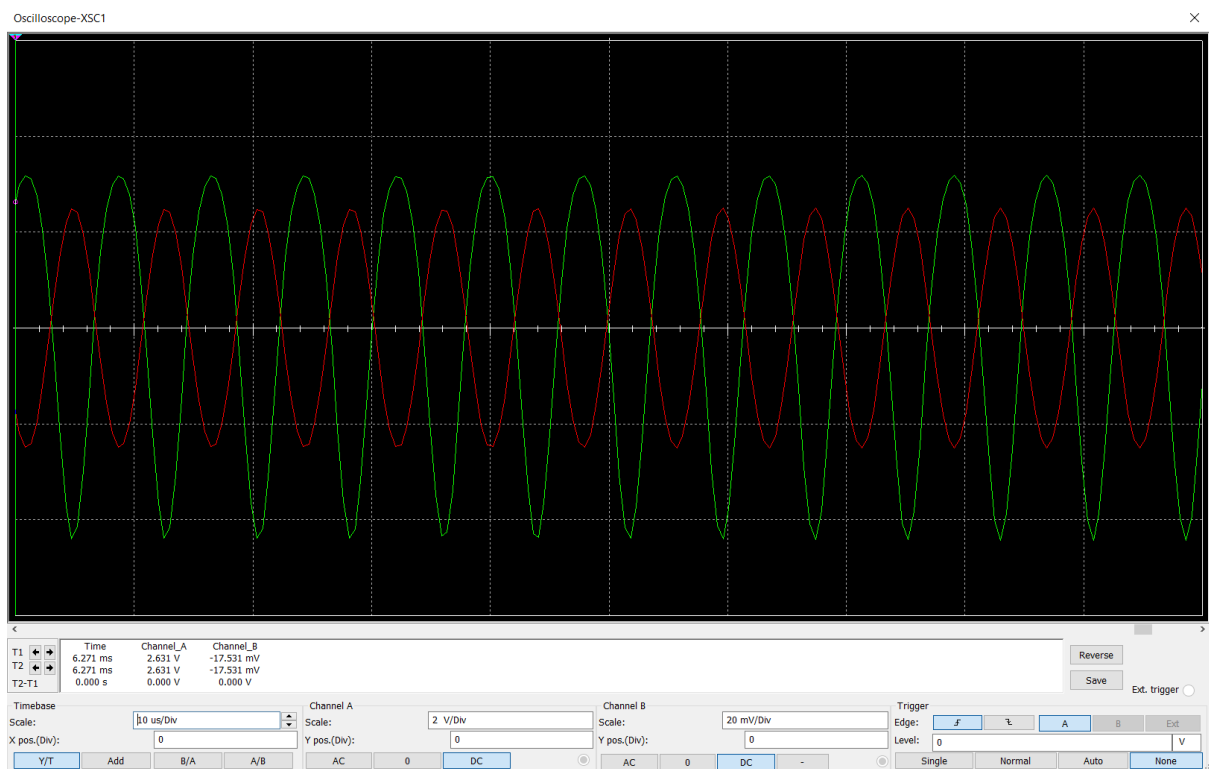
Transistors – BC547BP

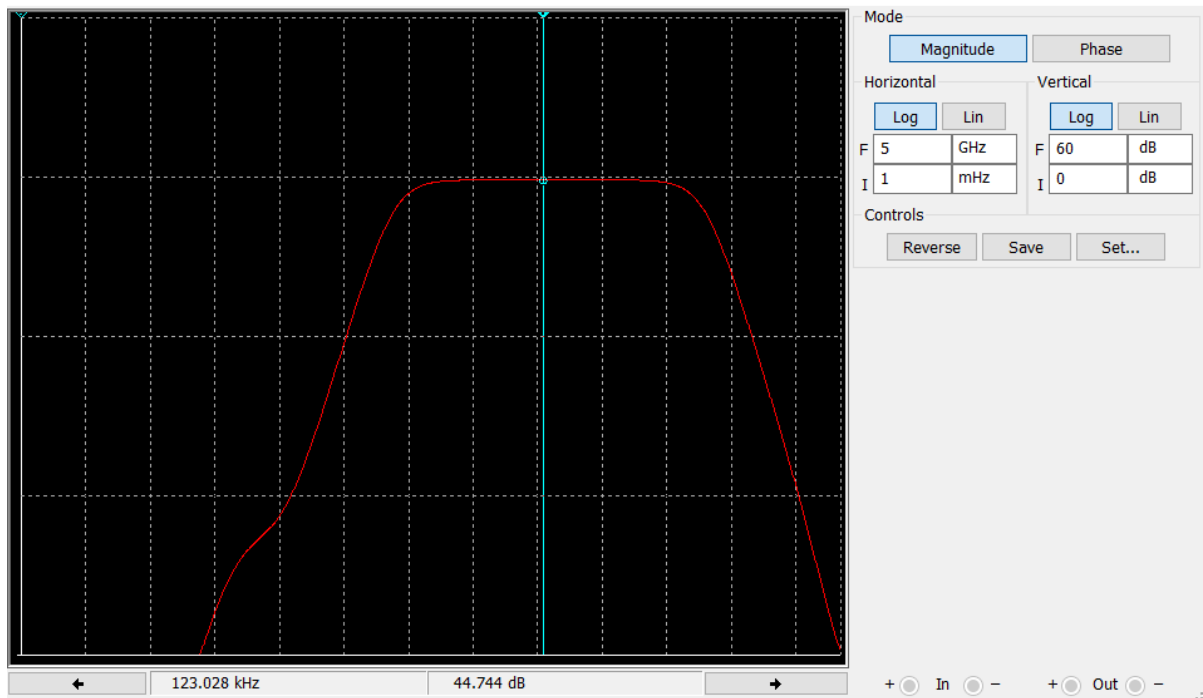
Simulate – Instruments – Oscilloscope, Bode Plotter

Simulated Circuit Diagram



Simulated Observations

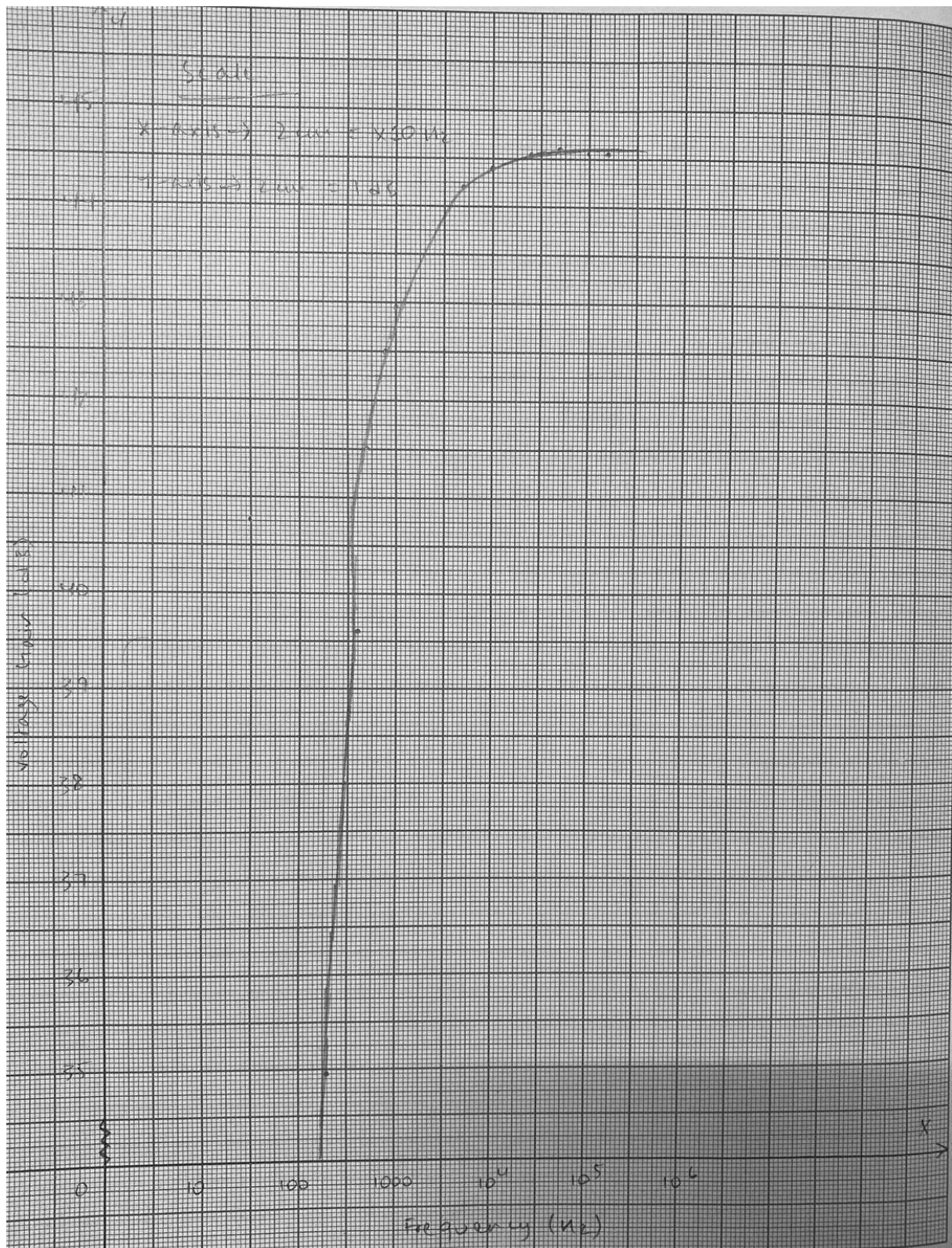




$$V_{in} (p-p) = 50 \text{ mV}$$

Frequency (Hz)	$V_o(p-p)$ (mV)	V_o/V_{in}	$20 \log(V_o/V_{in})$
200	2775	55.5	34.89
400	4787	95.74	39.62
600	5962	119.24	41.53
800	6686	133.72	42.52
1000	7026	140.52	42.95
5000	8108	162.16	44.20
10000	8304	166.08	44.41
25000	8504	170.08	44.61
50000	8541	170.82	44.65
100000	8509	170.18	44.62
150000	8502	170.04	44.61

Graph



Calculations from Simulated Graph

Mid band voltage gain = 0.234 V

Mid band voltage gain in dB = 44.744

Lower cutoff frequency = 597 Hz

Upper cutoff frequency = 38 MHz

Bandwidth = 38 MHz

Verification Message



KRISHNA CHAITHANYA MUNTHA 15-04-2022 11:43

21BDS0340-Exp 6 and 7 verified