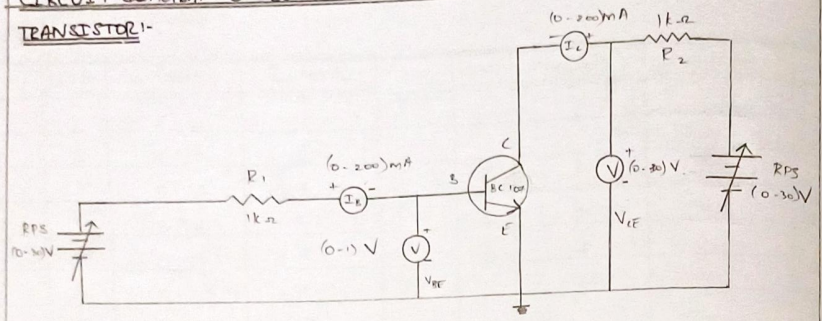
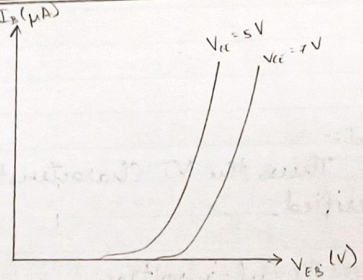
CIRCUIT DIAGRAM OF COMMON EMITTER CONFIGURATION OF A TRANSISTOR:-

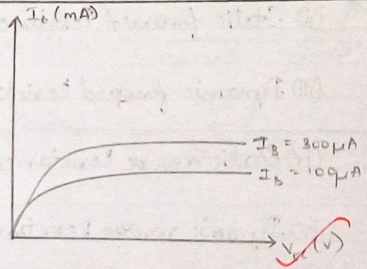


MODEL GRAPHS:-

INPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:-



OUTPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:-



Expt no:- 06
Date:- 08/9/23

CHARACTERISTICS OF BJT

AIM:-

To draw the input and output characteristics of transistor connected in Common Emitter (CE) configuration.

APPARATUS REQUIRED:-

S No	COMPONENTS	SPECIFICATION	QTY
1	Transistor	BC 107	1
2	Regulated power Supply	(0-30) V	2
3	Resistor	1k Ω	1
4	Ammeter	(0-500)mA, (0-30)mA	1
5	Voltmeter	(0-30)V	2
6	Bread board	-	1
7	Connecting wires	-	-

OBSERVATION:-

INPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:-

S.No	V_{CE} = 2V		V_{CE} = 4V	
	V_{BE} (V)	I_B (μA)	V_{BE} (V)	I_B (μA)
	0 to 0.69	0	0 to 0.72	0
	0.73	1	0.75	1
	0.75	3	0.764	3
	0.77	5	0.78	5
	0.78	7	0.79	7
	0.80	10	0.81	10

OUTPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:-

S.No	I_B = 80μA		I_B = 100μA	
	V_{CE} (V)	I_C (mA)	V_{CE} (V)	I_C (mA)
1	1	1	1	2
2	2	3	2	4
3	3	5	3	6
4	4	5	4	7
5	5	5	5	7
6	6	5	6	7
7	7	5	7	7

PROCEDURE:-

INPUT CHARACTERISTICS OF CE TRANSISTOR:-

(i) Connect the circuit as per the circuit diagram.
(ii) For plotting the input characteristics, the output voltage V_{CE} is kept constant at 2V and for different values of V_{BE}. Note down the values of I_c.
(iii) Repeat the above step by keeping V_{CE} at 4V.
(iv) Tabulate all the readings.
(v) Plot the graph between V_{BE} and I_B for constant V_{CE}.

OUTPUT CHARACTERISTICS OF CE TRANSISTOR:-

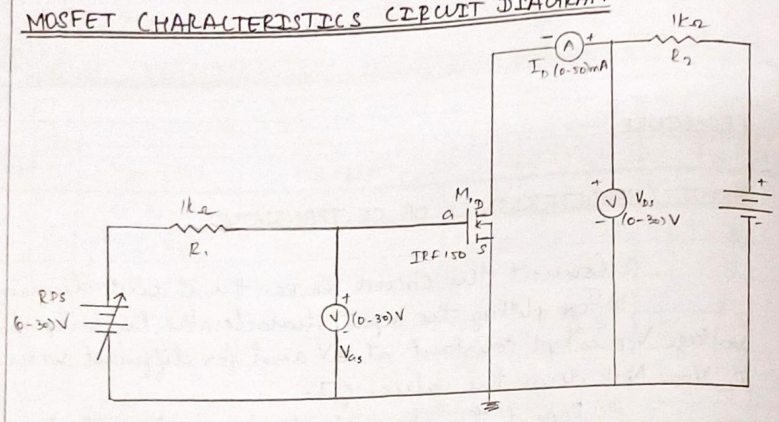
(i) Connect the circuit as per the circuit diagram.
(ii) For plotting the output characteristics, the input current I_B is kept constant at 80μA and for different values of V_{CE} note down the values of I_c.
(iii) Repeat the above step by keeping I_B at 100μA.
(iv) Tabulate the readings.
(v) Plot the graph between V_{CE} and I_c for constant I_B.

RESULT:-

Thus, the input and output characteristics of a transistor in CE configuration are drawn.

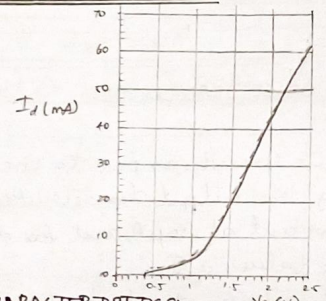
3/4/23

MOSFET CHARACTERISTICS CIRCUIT DIAGRAM:-

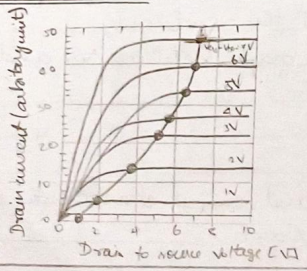


MODEL GRAPH:-

TRANSFER CHARACTERISTICS:-



DRAIN CHARACTERISTICS:-



Ex.no:- 07
Date:- 15/9/23

CHARACTERISTICS OF METAL OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTOR (MOSFET)

AIM:-

To obtain the drain characteristic and transfer characteristic of MOSFET.

APPARATUS REQUIRED:-

S.No	APPARATUS	TYPE	RANGE	QUANTITY
1	MOSFET	IRF 150		1
2	Resistor		500Ω, 1kΩ	1 each
3	DC power supply		5V	1 each
4	Connecting wires			

OBSERVATION:-

DRAIN CHARACTERISTICS		TRANSFER CHARACTERISTICS	
V_{GS} = 4.5 V		V_{DS} = 4.5 V	
V_{DS}	I_D	V_{GS}	I_D
0	0	0	0
0.5	0.5	0.5	0
1	1	4	0
1.5	1.2	4.2	1
2	1.9	4.4	2
2.5	2.2	4.6	3.8
3	2.8	5	4
3.5	3.1		
4	3.5		
4.5	4		
5	4.1		
5.5	4.2		
6	4.2		

PROCEDURE:-

TRANSFER CHARACTERISTICS:-

(i) Connect the MOSFET as per the circuit diagram
(ii) Keep the V_{GS} = 10V and V_{DS} = 4.5V
(iii) Set the DC sweep primary and secondary values
(iv) Place the voltage probe at source of MOSFET and verify the circuit.

DRAIN CHARACTERISTICS:-

(i) Connect the MOSFET as per the circuit diagram.
(ii) Keep the V_{GS} = 4.5V and V_{DS} = 10V.
(iii) Set the DC sweep primary and secondary values
(iv) Place the voltage probe at source of MOSFET and verify the circuit.

3/11/23

RESULT:-

The drain Characteristics and Transfer Characteristics of MOSFET was verified.