North South University
Department of Electrical & Computer Engineering

LAB REPORT

Spring 2021

Course Code : EEE 111

Course Title: Analog Electronics - I

Section: 7

Experiment Number: 06

Experiment Name:

The BJT Biasing Circuits

Experiment Date: 20 / 04 / 2021

Date of Submission: 29 / 04 / 2021

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Submitted To: Fatema Zahra

Name of experiment:

The BJT Biasing Circuits

Objective:

Study Of the BJT Biasing Circuits.

Equipments and Components:

1) Npn transistors — C828, BD135 — 1 piece each

2) Resistor —470Ω, 560Ω, 220KΩ — 1 piece each

3) POT — 10KΩ — 1 unit

4) Trainer Board — 1 unit

5) DC power Supply — 1 unit.

6) Digital Multimeter — 1 unit.

7) Choards and wire — as required.

(p.t.o)

Theory:

Biasing a BJT circuit intends to give fitting direct possibilities and flows utilizing on outside resources. To build up an operating point on Q-point in the active ~~circon~~ region. When the Q-point is established, the input signal should cause an output signal to same waveform. So we can say the main objective of biasing a BJT circuit is to choose the proper Q-point for faithful reproduction of the input signal. We will work with fixed bias circuit and self bias circuit.
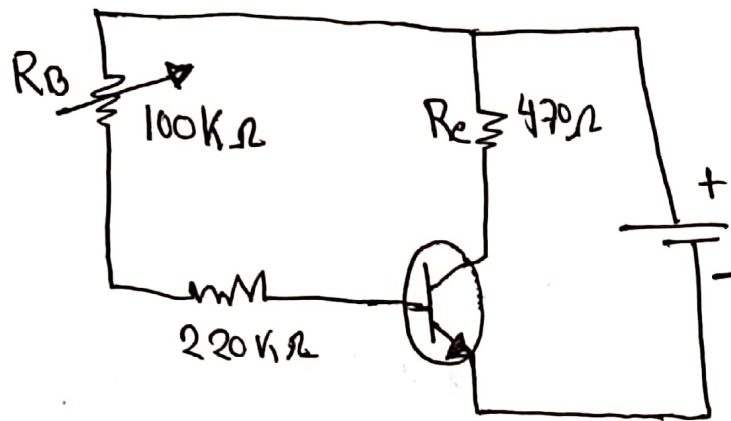
(P.t.o)

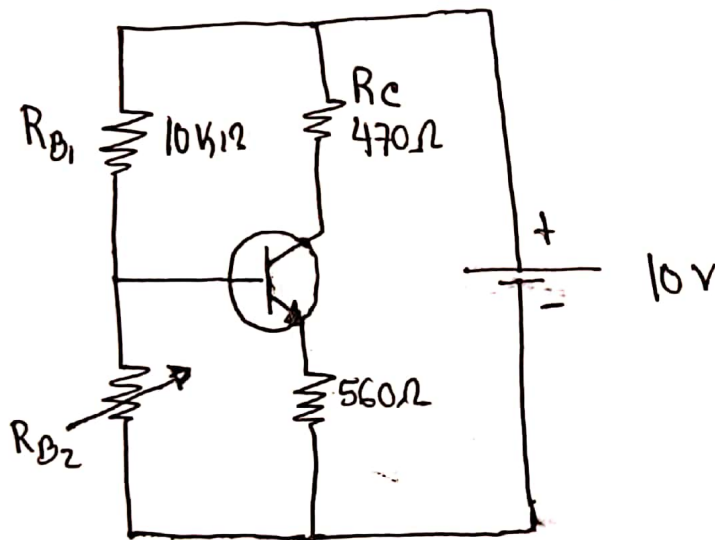# Circuit Diagrams:

Fig- Fixed Bias Circuit.

Fig- Self Bias Circuit.

Tables:

Data for Fixed Bias circuit -

Transistor	R_C (Ω)	V_C (Volt)	$I_C = V_C/R_C$ (Amp)	V_{CE} (Volt)	Q-point
C828	470	11.00	23.4	11.00	(11, 23.4)
BD135	470	17.02	10.21	17.02	(17.02, 10.21)

Data for Self Bias Circuit -

Transistor	R_C (Ω)	V_C (Volt)	$I_e = V_C/R_C$ (Amp)	V_{CE} (Volt)	Q-point
C828	470	16.75	11.18	10.46	(16.75, 11.18)
BD135	470	17.01	10.6	11.00	(17.01, 10.6)

Question And Answer.

① Ans:

    Self bias circuit shows better stability. The variation of the q point is very little so the change in input and output wave form is very little, compared to fixed bias circuit. So the self bias circuit is more stability.
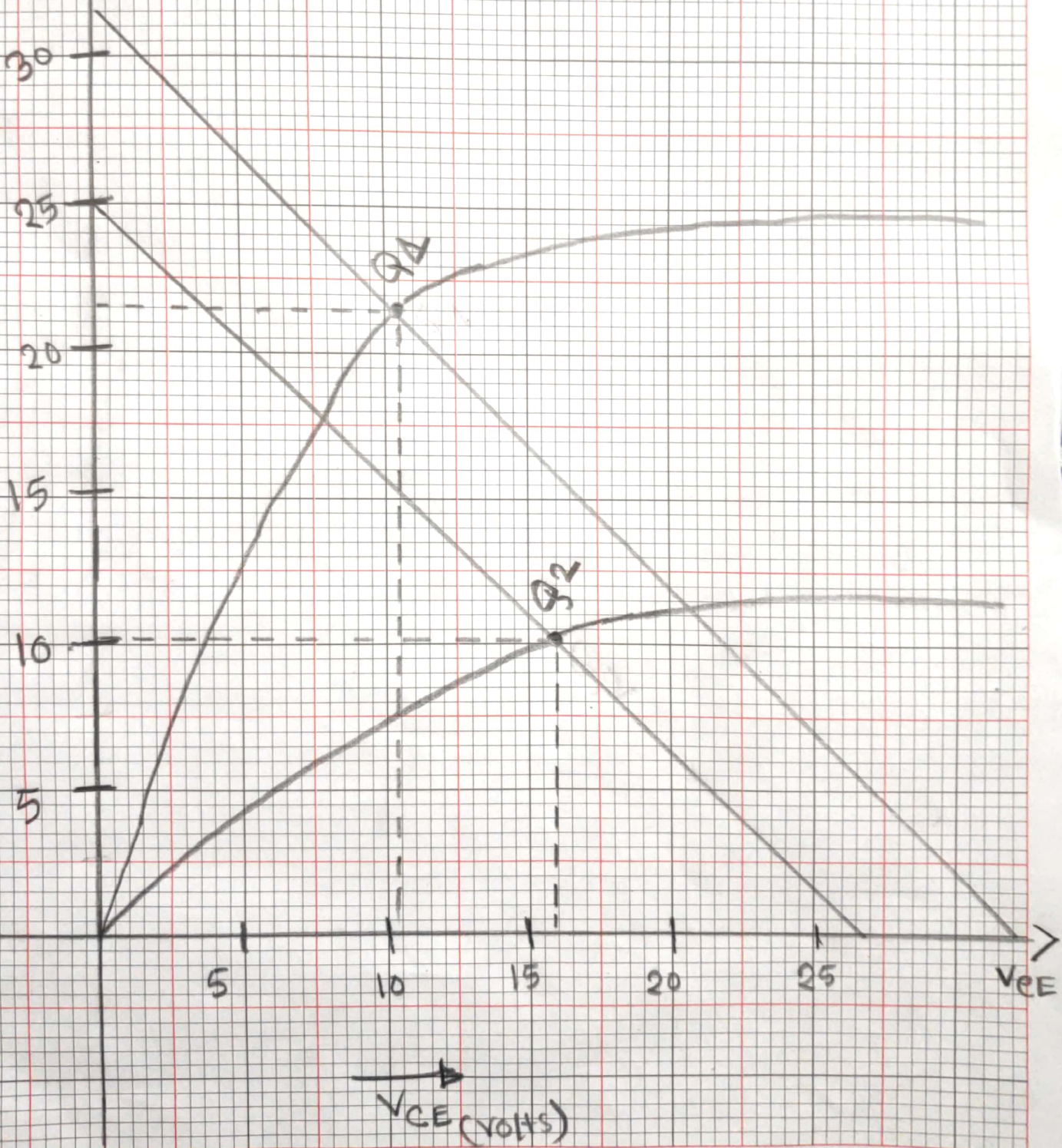
②Ans:

The graph is attached with the Report.

Discussion:

In this experiment we have learned about How the biasing in BJT circuit effects it's stability. We have used fixed bias circuit and self bias circuit. The simulation was easy and i didn't face any difficuties.
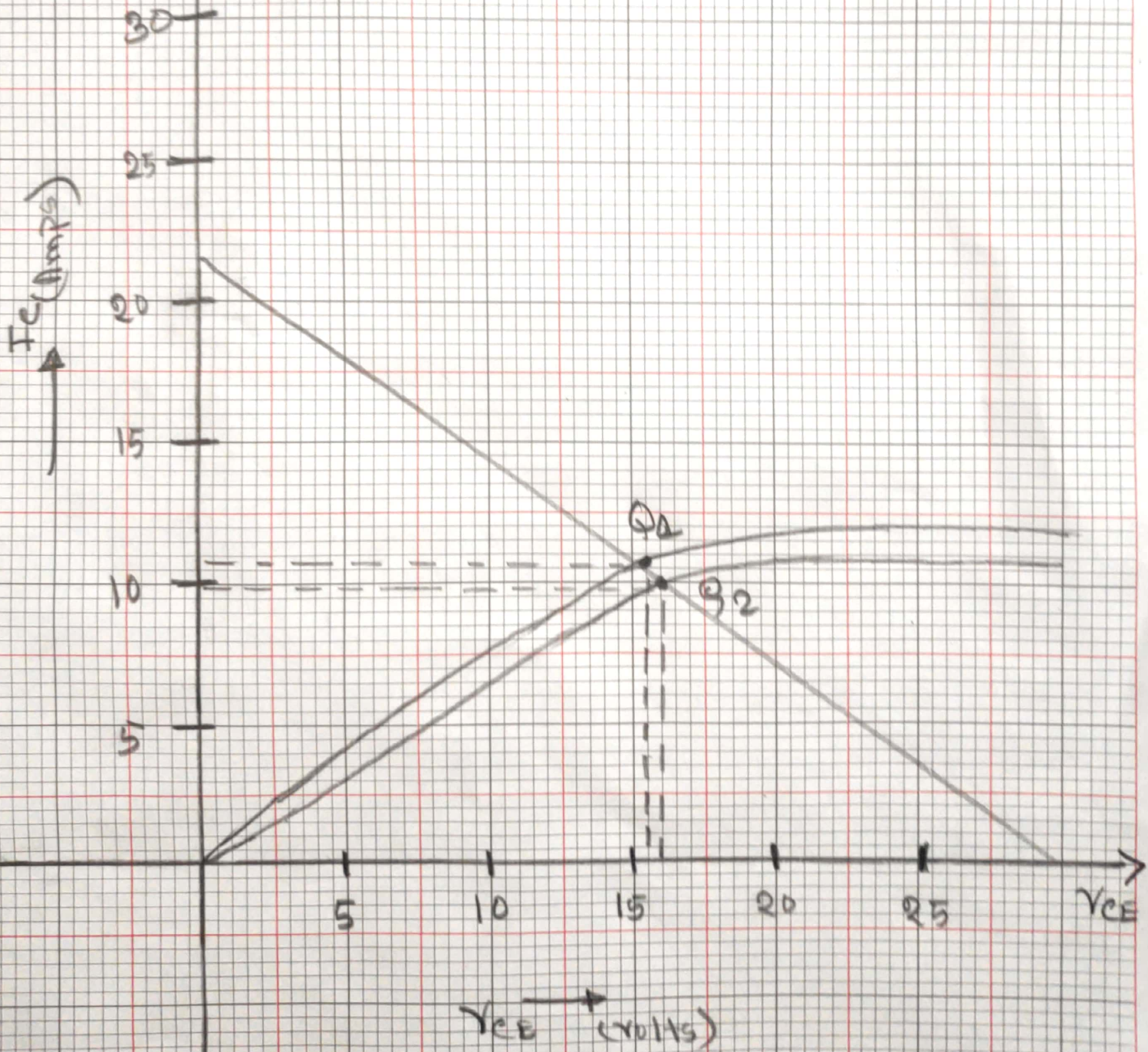
Akram Hossain Fahim

Fixed bias Circuit

I_e

I_C (Amp)

30

25

Q1

20

15

Q2

10

5

5   10   15   20   25 V_{CE}

V_{CE} (volts)
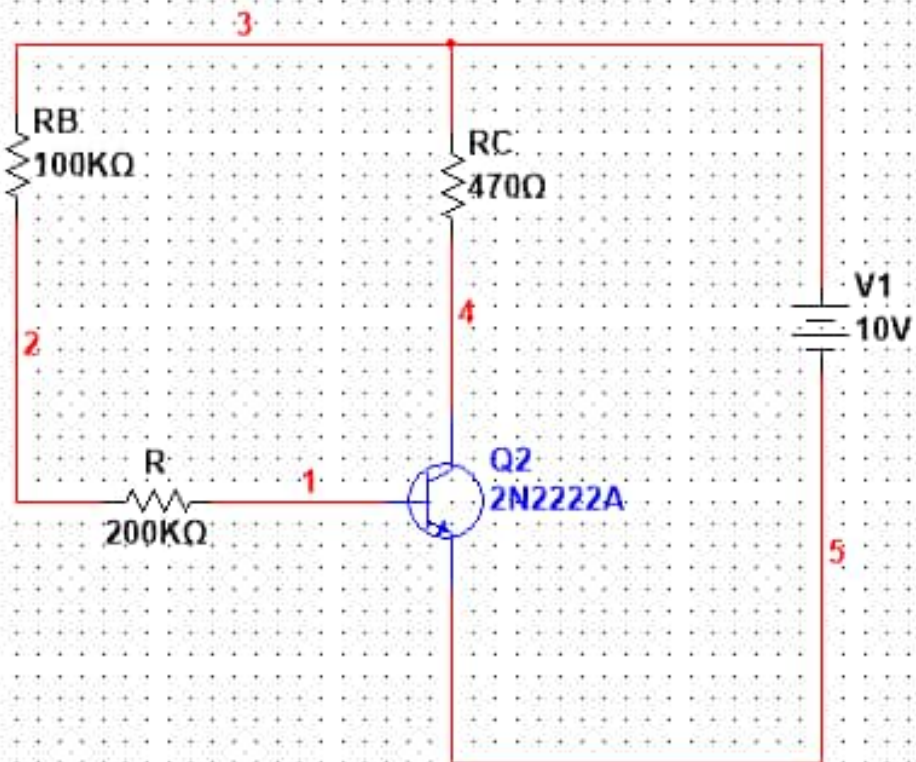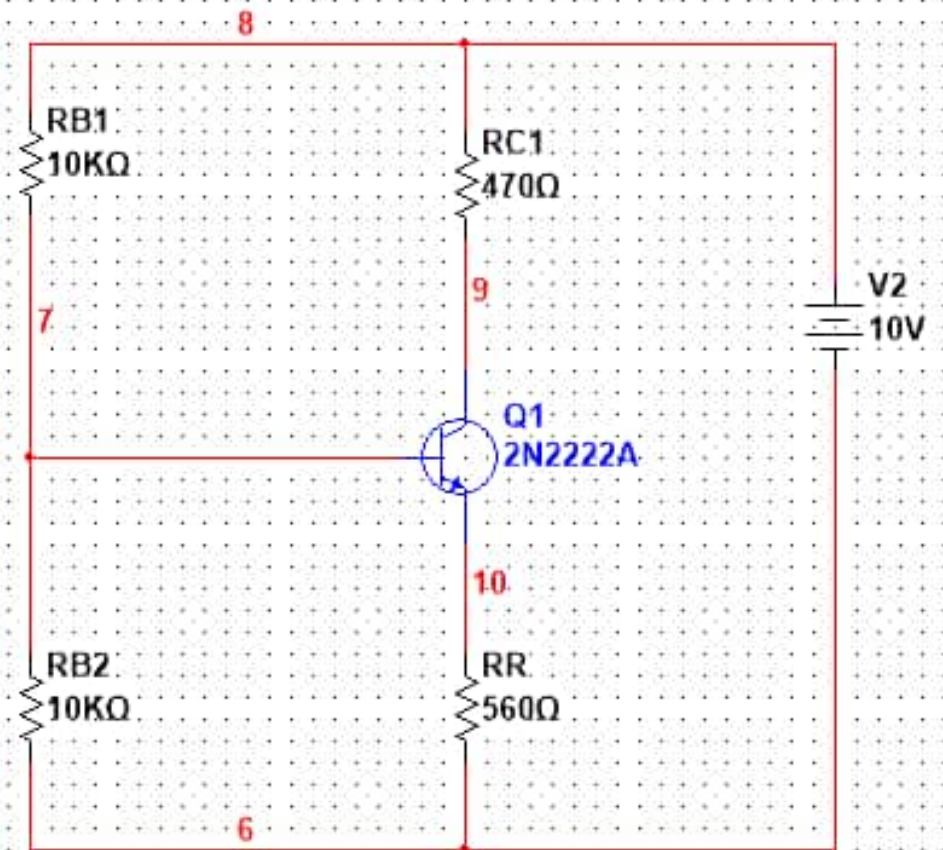
MICRO

8 Inch x 10 Inch

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Self bias circuit

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Fixed Bias Circuit

Self Bias Circuit