Exp.No.: Date :

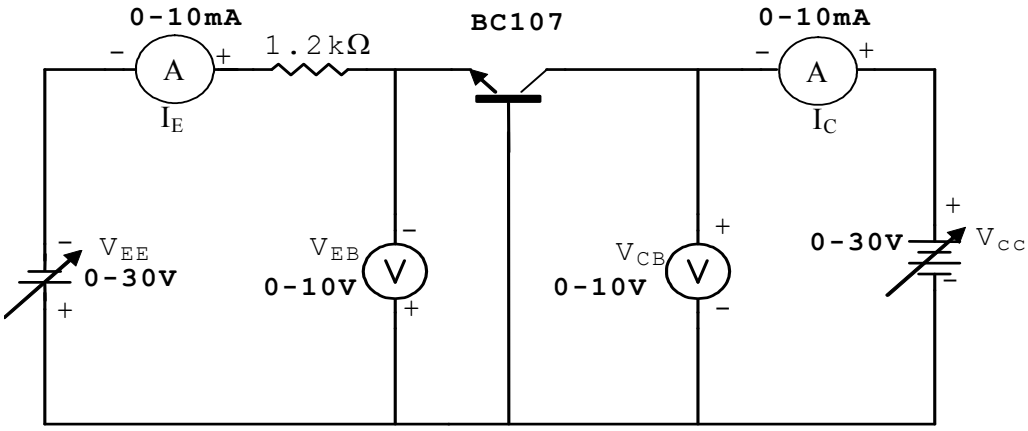
TRANSISTOR CB CHARACTERISTICS (INPUT &OUTPUT)

AIM : To obtain the input and output characteristics of a Transistor in CB 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	0-10mA	2No.
4.	Voltmeter	0-5V, 0-10V	Each 1No.
5.	Resistor	1.2KΩ	1No.

CIRCUIT DIAGRAM:



PROCEDURE:

1. Connect the circuit as shown in figure.
2. For output characteristics Keep I_E=2mA by varying V_{EE}.
3. Vary V_{CC} in steps and note down I_C and V_{CB}.
4. Repeat step 3 for I_E= 4 mA and 6mA.
5. Draw the output characteristics by taking V_{CB} on X-axis and I_C on Y-axis for different values of I_E.
6. For input characteristics Keep V_{CB}=0, Vary V_{EE} in steps and note down I_E and V_{EB}.
8. Repeat step 6 for V_{CB} = 1V and V_{CB}= 2V

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9. Draw the input characteristics by taking V_{EB} on X-axis and I_E on Y-axis for different values of V_{CB}.

READINGS :

a: Output Characteristics

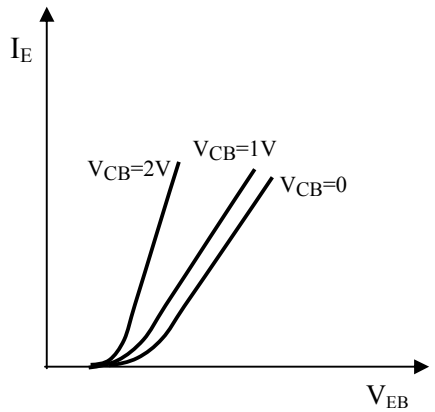
I_E= 2mA		I_E= 4mA		I_E= 6mA	
V_{CB} (V)	I_C (mA)	V_{CB} (V)	I_C (mA)	V_{CB} (V)	I_C (mA)

b: Input Characteristics

V_{CB} = 0V		V_{CB} = 1V		V_{CB} = 2V	
V_{EB} (V)	I_E (mA)	V_{EB} (V)	I_E (mA)	V_{EB} (V)	I_E (mA)

MODEL GRAPHS:

Input Characteristics



$$h_{ib} = \frac{\Delta V_{EB}}{\Delta I_E}\bigg|_{V_{CB} cons\tan t} =$$

$$h_{rb} = \frac{\Delta V_{EB}}{\Delta V_{CB}}\bigg|_{I_E cons\tan t} =$$

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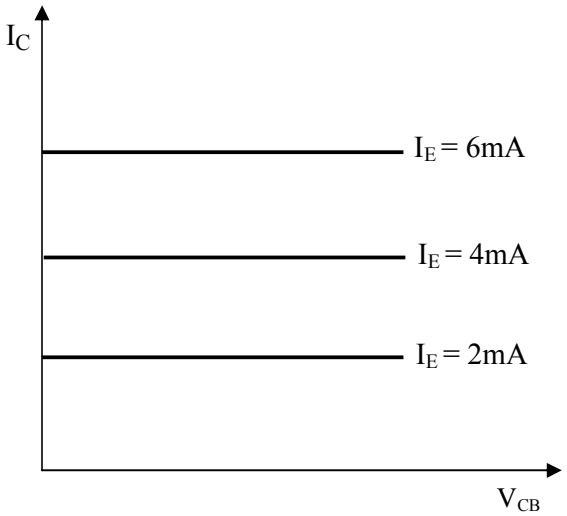
Output Characteristics:



$$h_{fb} = \frac{\Delta I_C}{\Delta I_E}\bigg|_{V_{CB}\, cons\, \tan t} =$$

$$h_{ob} = \frac{\Delta I_C}{\Delta V_{CB}}\bigg|_{I_E\, cons \tan t} =$$

RESULTS:

1. Input Impedance, h_{ib}=
2. Output admittance, h_{Ob}=
3. Forward current gain, h_{fb}=
4. Reverse voltage gain, h_{rb}=