Exp. No: 01
Date: 21-07-23

P-N JUNCTION DIODE CHARACTERISTICS

AIM:

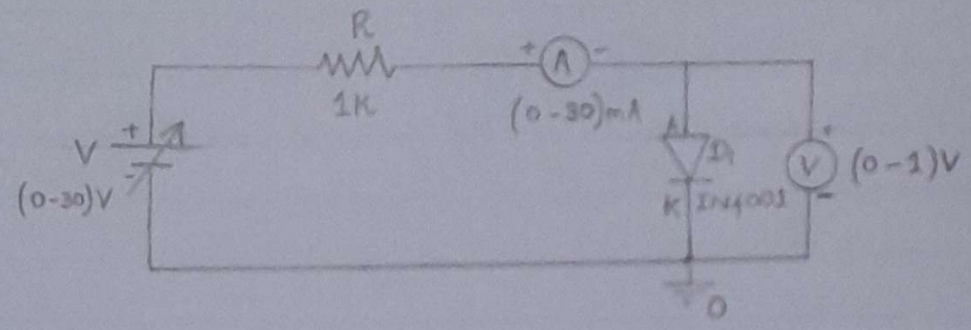
To Study the Volt-Ampere characteristics of Silicon P-N Junction Diode and to find cut-in voltage, Static and dynamic resistances.

APPARATUS REQUIRED:

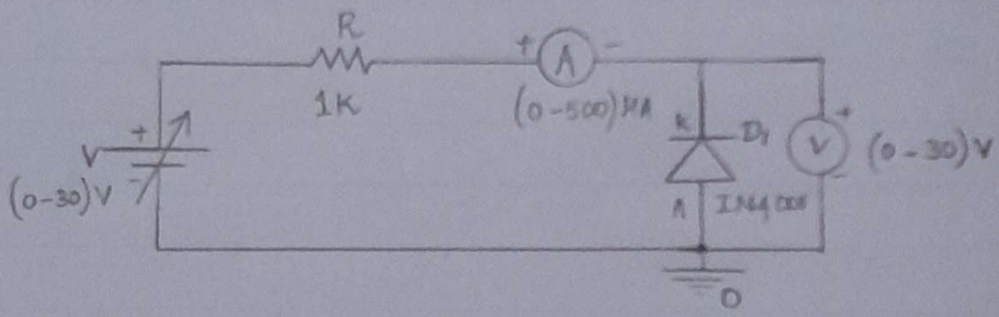
S.No	APPARATUS	TYPE	RANGE	QUANTITY
01	PN Junction Diode	IN4001		1
02	Resistance		1K ohm, 10% tolerence, 1/2 watt reading	1
03	Regulated Power Supply		[0-30V], 2A Rating	1
04	Ammeter	MC	[0-30]mA, [0-500]μA	Each 1
05	Voltmeter	MC	[0-1]V, [0-30]V	Each 1
06	Bread Board			1
	Connecting Wires			Few

CIRCUIT DIAGRAM:

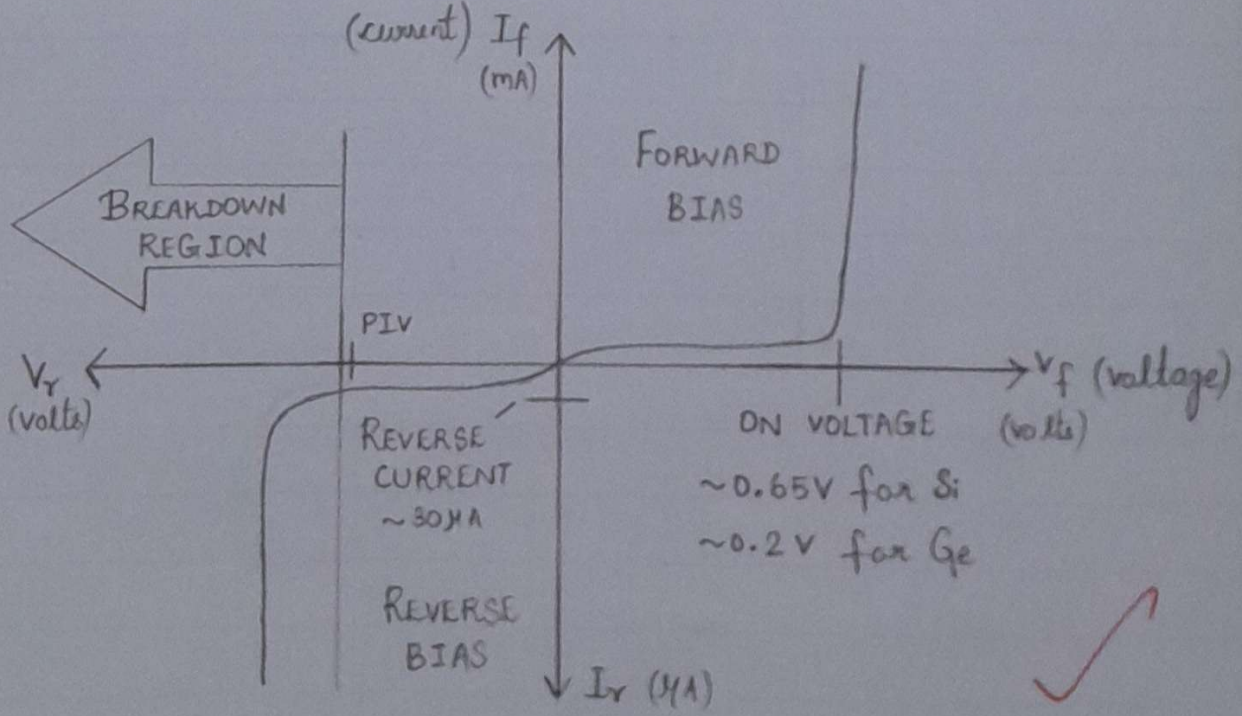
FORWARD BIAS:



REVERSE BIAS:



MODEL GRAPH:



Exp. No: 02
Date: 28-07-23

ZENER DIODE CHARACTERISTICS

AIM:

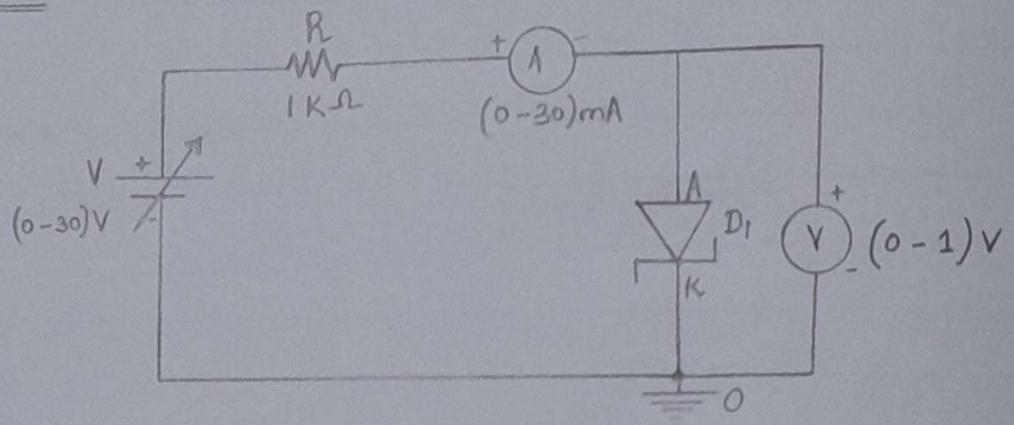
To Study the volt-Ampere characteristics of Zener diode and to measure the Zener breakdown voltage.

APPARATUS REQUIRED:

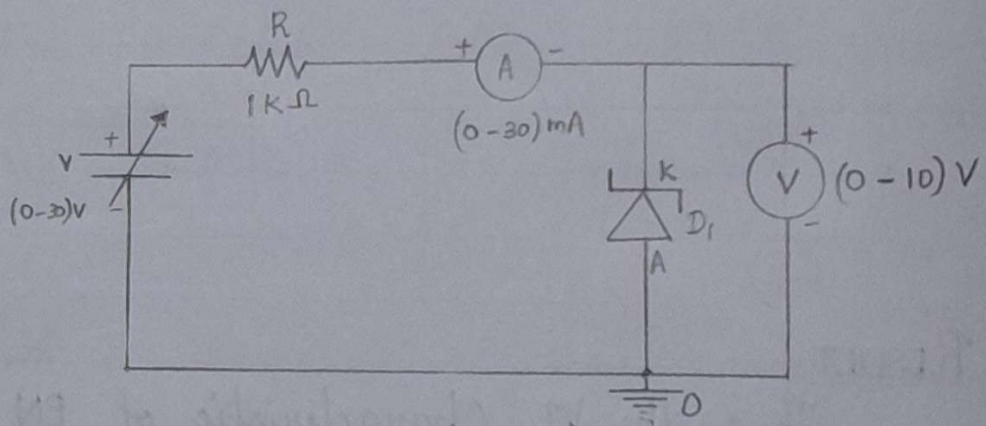
S.No	APPARATUS	TYPE	RANGE	QUANTITY
01	Zener Diode	Iz 6.2		1
02	Resistance		1K ohm, 10% tolerance, 1/2 watt rating	1
03	Regulated Power Supply		(0-30V), 2A rating	1
04	Ammeter	mC	[0-30] mA	1
05	Voltmeter	mC	(0-1)V, (0-10)V	1
06	Bread Board			1
	Connecting wires			Few

CIRCUIT DIAGRAM:

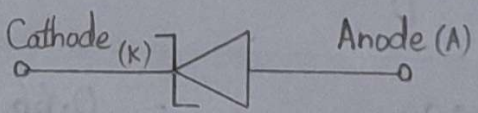
FORWARD BIAS:



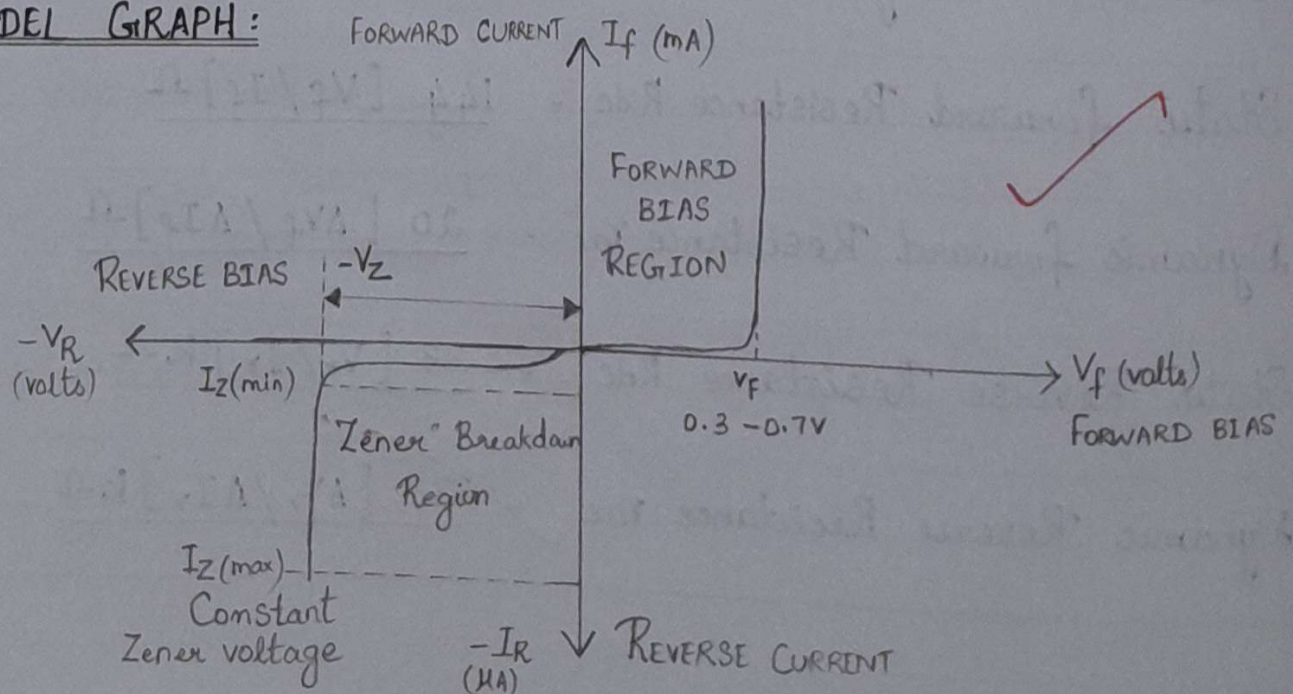
REVERSE BIAS:



ZENER DIODE SYMBOL:



MODEL GRAPH:



Ex. No: 03
Date: 04-8-23

DIODE RECTIFIER CIRCUITS - HALF WAVE RECTIFIER

AIM:

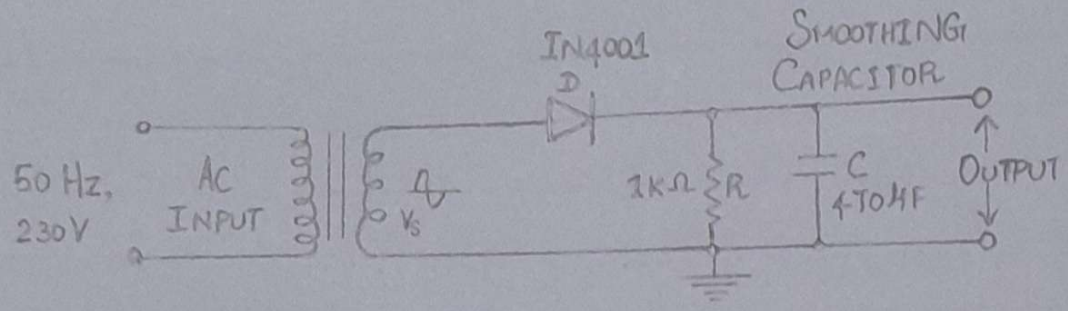
To design and construct the diode rectifier circuit and analyze the following Parameters

a. To plot output waveform of the HWR
b. To find ripple factor using formulae
c. To find the efficiency

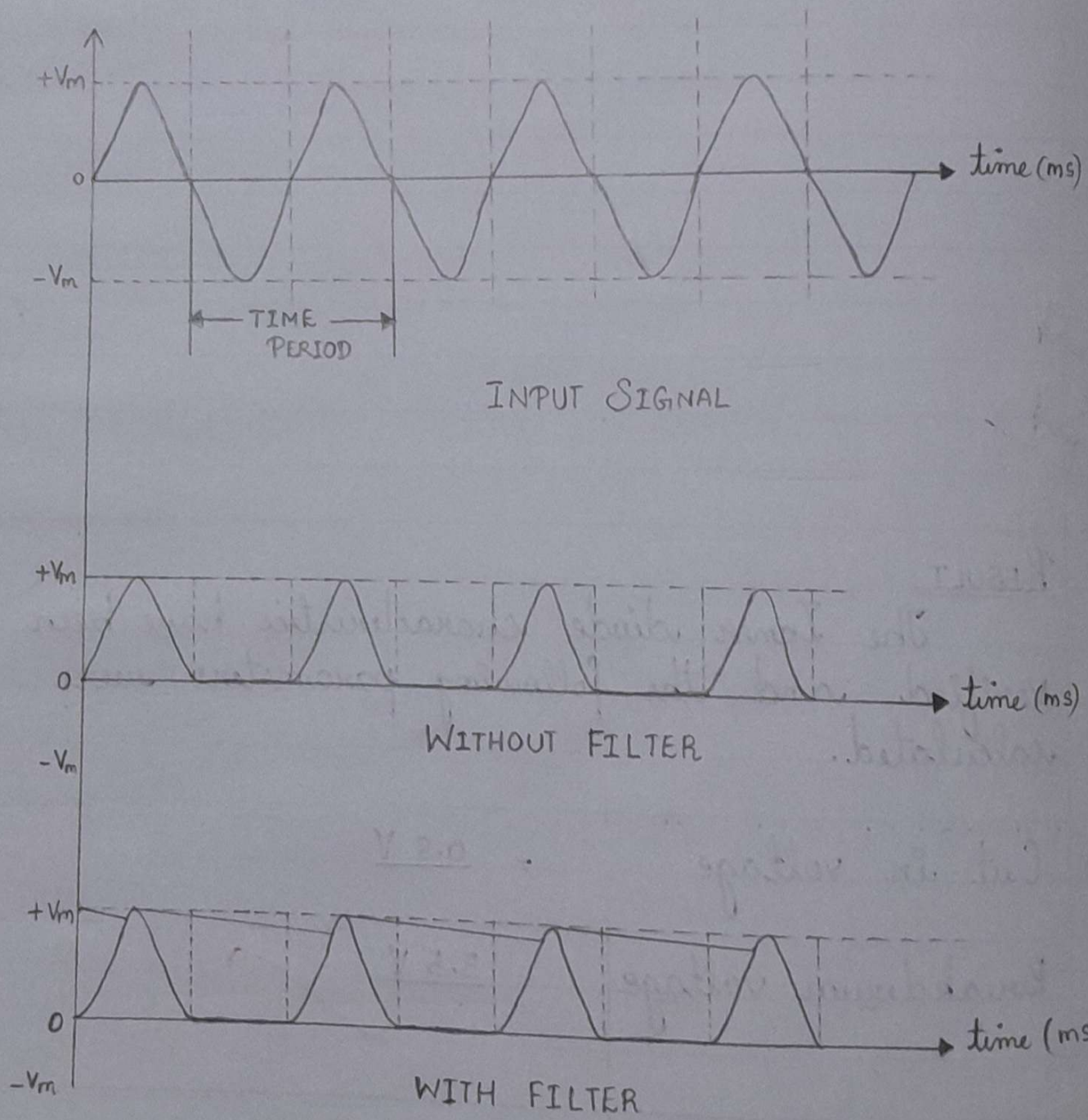
APPARATUS REQUIRED:

S. No	APPARATUS	TYPE	RANGE	QUANTITY
01	Step down transformer		[6-0-6]V, 500mA, 1A rating	1
02	Resistance		470 ohm, 10% tolerance, 1/2 watt rating	1
03	Capacitor		470μF	1
04	Bread board			1
	Connecting wires			Few
05	Diode	IN4001		

CIRCUIT DIAGRAM:



MODEL GRAPH:



Exp. No: 04
Date: 18-08-23

DIODE RECTIFIER CIRCUITS - FULL WAVE RECTIFIER

AIM:

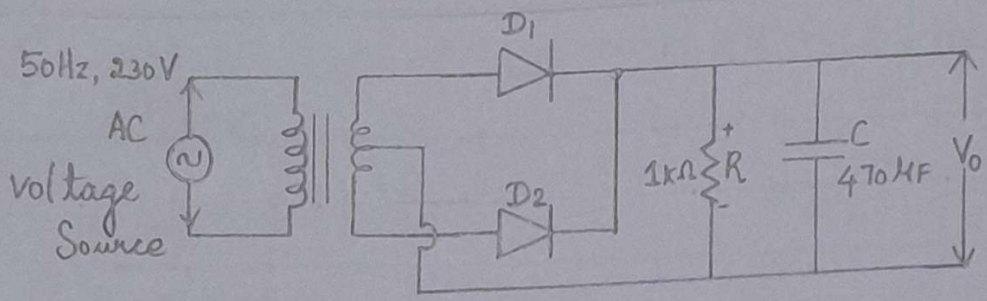
To design and construct diode rectifier circuit and analyze the following parameters.

a. To plot output waveform of the FWR
b. To find ripple factor using formulae
c. To find the efficiency.

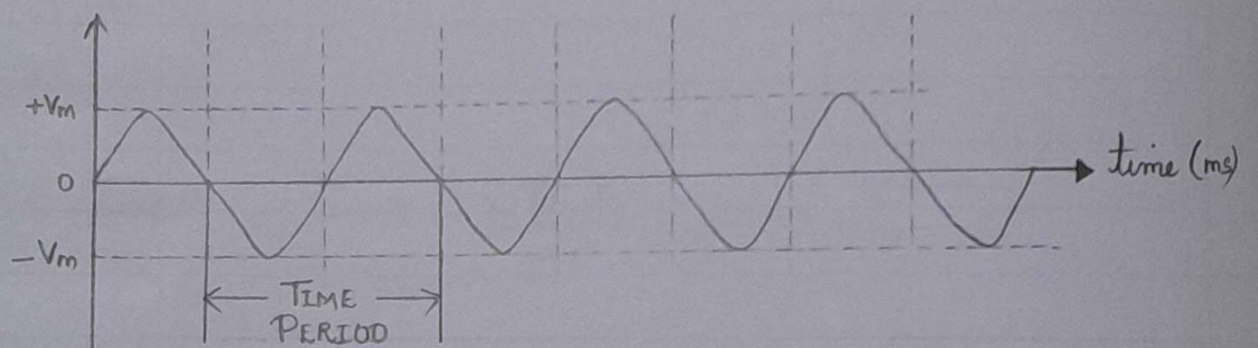
APPARATUS REQUIRED:

S.No	APPARATUS	TYPE	RANGE	QUANTITY
1.	Step down transformer		(6-0-6), 500mA, 1A rating.	1
2.	Resistance		470 ohm, 10% tolerance, 1/2 watt rating	1
3.	Capacitor		470 μF	1
4.	Diode	IN4001		2
5.	Bread Board			1
	Connecting wires			Few

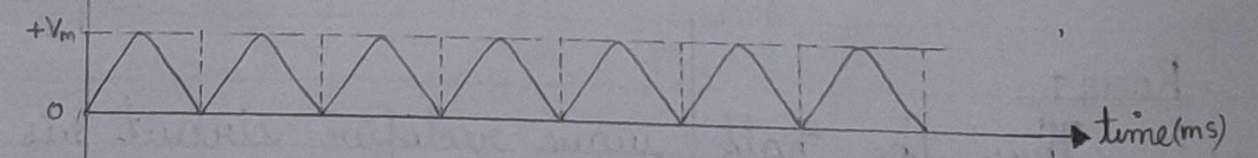
CIRCUIT DIAGRAM:



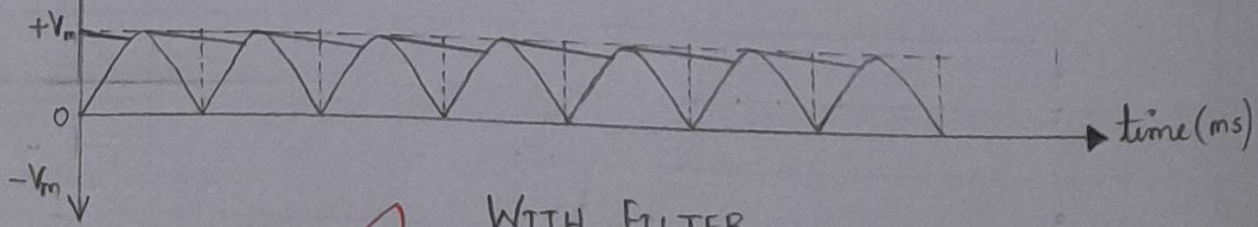
MODEL GRAPH:



INPUT SIGNAL



WITHOUT FILTER



WITH FILTER

Exp. No: 05
Date: 28-08-23

DIODE CLIPPER & CLAMPER

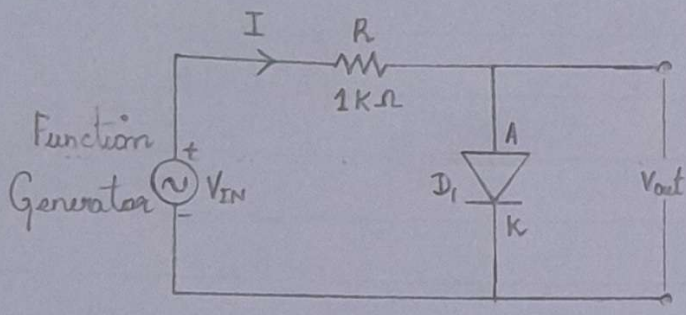
AIM:

To Construct and test the clipper and clamper circuits.

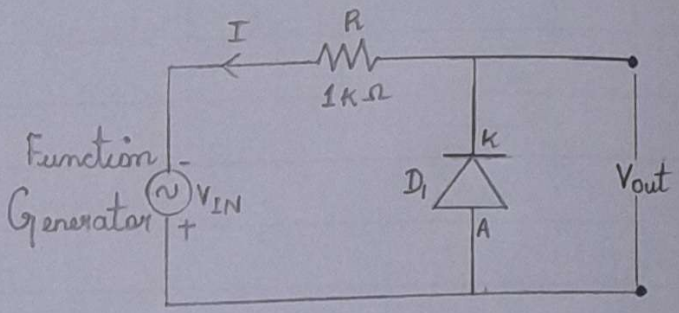
APPARATUS REQUIRED:

S.No	COMPONENTS	SPECIFICATION	QUANTITY
1.	CRO	(0-20M) Hz	1
2.	Function generator		1
3.	Resistor	10K Ω	1
4.	Capacitor	0.1 μF	1
5.	Diode	IN4007	1
6.	Bread board	-	1
7.	Connecting wires	-	-

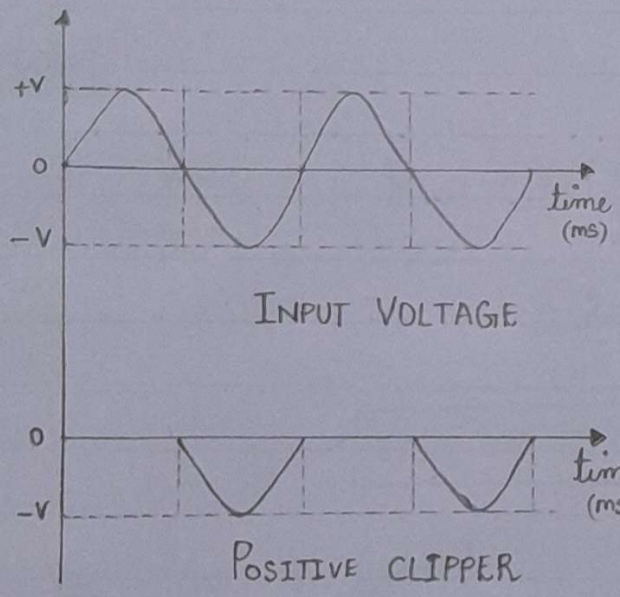
POSITIVE CLIPPER:

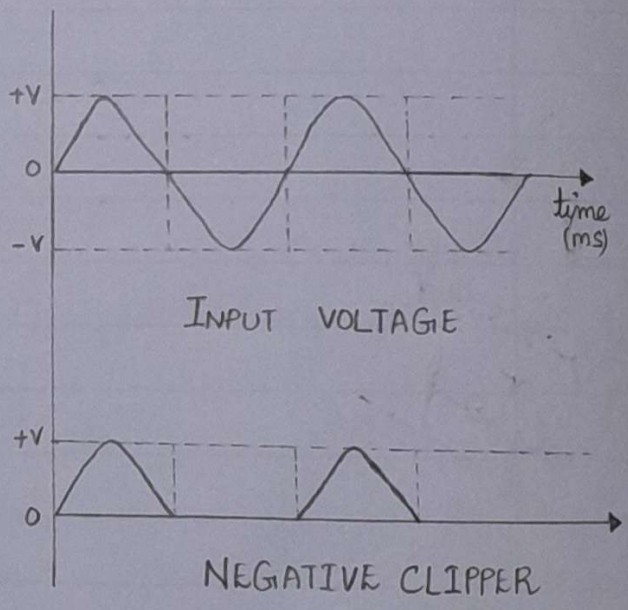


NEGATIVE CLIPPER:



MODEL GRAPH:

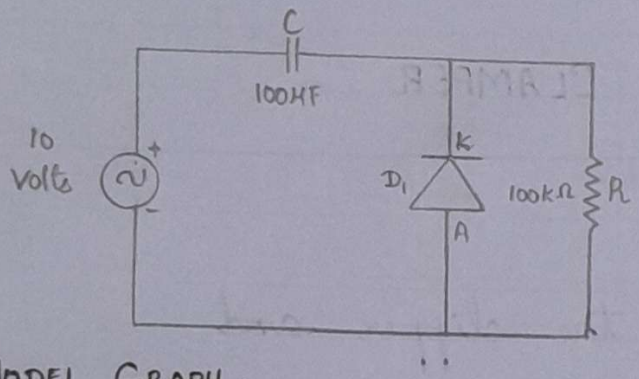




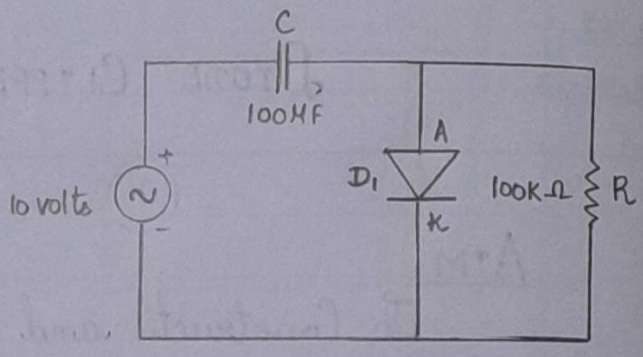
OBSERVATION:

	INPUT VOLTAGE	OUTPUT VOLTAGE	INPUT FREQUENCY	OUTPUT FREQUENCY
POSITIVE CLIPPER	2.0 V	2.0 V	7.5 KHz	7.5 KHz
NEGATIVE CLIPPER	2.0V	-2.0V	7.5 KHz	7.5 KHz

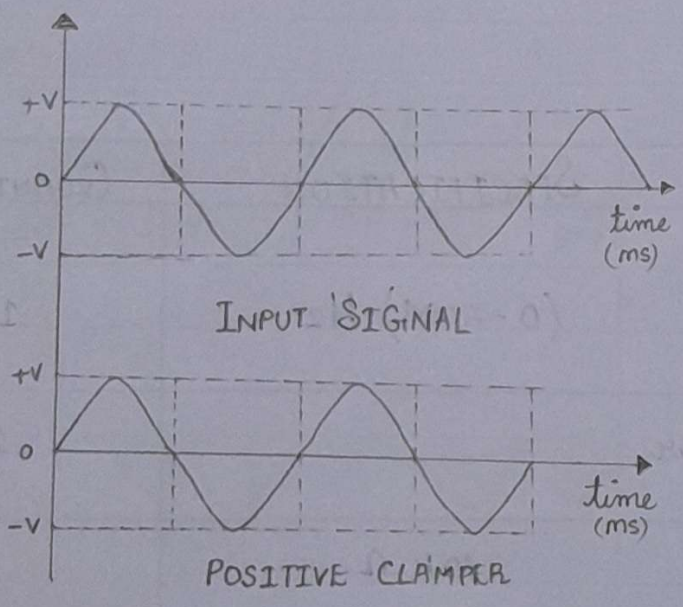
POSITIVE CLAMPER:

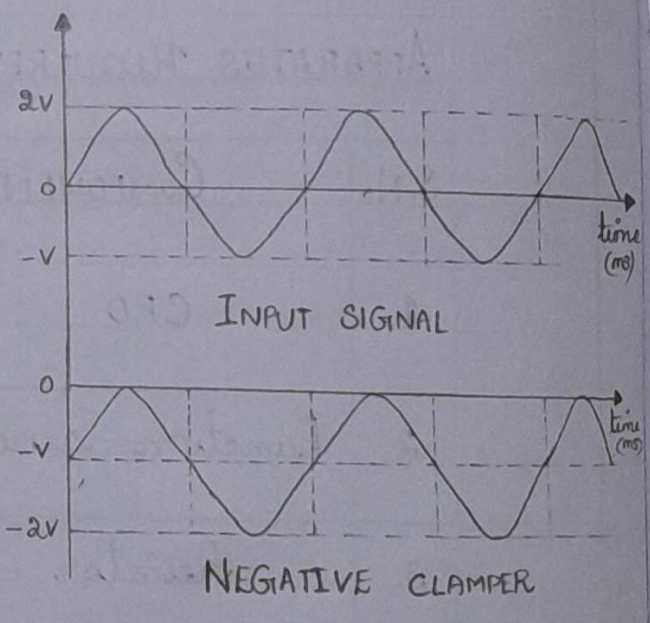


NEGATIVE CLAMPER:



MODEL GRAPH:





OBSERVATION:

	INPUT VOLTAGE	OUTPUT VOLTAGE	INPUT FREQUENCY	OUTPUT FREQUENCY
POSITIVE CLAMPER	2.0V	2.0V	7.65KHz	7.65 KHz
NEGATIVE CLAMPER	2.0V	-2.0V	7.65KHz	7.65KHz

Exp No : 04
Date : 26.07.23

CHARACTERISTICS OF BJT

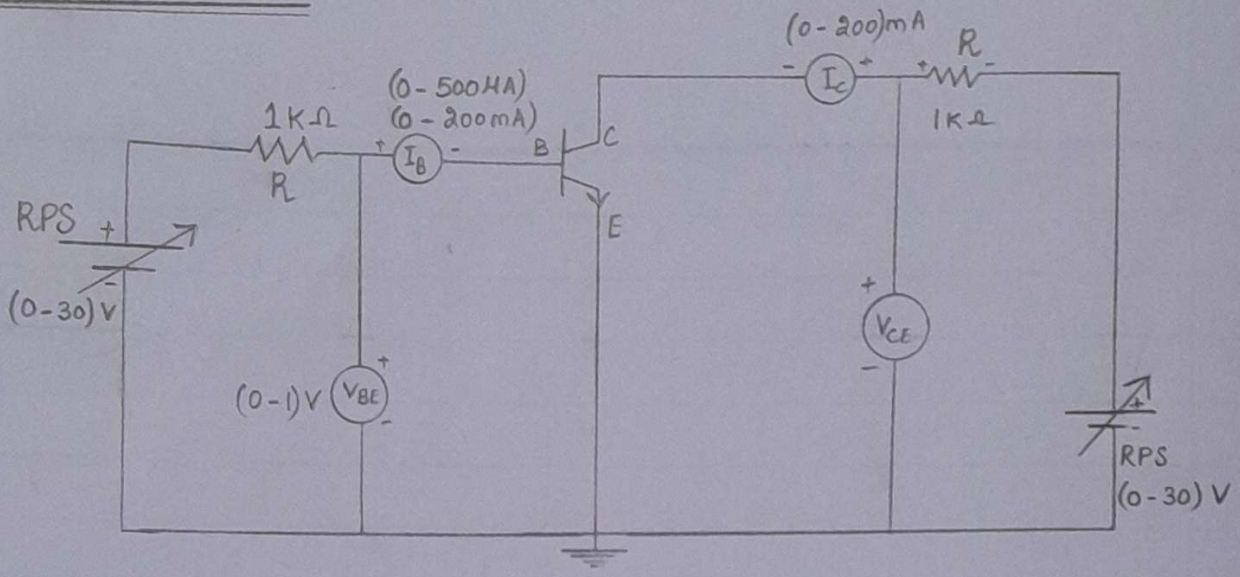
AIM:

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

APPARATUS REQUIRED:

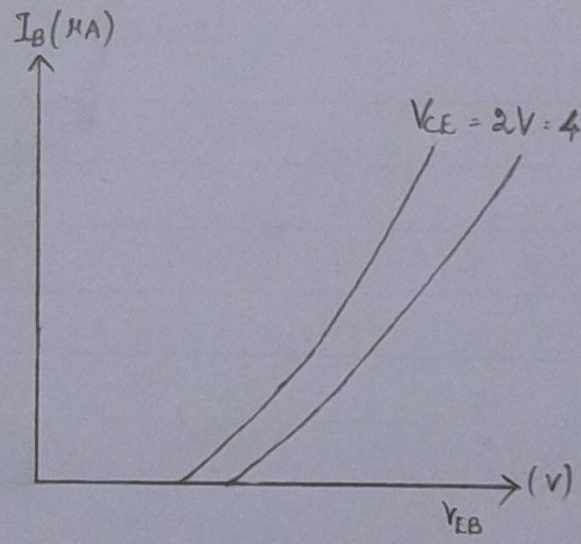
S.No	COMPONENT	SPECIFICATION	QUANTITY
1.	Transistor	BC 107	1
2.	Regulated Power Supply	(0-30)V	2
3.	Resistor	1KΩ	1
4.	Ammeter	(0-500)mA, (0-30)mA	1
5.	Voltmeter	(0-20)V	2
6.	Bread board	-	1
7.	Connecting wires	-	-

CIRCUIT DIAGRAM:

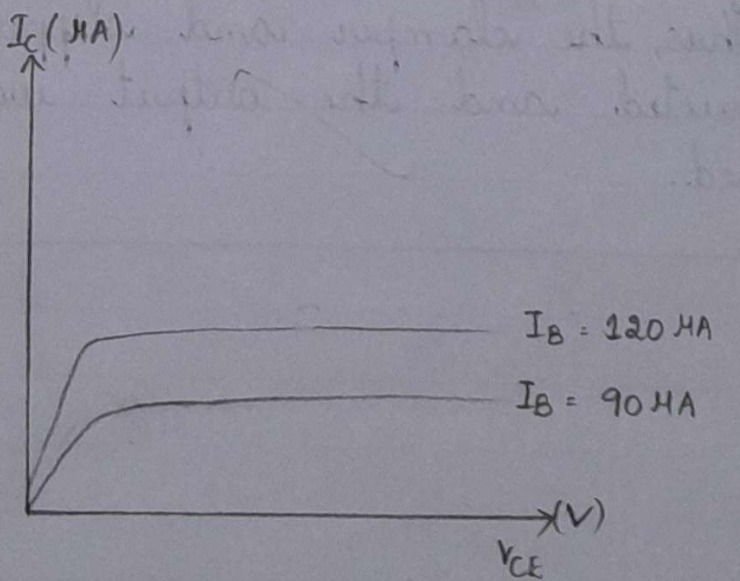


MODEL GRAPH:

INPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:



OUTPUT CHARACTERISTICS OF COMMON EMITTER TRANSISTOR:



Exp. No: 07
Date: 22.09.23

CHARACTERISTICS OF METAL OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTORS (MOSFETS)

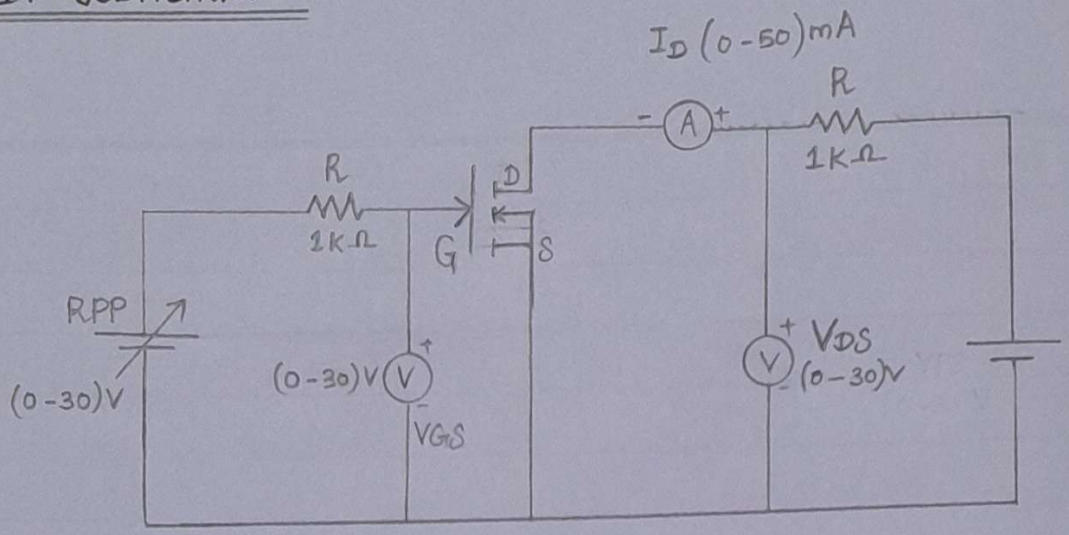
AIM:

To obtain the drain characteristics and transfer characteristics of MOSFET.

APPARATUS REQUIRED:

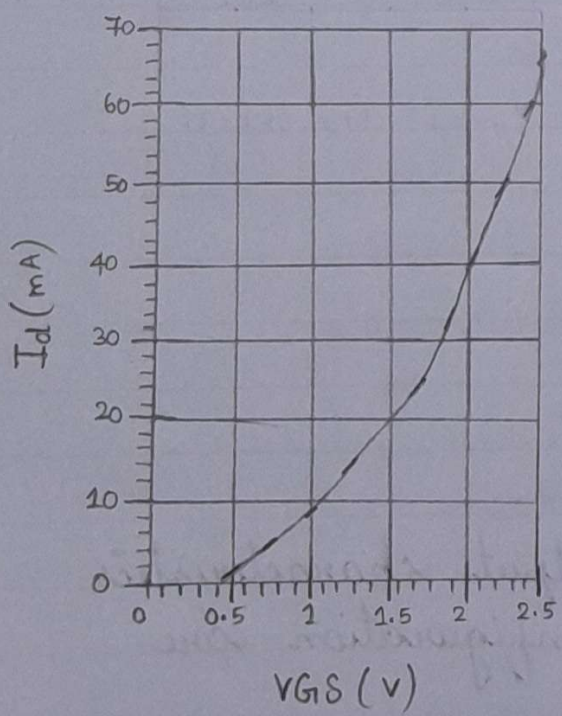
S.No	APPARATUS	TYPE	RANGE	QUANTITY
1.	MOSFET	IRF150	-	1
2.	Resistor	-	500Ω, 1KΩ	1 each
3.	DC Power Source	-	5V	1 each
4.	Connecting wires	-	-	-

CIRCUIT DIAGRAM :



MODEL GRAPH :

TRANSFER CHARACTERISTICS



DRAIN CHARACTERISTICS