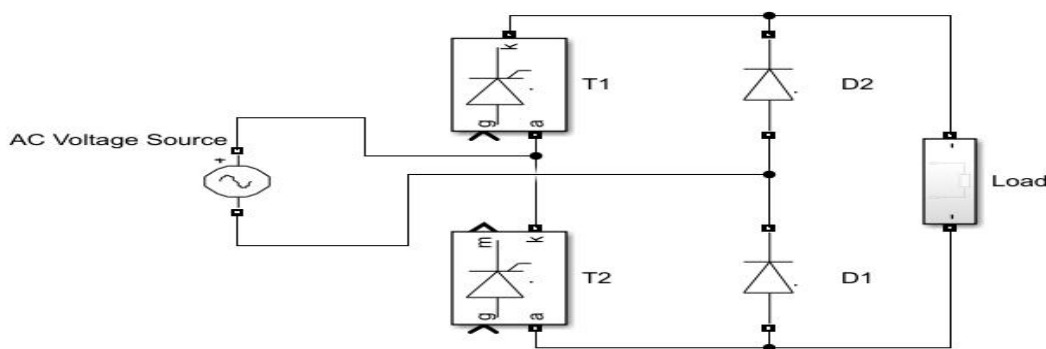# Experiment No.- 10

Objective of the Experiment: **To Study the 1-Phase Semi-converter (Asymmetrical) Rectifier with R and Motor load.**

Equipment Needed:

1. Scientech 2700 Trainer Kit.
2. Firing Circuit unit.
3. Resistive Load.
4. Patch Cords.
5. DSO.

Circuit Diagram:

Note: Gate pulse will be given by firing circuit unit internally.
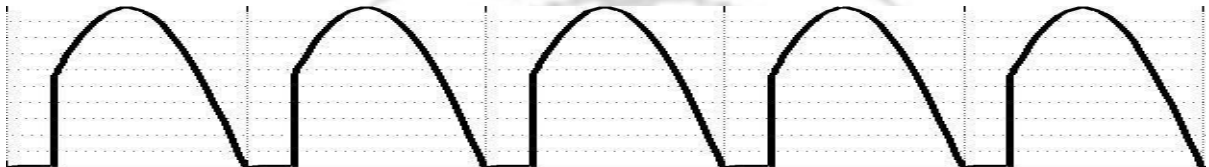
Procedure:

1. Make the connections as per the given circuit diagram.

2. Give the gate pulses from the firing circuit unit to the SCR assembly carefully.

3. Connect the given **resistive** and **motor load** one by one.

4. Connect the DSO probes and multi-meter across the load.

5. Make sure the connection is **OK** and patch cords are **not loose**.

6. Switch on the main supply.

7. Switch on the firing circuit unit and DSO.

8. Vary firing angle and take the required readings from the DSO and multi-meter.

9. Switch off the firing circuit unit and main supply after completing the experiment.

10. Calculate the desired results from the observed data.

Expected Output Voltage Waveforms:

For Resistor Load:
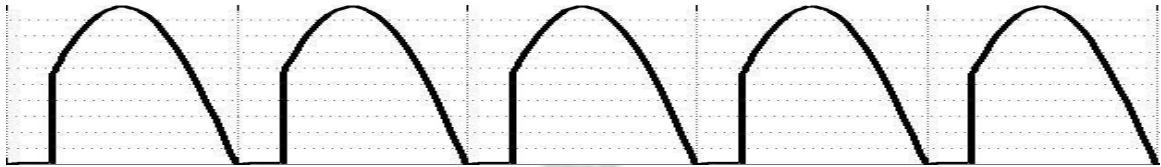
For Motor Load:

Observation Table:

				Average Output Voltage (V_O) (Volt)		
Sl No.	Firing Angle (α)	Extinction Angle (β)	Conduction Angle (γ)	V_O(Calculated)	V_O(Measured)	% Error
1.						
2.						
3.						
4.						
5.						

$V_{peak}(V_m) = \qquad V$

Calculations:

1. **For Resistor Load:**

$$V_o = \frac{2V_m}{\pi} \, Cos\alpha$$

2. **For Motor Load:**

$$V_o = \frac{2V_m}{\pi} \, Cos\alpha$$

Discussion:

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