EXPERIMENT-7

Object-To study and plot transistor input and output characteristics in common base configurations.

Apparatus required- Transistor characteristics kit
Multi meter
Connecting wire
Power supply

Theory-There are two types of characteristics of common base configurations.

Input characteristics-For input characteristics of common base configurations. The collector voltage V_{CB} kept constant at a certain value. The emitter voltage V_{EB} is varied and corresponding value of emitter current I_E are observed.

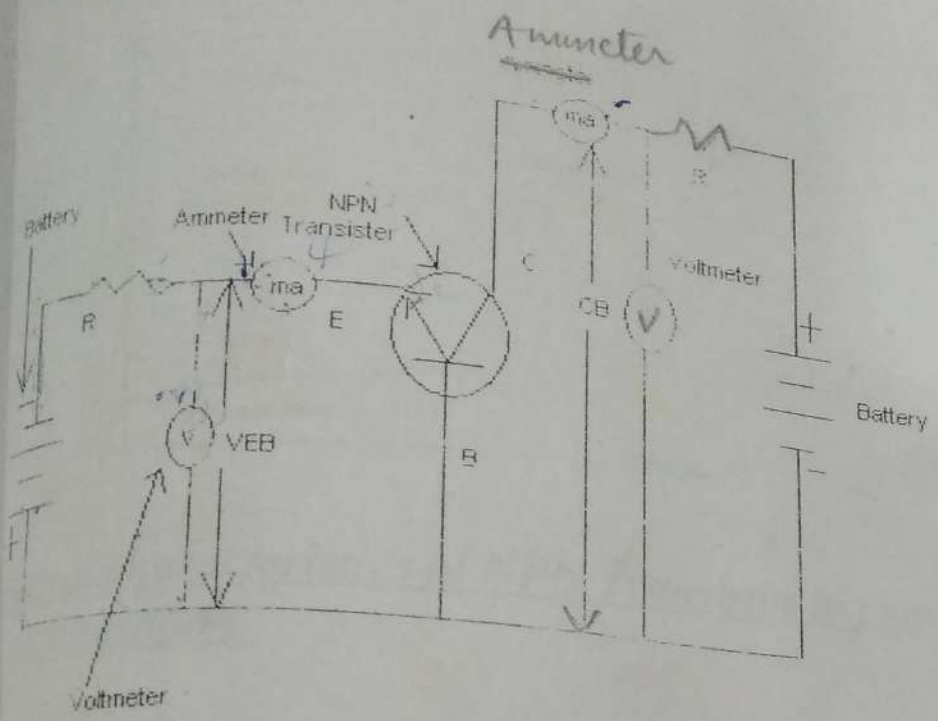
Output characteristics-For the output characteristics of a transistor in common base configuration the emitter current I_E kept constant at a certain value. The collector current I_C variations corresponding to the variations of the collector base voltage V_{CB} are observed.

Observations Table-

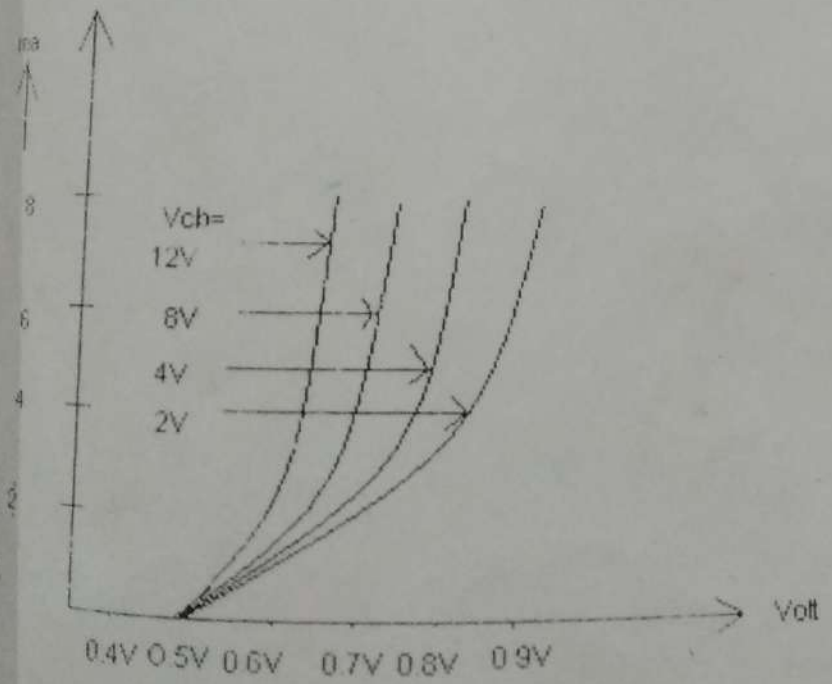
Input characteristics		*Output characteristics*	
V_{CB}=(6 v) Constant		I_E=(10 ma) Constant	
V_{BE}	I_E	V_{CB}	I_C
1.0	2ma	0.5	5.8ma
2.0	4ma	1.0	11.09ma
4.0	8ma	2.5	11.59ma
7.5	10ma	7.6	11.62
9.6	12ma	8.2	11.63

Result-We have study and plot input and output characteristics of common base configurations.

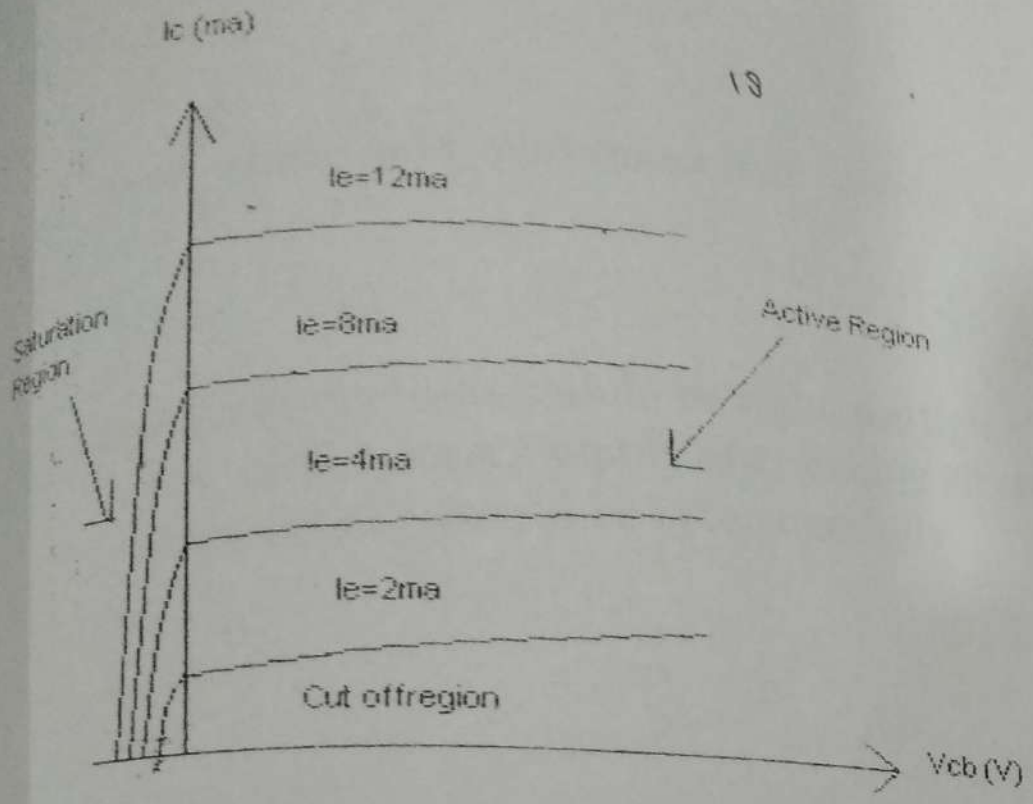
Precautions-All connections should be right and tight.
Switch on power supply after making all connections
Connection should be taken carefully



Circuit diagram for determination of input\output characteristics of common base configuration



Input characteristics of NPN Transistor in commen Base Configuration.



Output characteristics of NPN Transistor in commen Base Configuration.

EXPERIMENT-6

Object-To study and verify characteristics of Field effect transistor.

Apparatus required-F.E.T. kit
Digital multi meter
Connecting wire
Power supply

Theory- F.E.T. is a voltage control device because drain current I_d is control by the gate source voltage V_{GS}. There are two types of characteristics of Field effect transistor.

Drain characteristics/output characteristics -This characteristics drawn between drain source voltage V_{DS} and drain current I_D at constant value of gate source voltage.

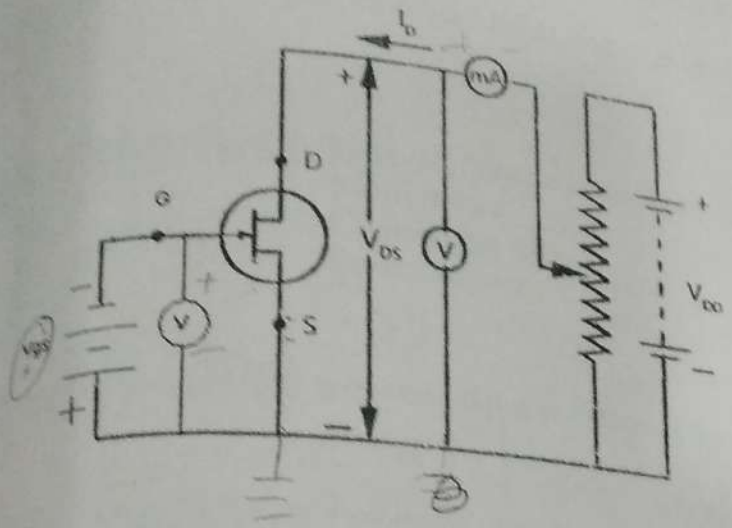
Transfer characteristics- This characteristics drawn between gate source voltages V_{GS} and drain current I_D at constant value of drain source voltage V_{DS}.

Observation table-

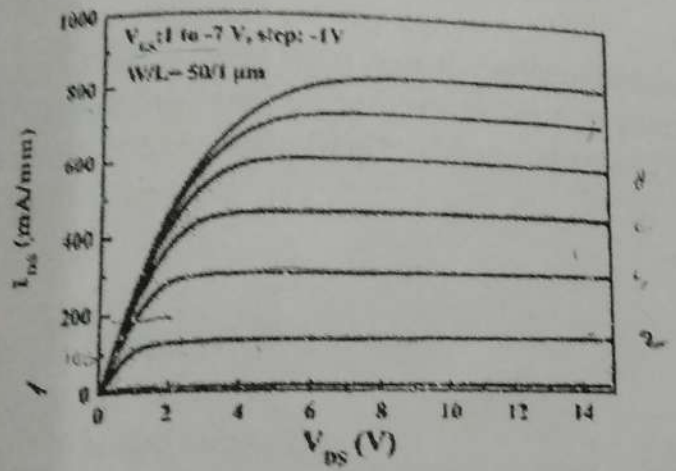
Drain characteristics/output characteristics V_{GS}=( ) *constant*		*Transfer characteristics* V_{DS}=( ) *constant*	
V_{DS}	I_D	V_{GS}	I_D

Result-To obtains drain and transfer characteristics of Field effect transistor.

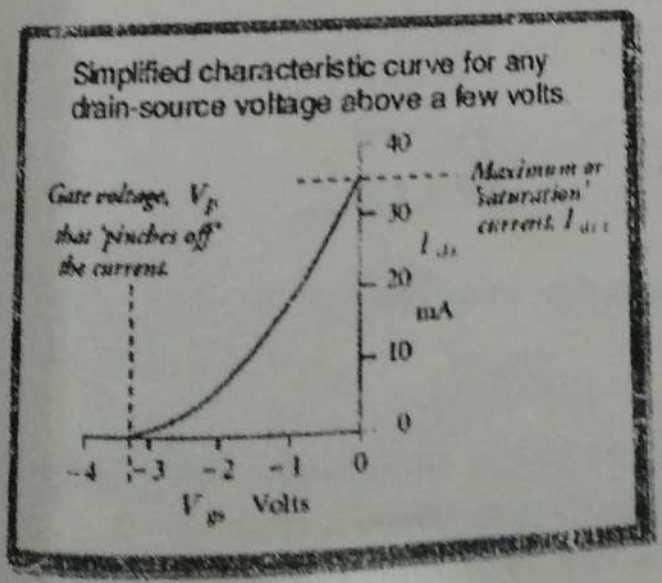
Precautions- Connections should be right and tight.
Switch ON power supply after checking all connections.
Connections should be taken carefully



Circuit Diagram of Field Effect Transistor



Drain Characteristics of Field Effect Transistors



Transfer Characteristics of Field Effect Transistor

Observation Table -:

Drain characteristics - V_{GS} = (2 V) Constant

Nos	I_D
0V	3.55
+1 V	0.50 MA
+3 V	0.53 MA
+5 V	0.54 MA
7V	0.54 MA
9 V	0.55 MA
11 V	0.55 MA
13	0.56 MA
16 V	0.56 MA

transfer characteristics - V_{DS} = (5) Const

V_{GS}	I_D
1 V	2.31
3V	3.98
5V	4.20
7 V	4.24
9 V	4.26
11 V	4.19
13 V	4.12
15 V	4.09
16 V	4.02

Result -: To obtain drain and transfer characteristics of full Effect transistor.

Precaution -
connections should be right and tight
Switch on power supply after check all connections.