APL

Date: 14·06·2022

Roll No: 20951A0494 Name: Mohammed Sohail

Exp No: 09 Experiment Name: Non linear wave shaping

DAY TO DAY EVALUATION:

|	Preparation	Algorithm	Source Code	Program Execution	Viva	Total
		Performance in the Lab	Calculations and Graphs	Results and Error Analysis		
Max. Marks	4	4	4	4	4	20
Obtained	4	4	4	3	3	18

Signature of Lab I/C

START WRITING FROM HERE:

Aim: To study the various clippers and clamper circuit and to plot the output waveforms for a sinusidual input signal.
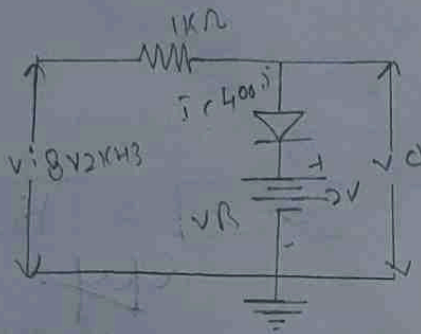
Apparatus :-

1. Resistor
2. diode
3. Digital analog discovery kit with Pc
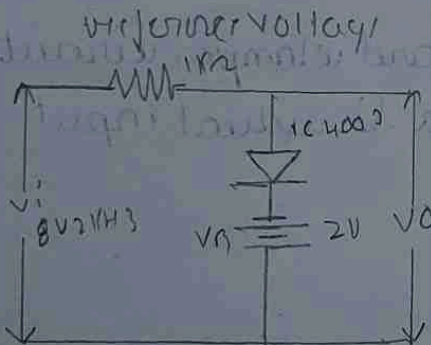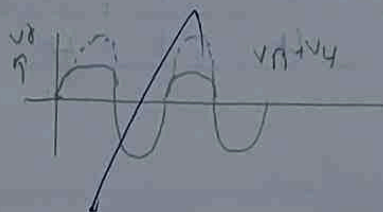4. Dual DC power supply
5. Bread board
6. connecting wires.

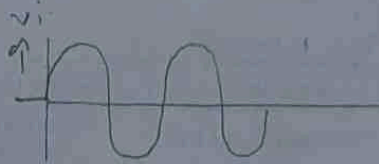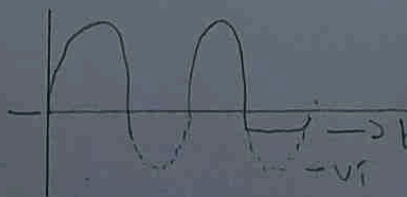# * circuit Diagram *
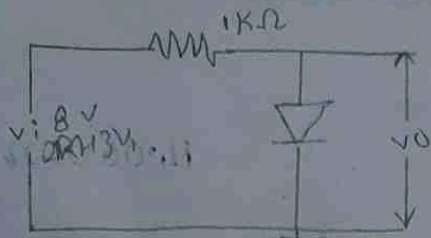
positive clipping

Positive clipping with positive
reference voltage

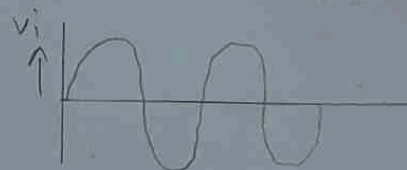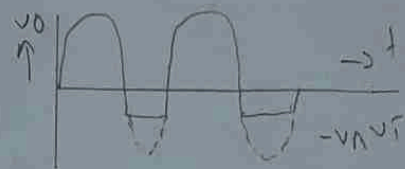positive clipping with
negative Reference voltag.
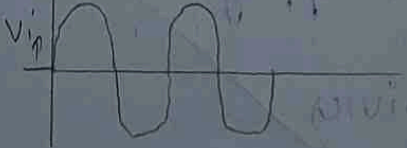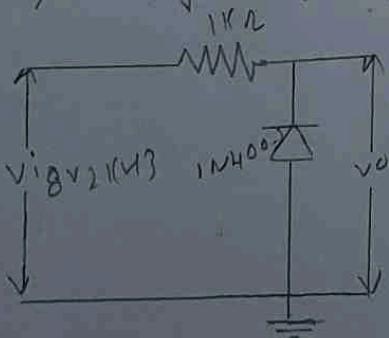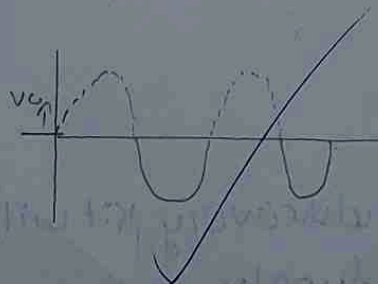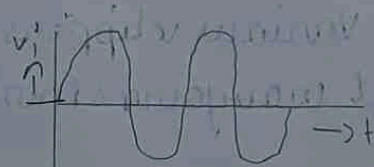
Negative clipper with negative Reference voltage

R = 1KΩ
1N4007
Vi = 8V 2KHz
V2 = 2V
V0

Vi → t

V0 → t
−Vm Vi

1KΩ
Vi = 8V 2KHz
V0

Vi ↑

V0 ↑ → t
Vr Vi
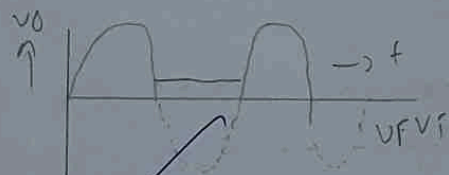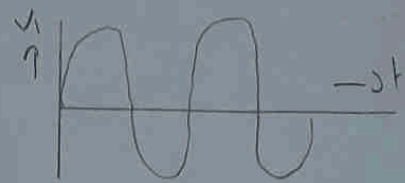
Clampers :-

Negative clamper :

C = 1µf
0.7V D
Vi 1N4007

Vi
Vm
−Vm
t   i/p waveform

V0
−2V0
t   o/p waveform

Negative clamping with positive Reference voltage

0.7V D
1N4007
1.5V VR
R = 100KΩ
V0

Vi
t ←   i/p waveform

V0
→ t   o/p waveform
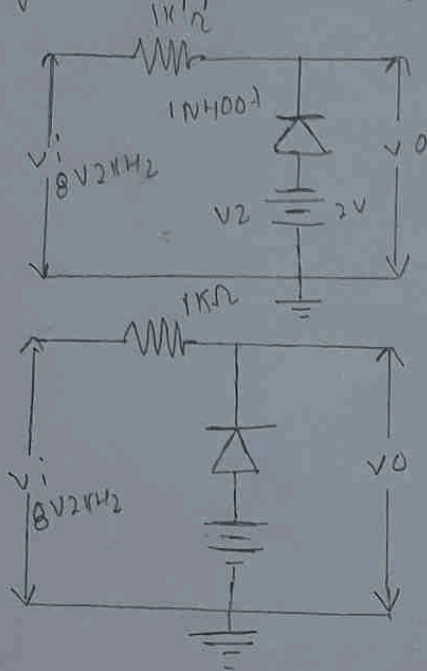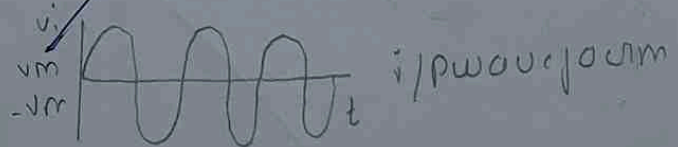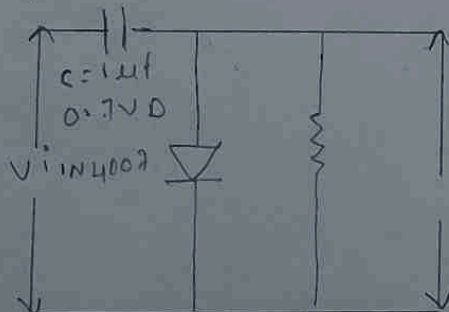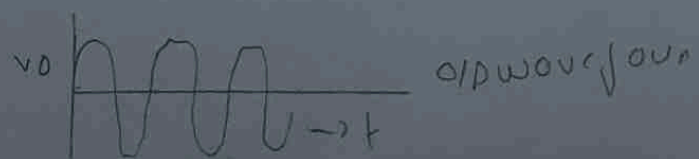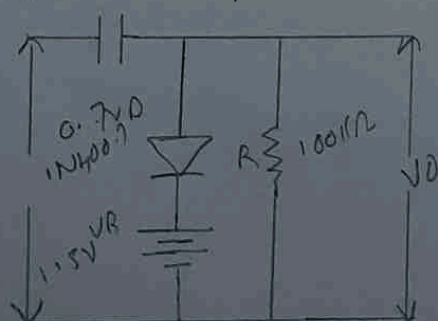
Negative clamping with Negative Reference voltage:
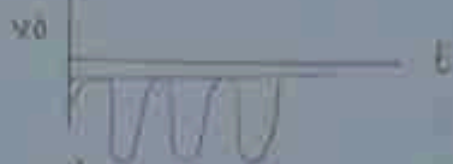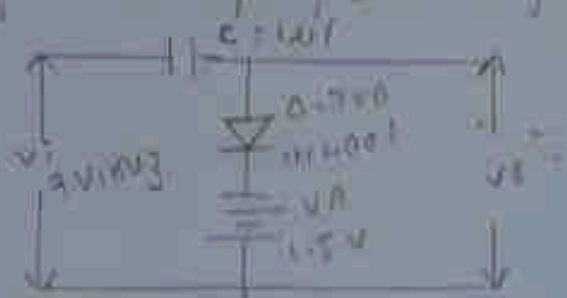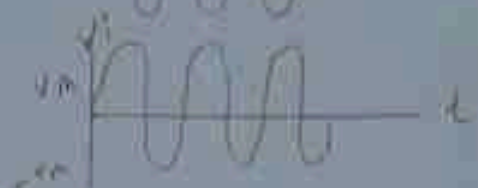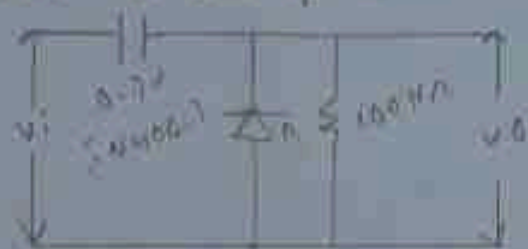
Positive clamping

Positive clamping with negative Reference voltage:

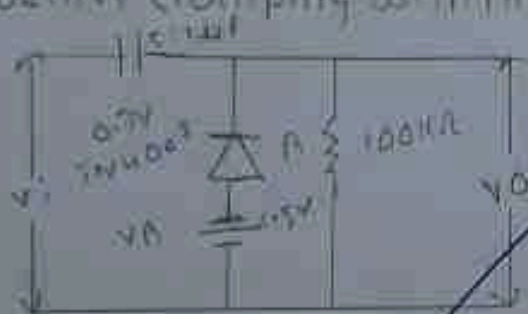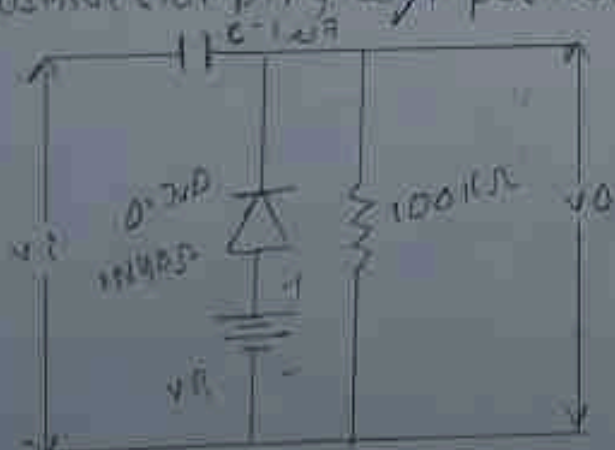# Positive clamping with positive Reference voltage:

* procedure *

- connect the circuit as shown.
- Apply the input sine wove to the circuit (8Vpp, 2KHz)
- Switch on the power supply and adjust the output of AF generator to 8V (ptop)
- Observe the input & output waveforms on CRO and note down the readings.
- plot the graph of input vs output waveforms four different clipping circuit.

* Tabular column *

Type of clipping	Reference voltage	
Positive clipper	0V	Vmax = 24mV, Vmin = 444.7mv
	2V	Vmax = 0.5V, Vmin = 2.03V
	-2V	Vmax = 2.5V, Vmin = 2.03V
Negative clipper	0V	Vmax = 20mV, Vmin = 444.8
	2V	Vmax = 1.0032, Vmin = 2.0V
	-2V	Vmax = 0.5V, Vmin = 2.0V

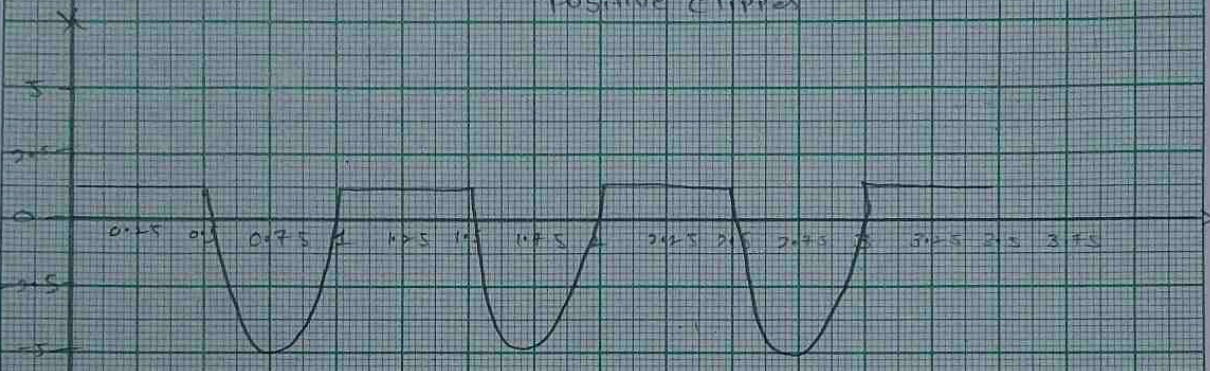| Type of clamping	Reference volt-	
positive clamper	i/p = 10v	Vmax = 0V, Vmin = 4.25V
negative clamper	i/p = 10v	Vmax = 4.48V, Vmin = 0

* Result *

Hence plotted the output waveform of various clipper & clampers for Sinusoidal input.
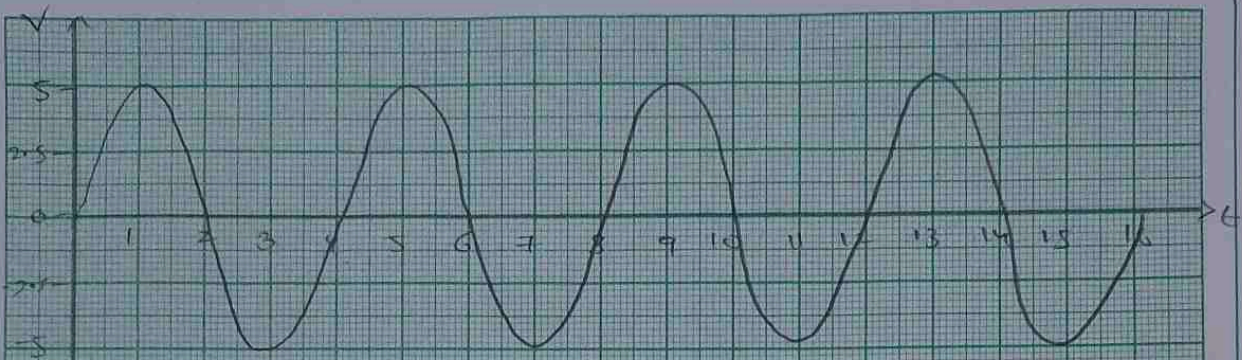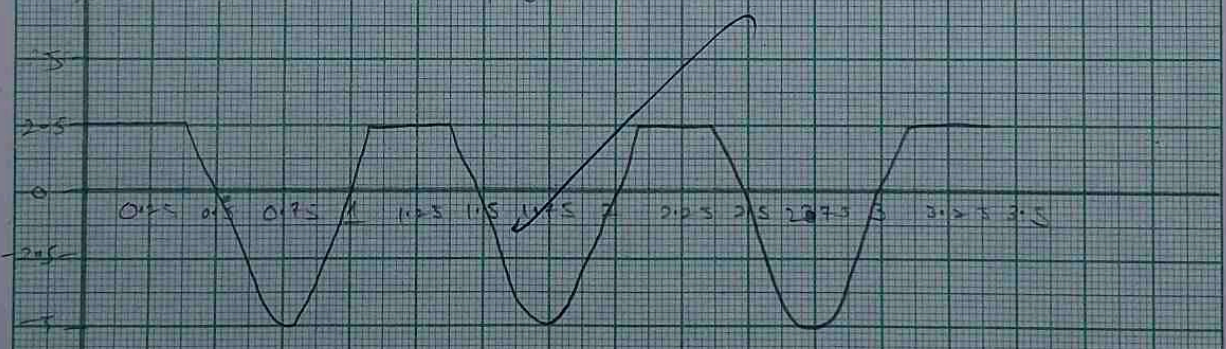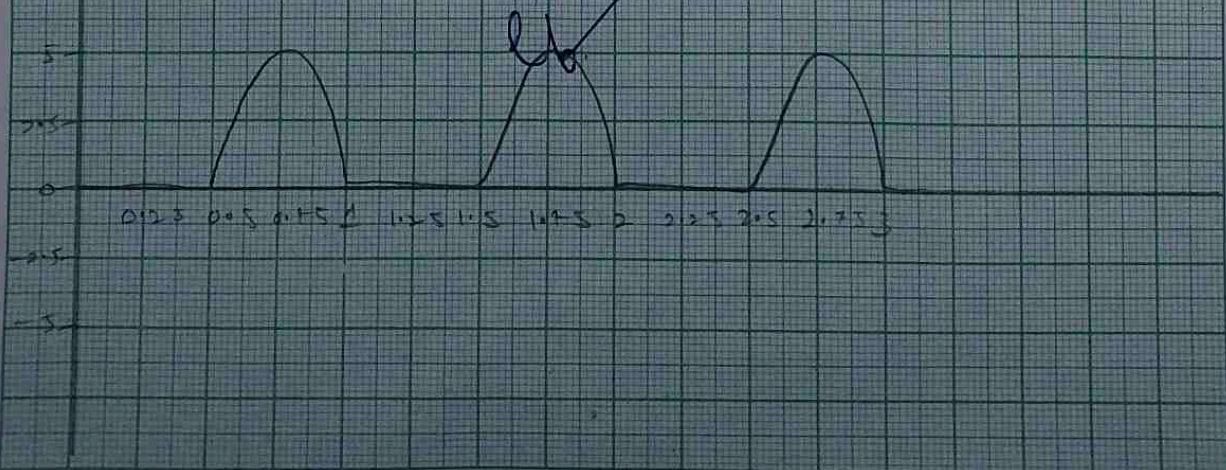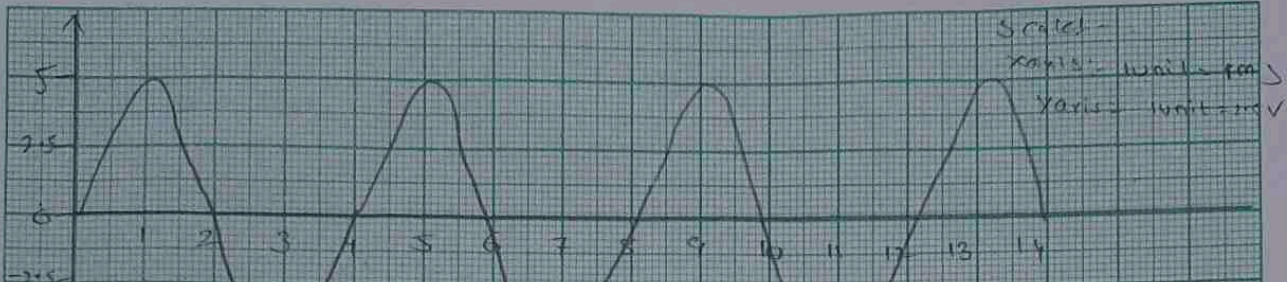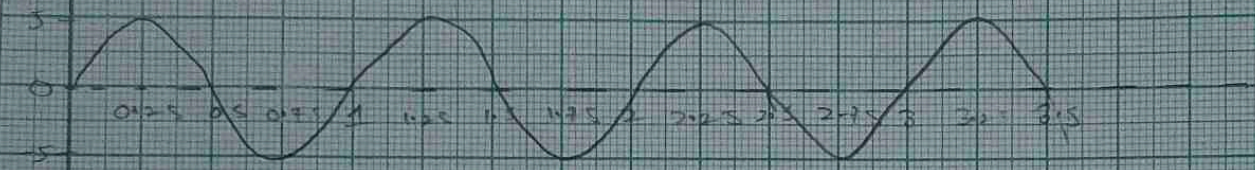
Positive Clipper

Positive clipper with reference

Negative clipper

Scale:-
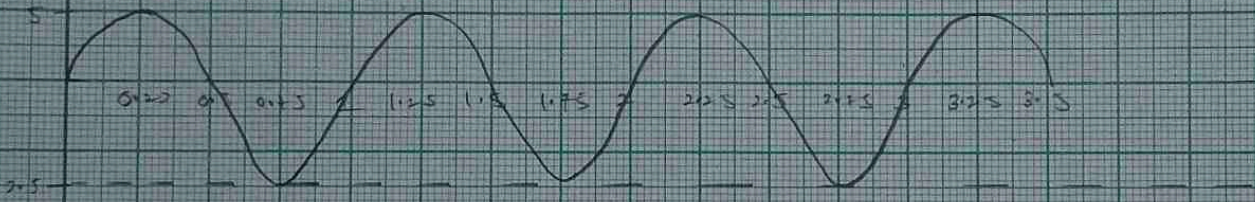x axis:- 1unit = 1ms
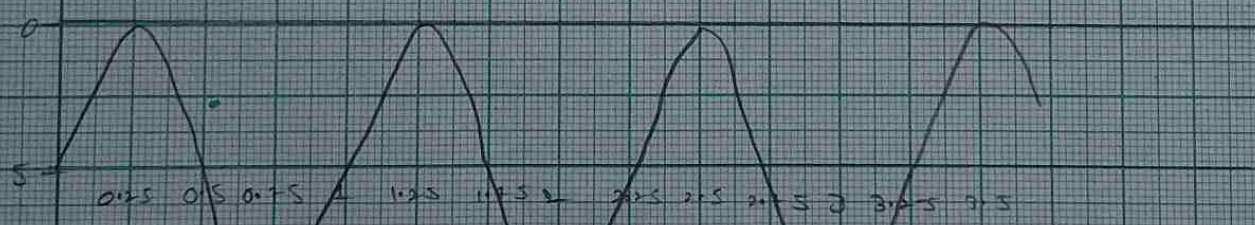y axis:- 1unit = 1mV

positive clamper

positive clamper with reference

Negative

Negative clamper with reference

Ajay