

## EXPERIMENT NO. 5

**OBJECTIVE:** To study clipper and clamper circuits.

**APPARATUS:** Experiment Box, Function generator, Regulated power supply, Components (R, C and diodes).

**THEORY:**

### **CLIPPER OR CLIPPING CIRCUITS**

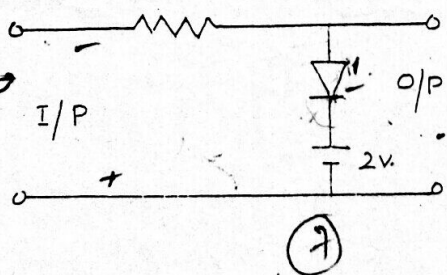
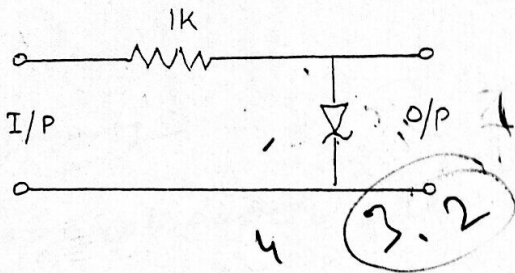
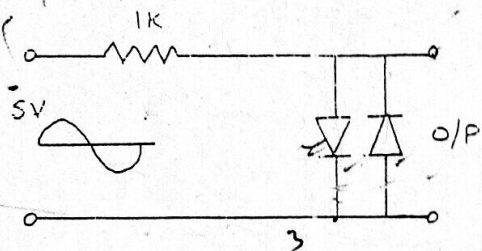
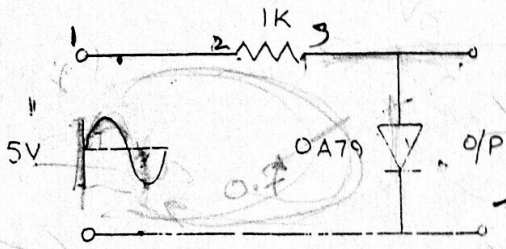
These circuits normally use a diode and a resistance and are used to clip a portion of the input waveform to give the output waveshape. They are generally of two types; i.e. Upper clipper or lower clipper depending upon the portion of the input waveform which is clipped by the circuit.

### **CLAMPER OR CLAMPING CIRCUITS**

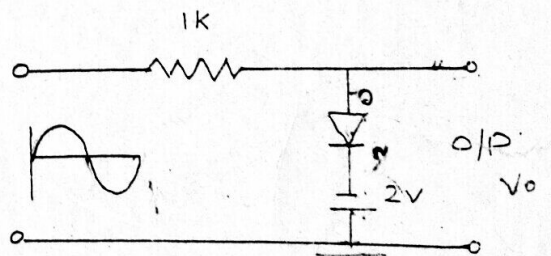
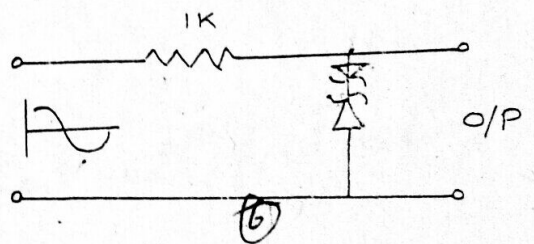
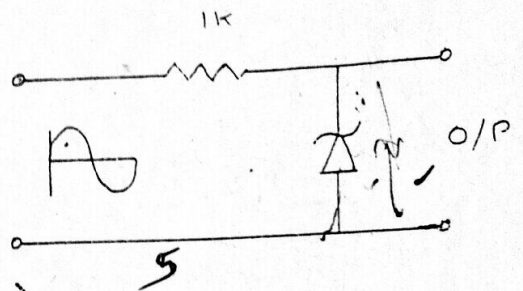
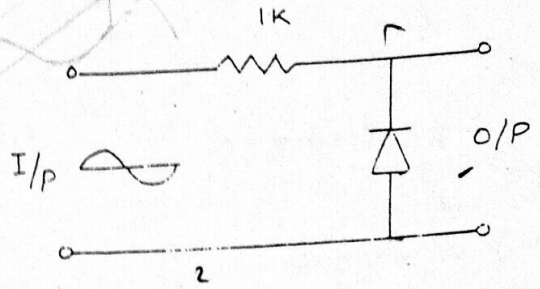
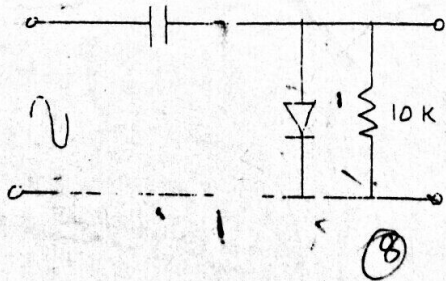
These circuits use a diode, resistor and a capacitor. The function performed by a Clamper circuit is one of "Level Translation", i.e. the zero reference level of an input wave is translated or clamped above or below the input zero reference level. This is effected by charging an on-line capacitor to its peak potential which raises or lowers the baseline level of the input waveform. Clamper circuits are of two types, i.e. Positive or Upper Clamper and Negative or Lower Clamper, depending on whether the clamping is done above or below the zero level of the input waveform. In the circuit diagram below, Fig. 1 to 8 are clipper circuits and Figs. 9 and 10 are clamper circuits.

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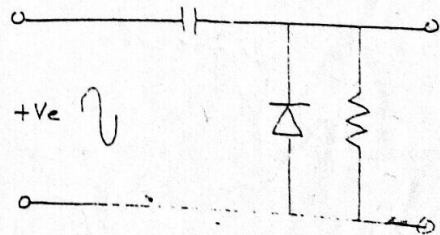
CIRCUIT DIAGRAM:



- CLAMPER



+ve CLAMPER



2.5 + 0.7 = 3.2



## PROCEDURE:

Set the amplitude from the function generator with the working range of components seen from the data sheets.

Connect input to CRO and check the input frequency, waveshape and amplitude on CRO. Now connect the input terminals of the circuit box according to the experiment chosen.

Draw the input and output waveshape on graph paper to analyze the performance and action of circuit.

## OBSERVATIONS—

On a graph paper draw the input and output wave shapes for all the 10 circuits given.