Q22>

AIM: To study the clipping circuits for different reference voltages and to verify the responses inorder to clip the negative cycle of 1kHz input under unbiased condition and obtain the output voltage across the load.
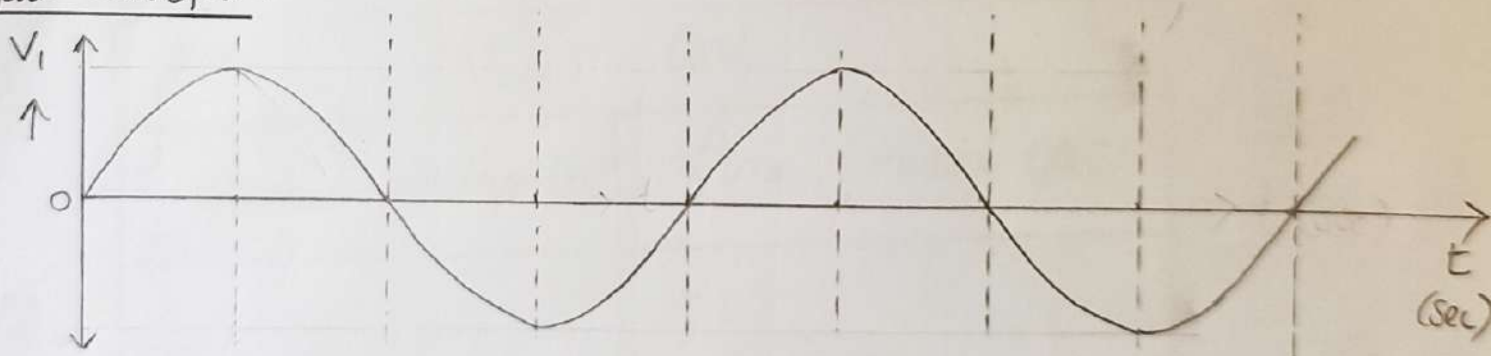
APPARATUS:

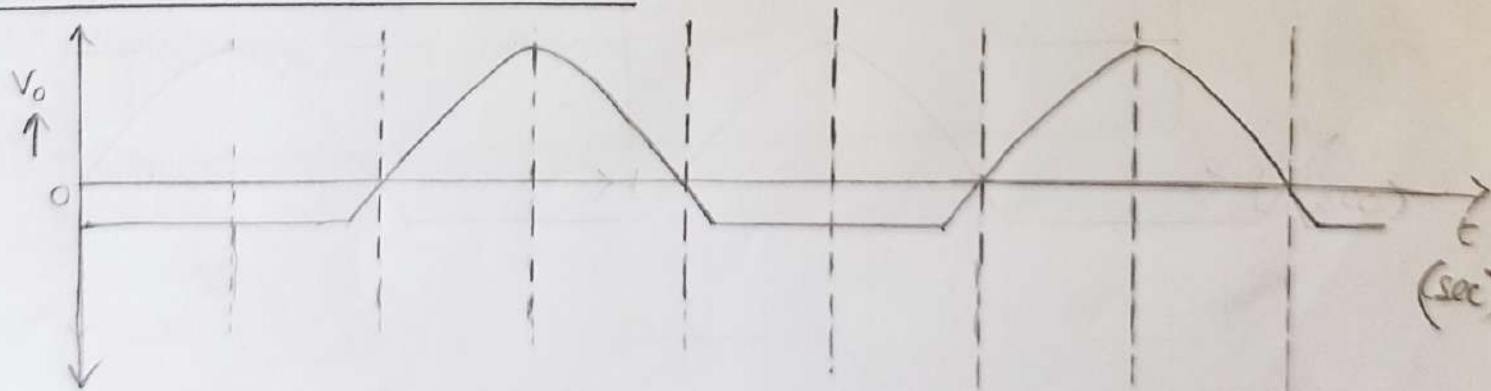| SL.No	Name	Range	Qty
1	CRO	1Hz – 20MHz	1
2.	RPS	(0-30)V	1
3.	Bread Board	—	1
4.	Connecting wires	—	Req.
5.	Function Generator	1Hz – 1 MHz	1
6.	Resistor	10kHz	1
7.	Diode	IN4007	1

Circuit Diagram:-
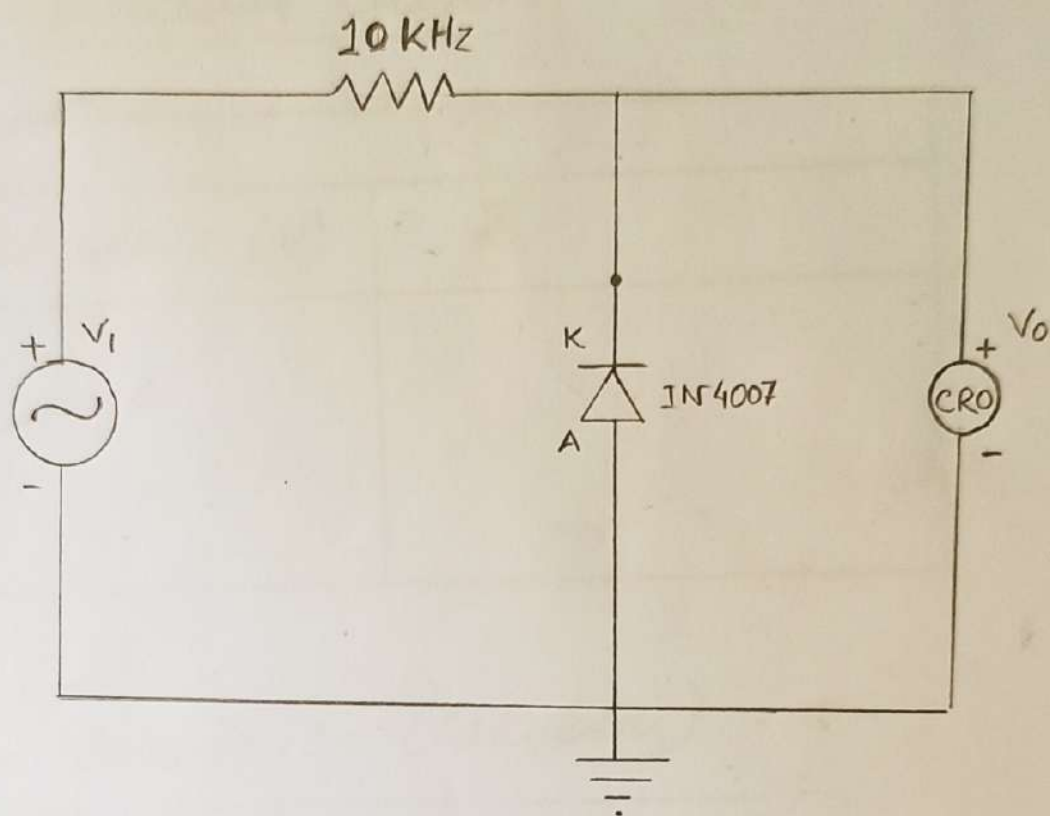
Model Graph :-

Input Waveform

Unbiased Clipper Output waveform.

Tabular Column :- (calculation)

Unbiased Negative Clipper :

$V_{ref} = 0V$	
Output Voltage (mV)	Time Period (μs)
$- 612.61$	5

Result : The characteristics of unbiased Clipper are studied from the e-circuit simulation and the graph. Here the negative cycle of 1 KHz input voltage is clipped using an unbiased clipper.
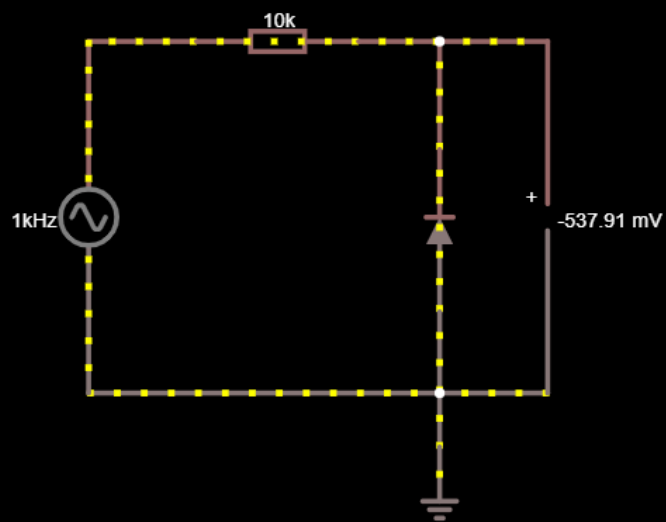
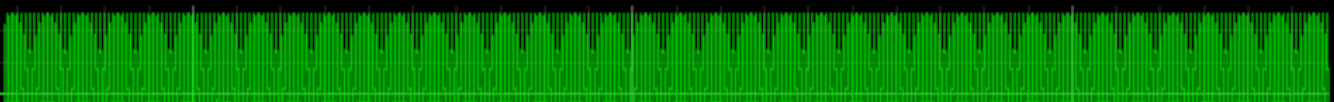**Viva:-**

Ans 1> Clippers can be used as:-

- For generation of new waveforms or shaping the existing waveform.

- It is used as a protector of transistor from transients

- The excessive noise spikes above the certain level can be limited or clipped in FM transmitters by using series clippers.

- They are frequently used for the separation of synchronizing signals from composite picture signals.

Ans 2) The frequency of a sine wave is the number of complete cycles that happen every second i.e. in other words, it is the number of waves that passed pass a fixed point in unit time.

The time period of a sinusodial wave is the time taken taken to complete one revolution (T). In other words, it is the length of one cycle of the curve. It is related to the frequency as $T = \frac{1}{f}$.

10k

1kHz

+

-537.91 mV

5 V
voltmeter

t = 3.96 s
time step = 5 µs

Ans 2> The figure ...

Scale: Along X → 10 small boxes = 2 sec
Along Y → 10 small boxes = 10 V

V_{in} (V)

5

0   5 µs   10µs   15 µs   20µs   25µs   30µs   time (s)

-10

V_{out} (V)

5

0   5µs   10µs   15 µs   20µs   25µs   30µs   time (s)

-12.61

unbiased Negative Clipper

Narayan Paper House, Kolkata-9   2 MM DIVISION