

Course Name:	Elements of Electrical and Electronics Engineering Laboratory	Semester:	I/II
Date of Performance:	25/ 10/2024	Batch No:	C5-2
Student Name:	Nidhesh Gamai	Roll No:	16014224025
Faculty Sign & Date:		Grade/Marks:	/ 20

Experiment No: 2

Title: Mobile Battery Charger

Aim and Objective of the Experiment:

- To understand the working of Mobile Battery Charging Circuit
- To implement the circuit of Mobile Battery charger on Breadboard and observe the waveforms at various points (Input and output Waveforms for Bridge Rectifier) and measure the output voltage

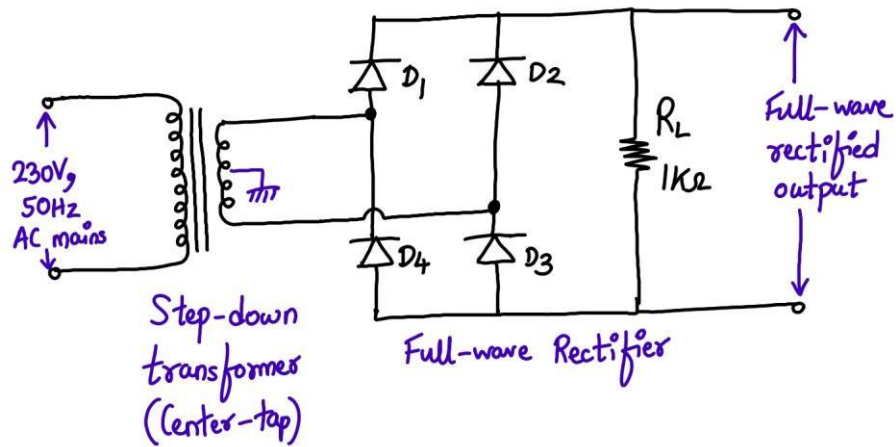
COs to be achieved:

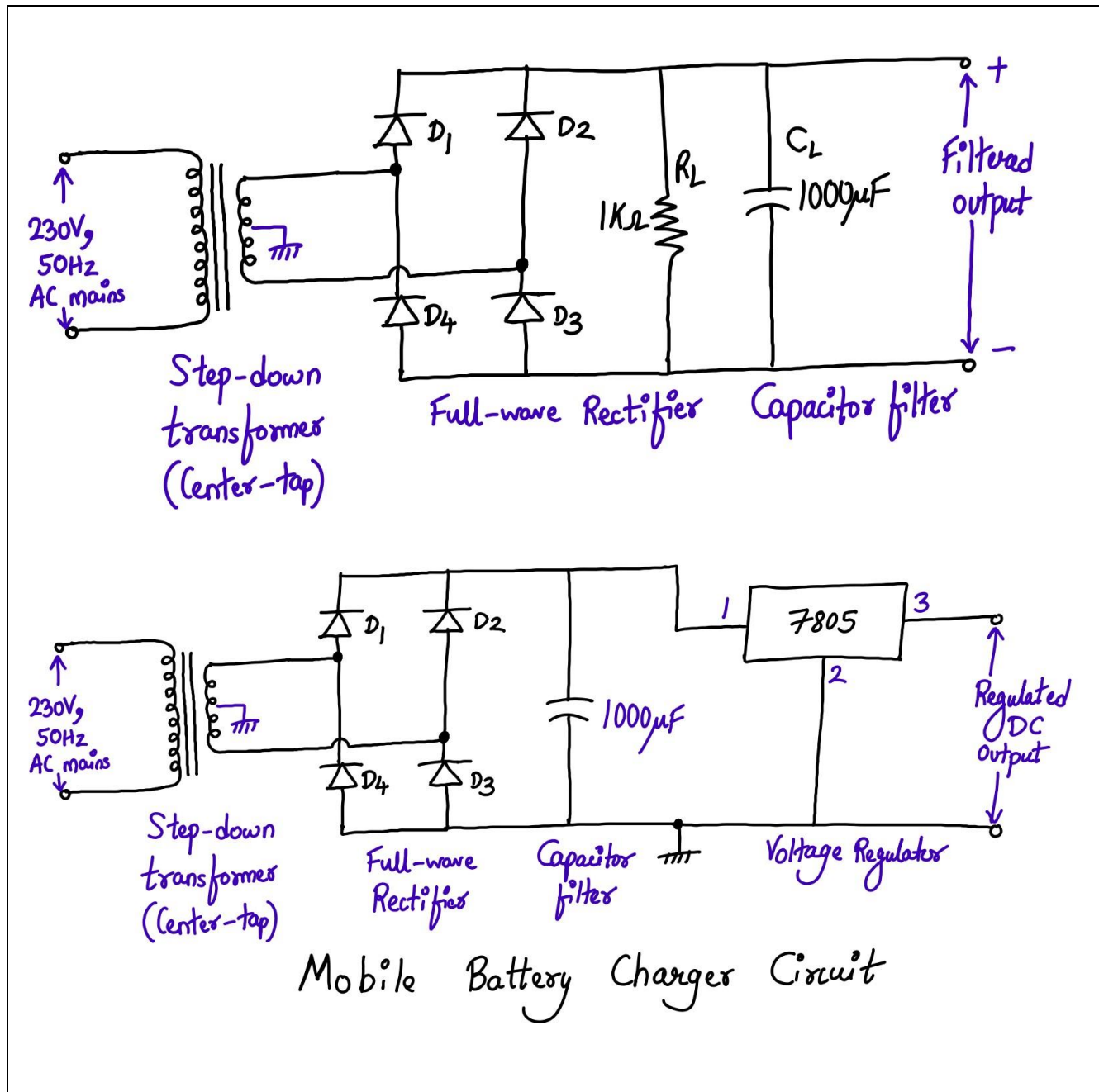
CO1: Analyze resistive networks excited by DC sources using various network theorems. **CO2:** Demonstrate and analyze steady state response of single phase and three phase circuits **CO3:** Understand principles and working of AC and DC machines with their applications. **CO4:** Explain rectifier-filter circuits using PN junction diode and voltage regulator circuits using Zener diode

Requirements:

Step-down Transformer (6V-0-6V), Diodes(1N4007), voltage regulator IC 7805, Resistor, Capacitors, CRO, Digital Multimeter (DMM), breadboard, connecting wires, Micro USB cable, etc.

Circuit Diagram:



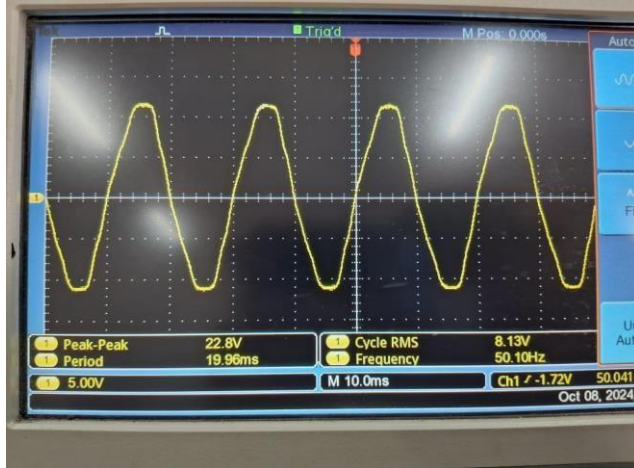


Stepwise-Procedure:

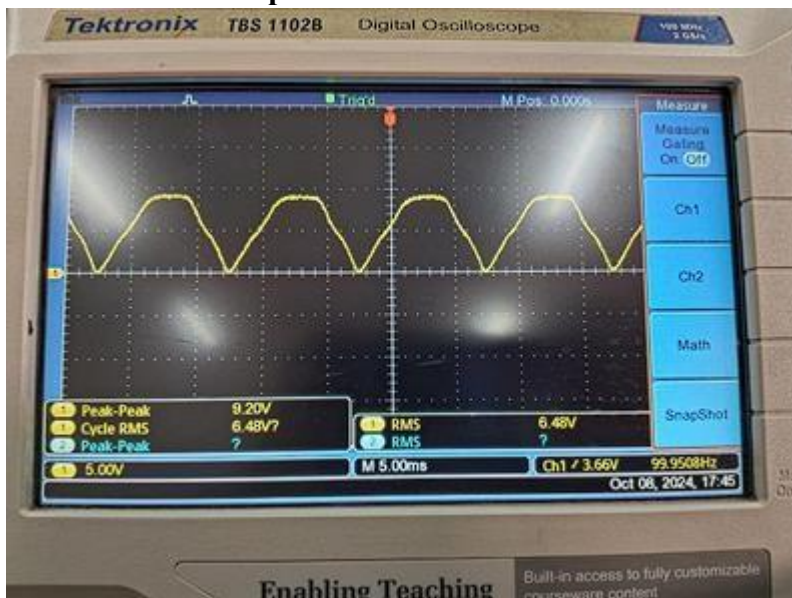
1. Design circuit and connect it as shown in the circuit diagram
2. Observe the waveform on the CRO at different points in the circuits.

Output waveforms observed on CRO:

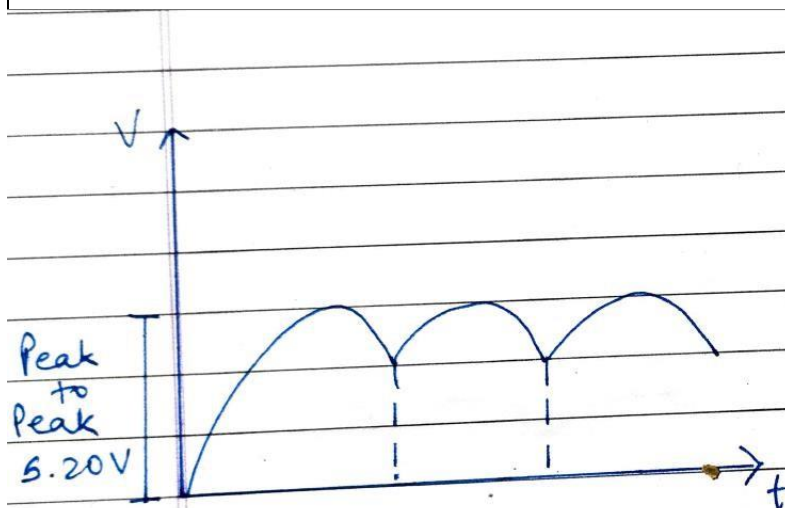
1. Plot secondary voltage across transformer versus time



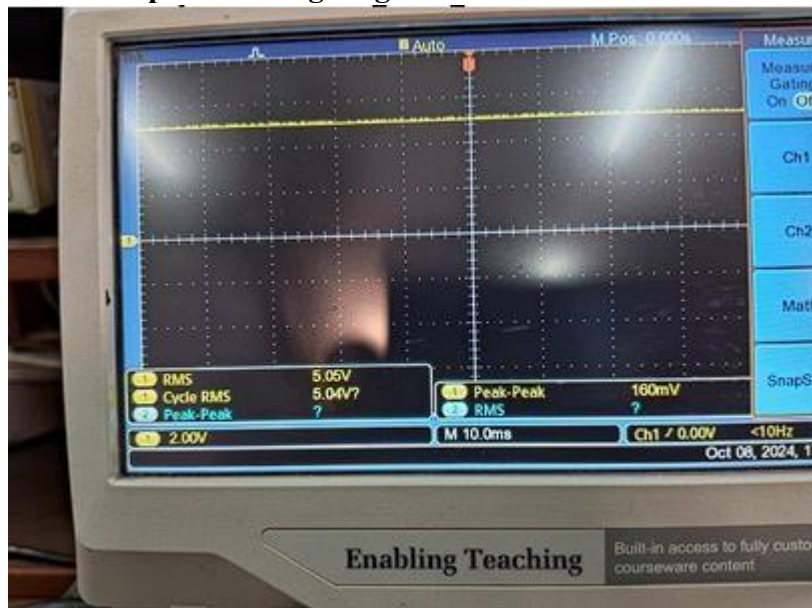
2. Plot Rectifier output versus time



3. Plot Capacitor filter output versus time



4. Plot output of Voltage regulator versus time



Observation Table:		
Vin (p-p & rms) (input of Rectifier in Volts)	Vout(peak) Output of Rectifier (in Volts)	DC output of 7805 (in Volts)
PP: 22.8V and 23.0V RMS: 8.09V and 8.13V	Resistor(rms): 6.56V Capacitor(rms):6.48V	5.05V
Post Lab Subjective:		
1. State commonly used types of mobile phone batteries 2. Explain how to maximize Battery Performance/ Battery life of your mobile phone? 3. Write important specifications of Voltage regulator IC 7805 (You can attach data sheet of IC 7805)		

Conclusion:
<p>In this experiment, we successfully implemented a mobile battery charging circuit on a breadboard and analyzed its performance at various stages. We observed and understood the functioning of each component in the circuit, including the step-down transformer, full-wave bridge rectifier, capacitor filter, and voltage regulator (7805).</p>

Signature of faculty in-charge with Date: