**EXPERIMENT NUMBER 1: DC VOLTAGE SOURCE CONSTRUCTION.**

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**PRELAB**

1. Give three applications of diodes;

1- As Rectifiers.

2- As Logic Gates.

3 -As Voltage Multipliers.

1. Give the functioning of Figure 1 and Figure 2 below. The input voltage wave form is given in figure 0.



Figure 0



Figure 1

Figure 1 above is a half wave rectifier circuit. Alternating current is the input of the half-wave rectifier. A step-down transformer takes an input voltage and the resulting output of the transformer is given to the load resistor and to the diode. During the positive half cycle, the diode is under forwarding bias conditions.



Figure 2 is a bridge rectifier or full wave rectifier. In a full wave rectifier circuit we use two diodes, one for each half of the wave. A multiple [winding transformer](https://www.elprocus.com/know-more-about-electrical-isolation-transformers-and-auto-transformer/) is used whose secondary winding is split equally into two halves with a common center tapped connection. Configuration results in each diode conducting in turn when its anode terminal is positive with respect to the transformer center point C produces an output during both half-cycles. Full rectifier advantages are flexible compared to that of half wave rectifier.

1. Differentiate between a full wave rectifier and a half wave rectifier in terms of frequency, period, mean value of the output signal.

- Output frequency of half wave rectifier is equal to the frequency of input whereas in full wave rectifier output frequency is twice of the input.

-The half wave rectifier operates only at alternate half cycles, half periods whereas a full wave rectifier will operate at all cycles, full periods.

* The mean value of the output signal is half that of the input signal in a halfwave rectifier, while The mean value of the output signal is equal to that of the input signal in a full wave rectifier.