IARE

INSTITUTE OF AERONAUTICAL ENGINEERING

(An Autonomous Institute affiliated to JNTUH, Hyderabad)

Dundigal, Hyderabad - 500 043

LABORATORY WORK SHEET

Name of the Student : Abdul Basith Khan

Class : 1st Year (CSM-A) Semester : I st

Roll Number									
2	3	9	5	1	A	6	6	0	1

Course Code : AEE001 Course Name : EEE Laboratory

Name of the Course Faculty : Dr L. Rajashekhar Goud Faculty ID : IARE11067

Exercise Number : 13 Week Number : 13 Date : 22/01/2024

DAY TO DAY EVALUATION:

Marks	Aim / Preparation	Algorithm / Procedure / Performance in the Lab	Source Code / Calculations and Graphs	Program Execution / Results and Error Analysis	Viva - Voce	Total
Max. Marks	4	4	4	4	4	20
Obtained	4	4	4	3	4	19

Signature of Faculty

START WRITING FROM HERE : FULL WAVE RECTIFIER WITH/WITHOUT FILTER:-

Aim:-

Examine the input and output waveform of a full wave (centre tapped) rectifier without and with filters. Calculate the ripple factor with load resistance of 500 Ω, 1K Ω and 10 K Ω respectively.

Calculate the ripple factor with a filter capacitor of 100 μF and the load of 1K Ω, 2K Ω. & 10 K Ω respectively.

Apparatus Required:-

S.No.	Device	Range	Quantity
1.	Rectifier & Filter trainer Board containing a) AC Supply	(12-0-12)V	1
	b) Silicon Diodes	IN4007	2
	c) Capacitor	100 μF	1
2.	a) DC Voltmeter	(0-20)V	1
	b) AC Voltmeter	(0-20)V	1

ROLL NUMBER :

3.	DC Ammeter	(0-50)mA	1
4.	Cathode Ray Oscillioscope	(0-20) MHZ	1
5.	Decode Resistance Box	10Ω-100KΩ	1
6.	Electrolytic Capacitor	100MF	1
7.	Connecting Wires	5A	12

Circuit Diagrams:-

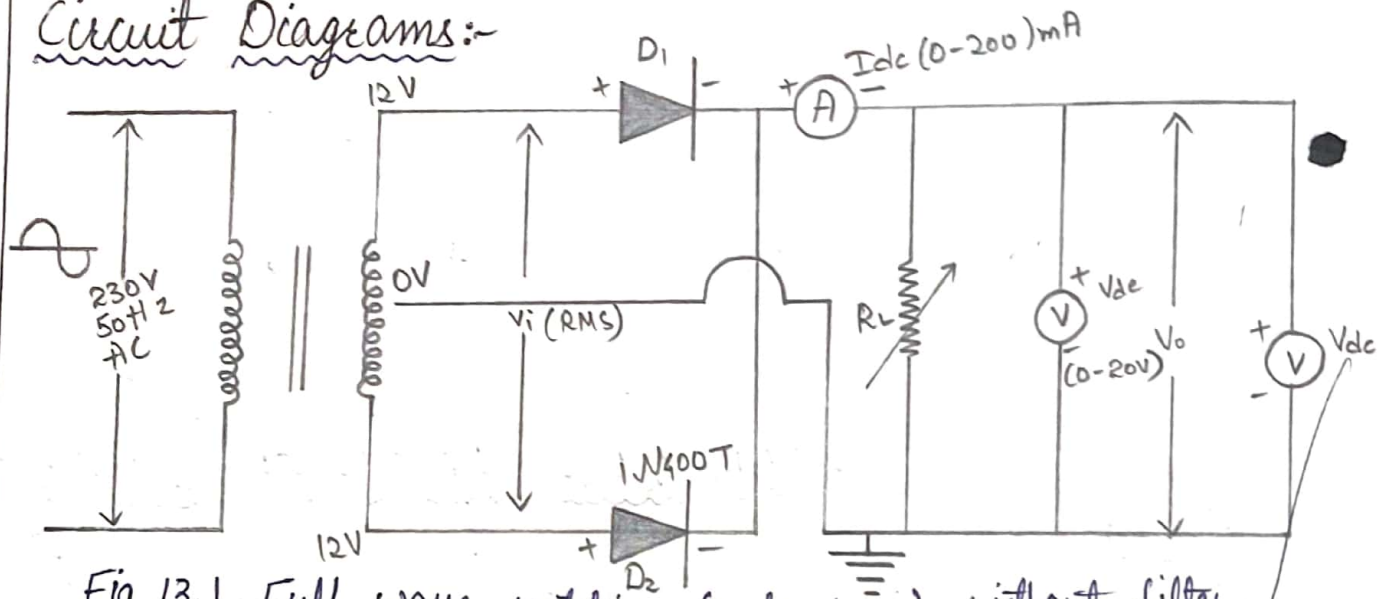


Fig 13.1 Full wave rectifier (centre tap) without filter.

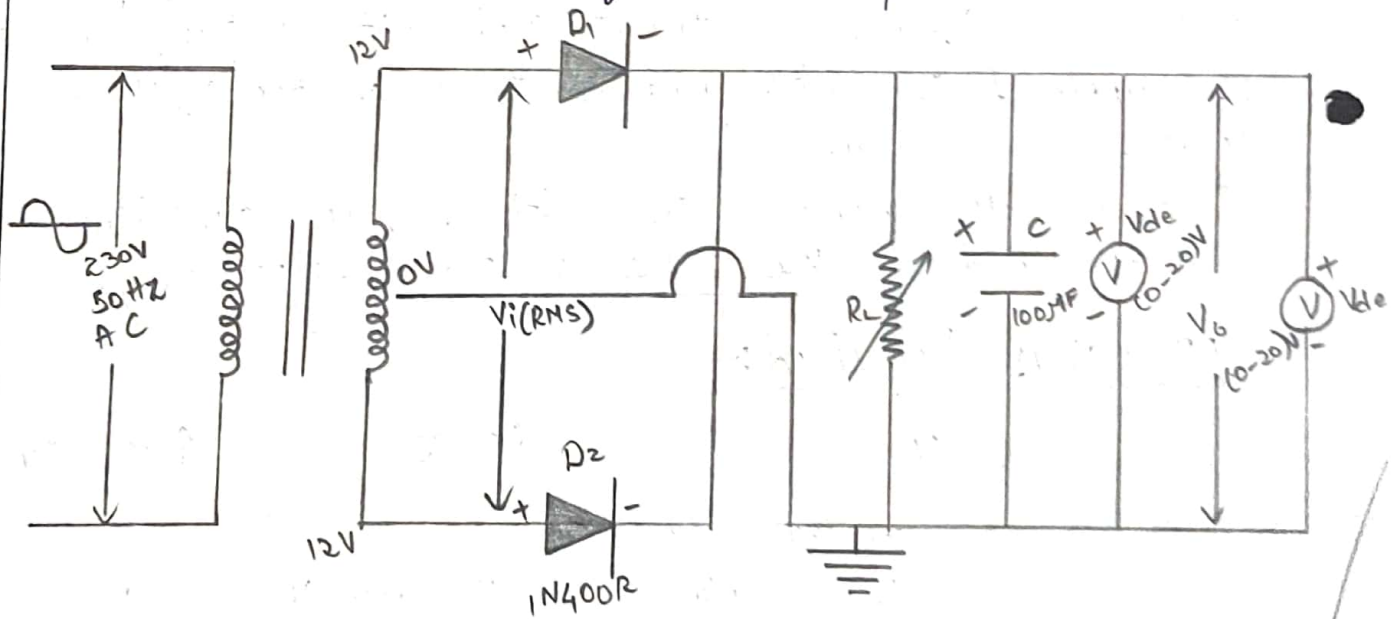


Fig 13.2 Full wave Rectifier (Centre tap) with Filter.

ROLL NUMBER :

Procedure:-

Full Wave Rectifier Without filter:-

1. Connect the circuit as shown in fig 11.1
2. Adjust the load resistance R_L to 500Ω & the readings of input and output through Oscilloscope.
3. Note the readings of DC current, DC voltage and AC Voltage
4. Now change the load resistance R_L to 1000Ω and repeat the procedure as the above. also repeat for 10kΩ.
5. Readings are tabulated as per the tabular column.

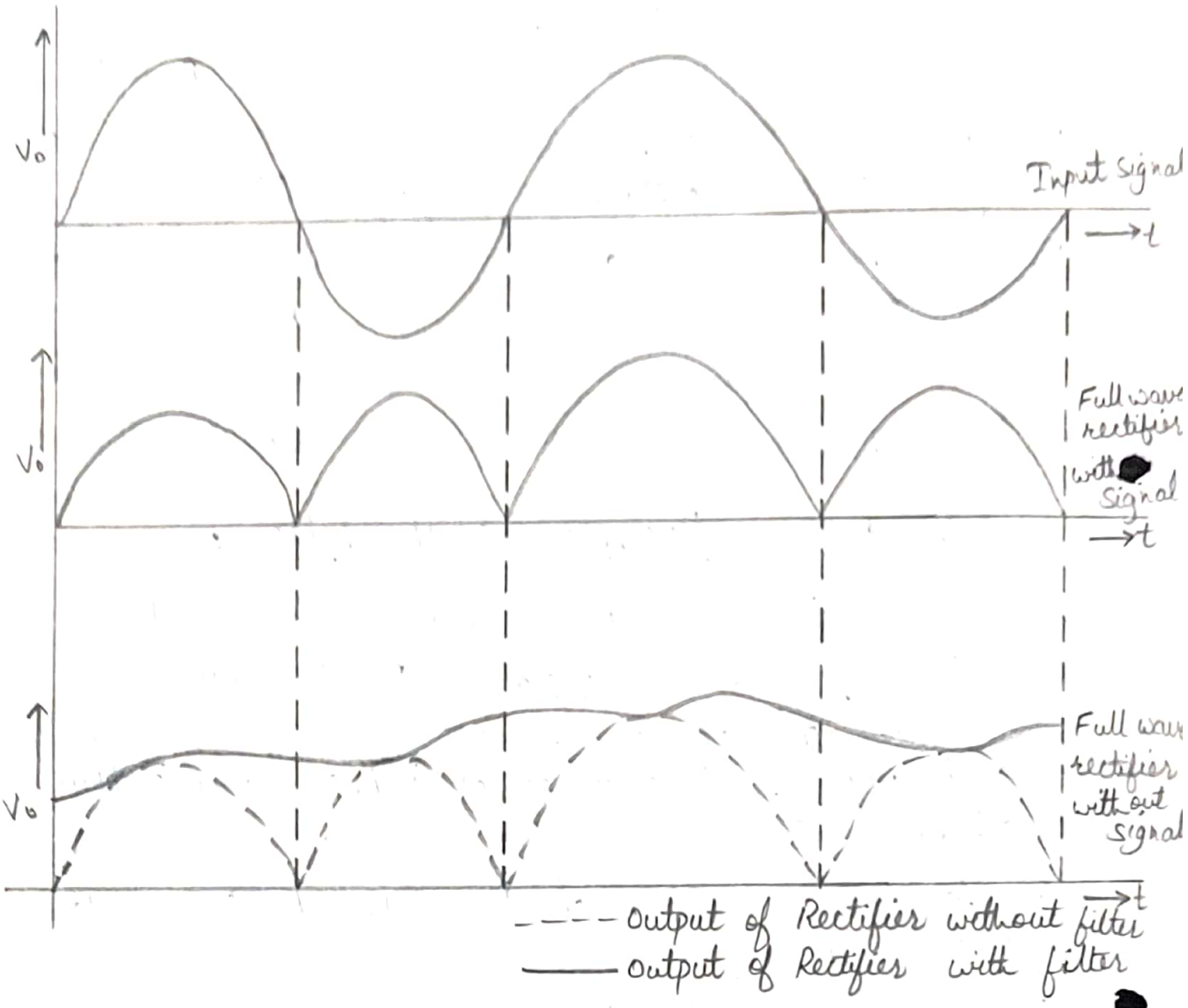
Full Wave Rectifier With filter:-

1. Connect the circuit as shown in Fig-13.2
2. Adjust the load resistance R_L to 1kΩ and connect a capacitor of 100 μF values in parallel with the load and note the readings of input and output voltages through Oscilloscope.
3. Note the readings of DC Current, DC Voltages and AC Voltage.
4. Now Change the load resistance R_L to 1kΩ and repeat the procedure as above. Also repeat for 10kΩ
5. Readings are tabulated as per the tabular column.

Precautions:-

1. No loose contacts at the junction.
2. Meters of correct Range must be used for precision

Expected Graphs:-



Result:-

Hence wave forms are observed in the given experiment.

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AEED01 Week-13 1st Year CSM-A