Experiment 4: Study and Observation of Clamper Circuit.

Full-Wave Rectifier:

A clamper circuit is an electronic circuit designed to "clamp" or add a DC offset to an AC input signal. It shifts the entire waveform up or down to a desired DC level. There are two types of clamper circuits: positive clamper and negative clamper.

Equipment and Software Requirements:

- Proteus simulation software
- Computer with Proteus installed

Circuit Diagram:
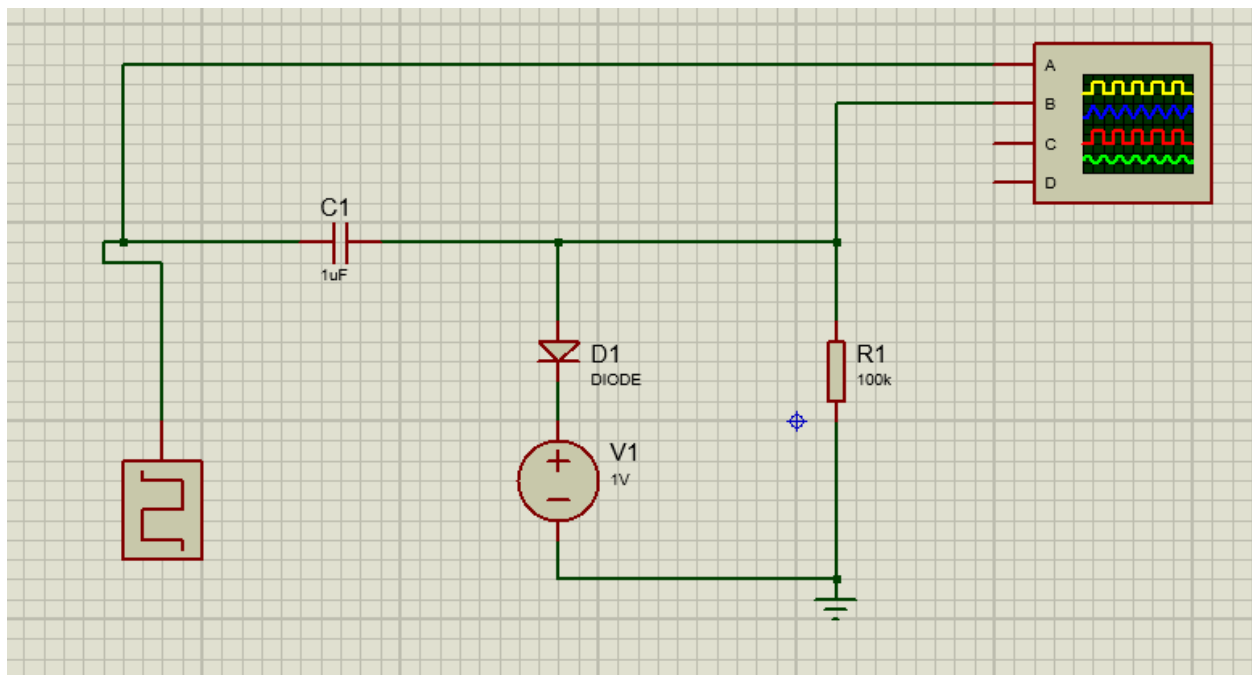
Data Collection and Analysis:

- Record the input and output voltages in a tabular form for different input values.
- Analyze the results and observe how the clamper circuit adds a DC offset to the AC input signal.

Precautions:

- Ensure proper connections in the circuit.
- Avoid applying excessive voltage to the diode.
- Use appropriate units and scales for measurements.
- Be cautious when using simulation software to avoid incorrect configurations.

Lab Task:

Design the clamper circuit with:

i)   A negative reference voltage.
ii)   Reversing the diode
iii)   Sinusoidal input

Questions and Exercises:

a)   What is the primary purpose of a clamper circuit in electronics?
b)   Explain the difference between a positive clamper and a negative clamper.
c)   Describe how a diode and a capacitor work together in a clamper circuit.
d)   During which part of the AC cycle does the capacitor in a positive clamper circuit charge, and when does it discharge?

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