Exp. No.:   Date :
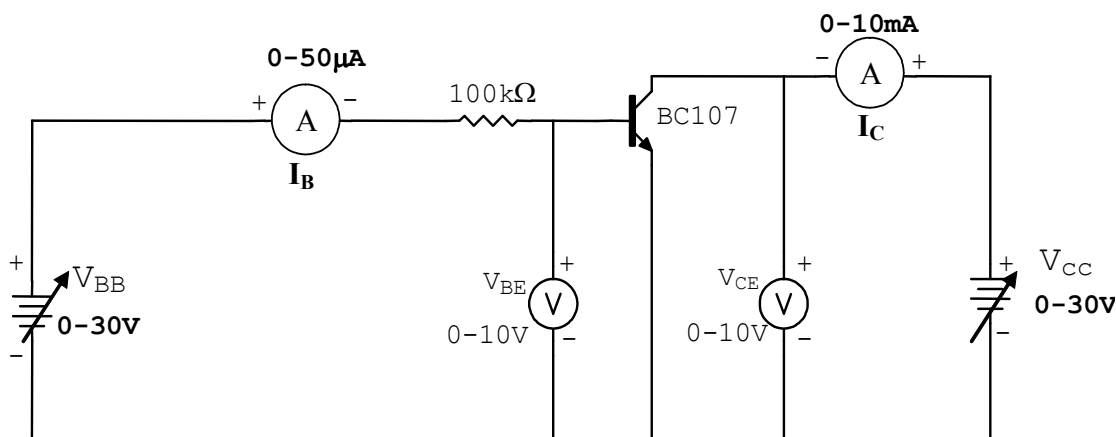
TRANSISTOR CE CHARACTERISTICS (INPUT & OUTPUT)

AIM : To obtain the input and output characteristics of a Transistor in CE configuration and also determine the hybrid parameters.

APPARATUS :

S.No.	Name of the Apparatus	Range	Quantity
1.	BC107	-	1No.
2.	Power Supply	0-30V	2No.
3.	Ammeter	0-50µA, 0-10mA	Each 1No.
4.	Voltmeter	0-10V	2No.
5.	Resistor	100KΩ	1No.

CIRCUIT DIAGRAM:`

PROCEDURE:

1. Connect the circuit as shown in figure.

2. For output characteristics Keep I_B=10µA by varying V_{BB}.

3. Vary V_{CC} in steps and note down I_C and V_{CE}.

4. Repeat step 3 for I_B=20µA and 30µA

5. Draw the output characteristics by taking V_{CE} on X-axis and I_C on Y-axis for different values of I_B.

6. For input characteristics Keep V_{CE}=0, Vary V_{BB} in steps and note down I_B and V_{BE}.

7. Repeat step 6 for V_{CE} = 1V and V_{CE}= 2V

8. Draw the input characteristics by taking V_{BE} on X-axis and I_B on Y-axis for different values of V_{CE}.
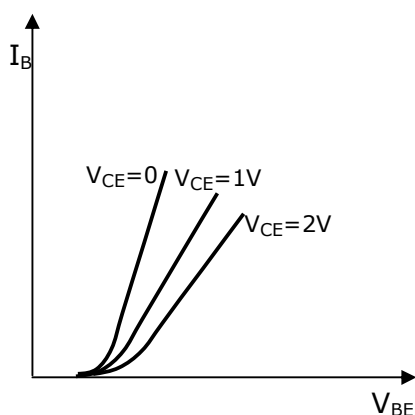
Exp. No.:   Date :

READINGS *:*

a: Output Characteristics

$I_B= 10\mu A$		$I_B= 20\mu A$		$I_B= 30\mu A$	
V_{CE} (V)	I_C (mA)	V_{CE} (V)	I_C (mA)	V_{CE} (V)	I_C (mA)

b: Input Characteristics

$V_{CE} = 0V$		$V_{CE} = 1V$		$V_{CE} = 2V$	
V_{BE} (V)	I_B (mA)	V_{BE} (V)	I_B (mA)	V_{BE} (V)	I_B (mA)

MODEL GRAPHS:

Input Characteristics:

Output Characteristics:

$$h_{ie} = \frac{\Delta V_{BE}}{\Delta I_B}\bigg|_{V_{CE}cons\tan t} =$$

$$h_{fe} = \frac{\Delta I_C}{\Delta I_B}\bigg|_{V_{CE}cons\tan t} =$$
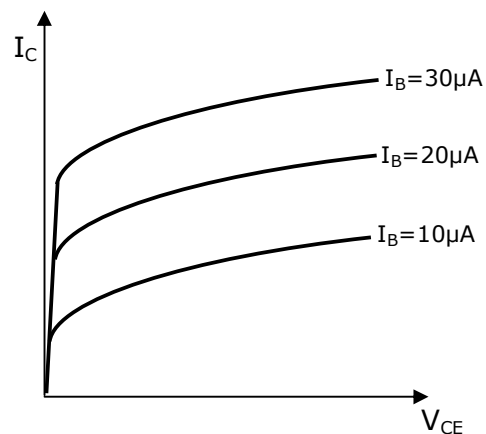
$$h_{re} = \frac{\Delta V_{BE}}{\Delta V_{CE}}\bigg|_{I_B cons\tan t} =$$

$$h_{oe} = \frac{\Delta I_C}{\Delta V_{CB}}\bigg|_{I_B cons\tan t} =$$

RESULTS:

1. Input Impedance, $h_{ie}=$

2. Output admittance, $h_{oe}=$

3. Forward current gain, $h_{fe}=$

4. Reverse voltage gain, $h_{re}=$