EXPERIMENT:

AIM: Measure voltage, current and power on single phase circuit (with resistive load).

APPARATUS:

Sr. No.	EQUIPMENT	SPECIFICATION	QUANTITY
1	Lamp Load	5 Amp	2 No.
2	Volt meter	0-250 Volt	1 No.
3	Ammeter	0-10 Amp	1 No.
4	single phase Variac	10 Amp, 250 Volt	1 No.
5	Wattmeter	2.5 KW, Dynamometer	1 No.

THEORY:

The pure resistors contain only ohmic values and it should not have any inductive effect or value. In circuit a.c. voltage is applied to pure resistor having resistance of R ohm. Due to flow of current I through resistor R, there is a voltage drop of $V_R = IR$ volt which is equal to supply voltage V.

$$V_R = IR$$

$$I = I_M \sin\omega t$$

So the power consumed in resistive circuit also depends upon this angle ϕ. but in resistive circuit power factor angle is zero.

$$P = VI$$

CIRCUIT DIAGRAM:

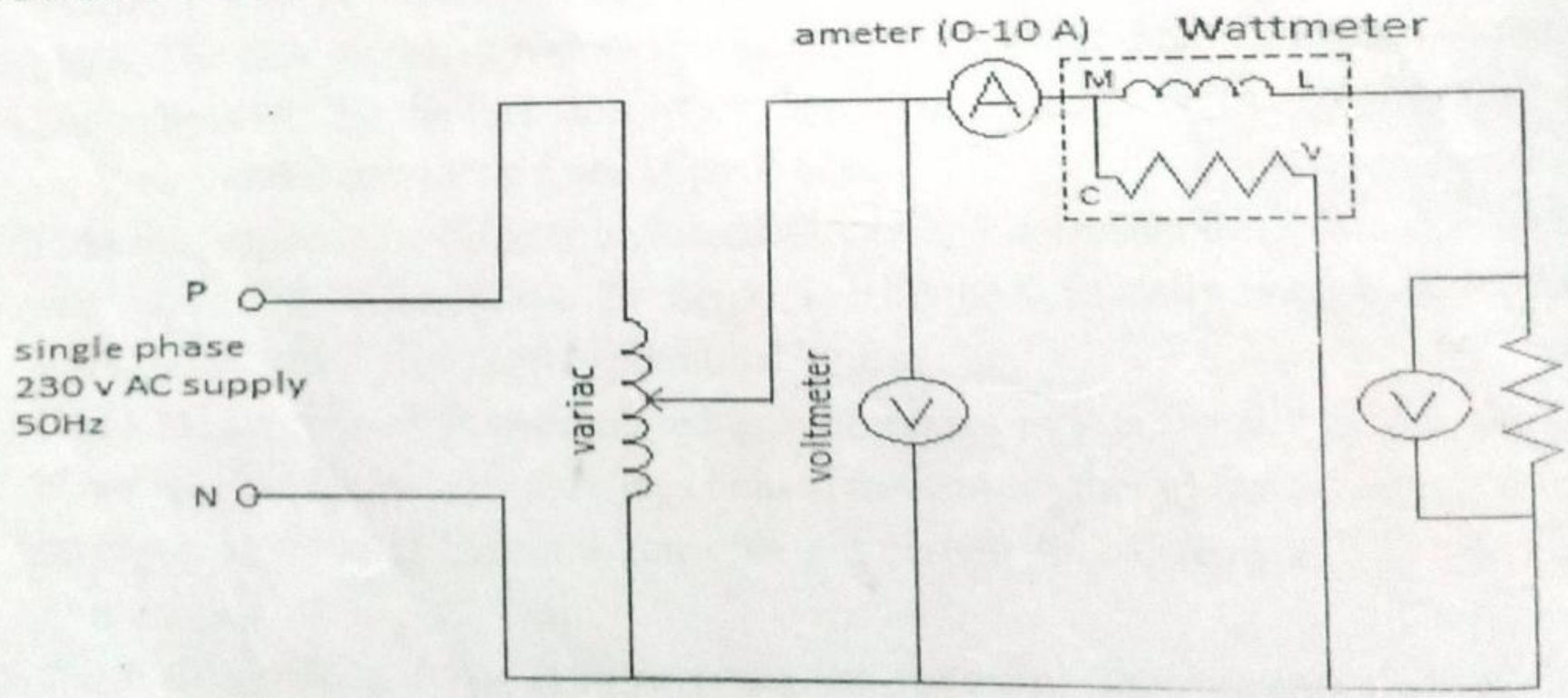

FIG 1.1 (Pure Resistive Circuit)

PROCEDURE:

1. Make connections as shown in the diagram.
2. Keep the switches of the lamps off.

3. Switch on the supply, switch on certain lamps and take the readings of ammeter,
4. Supply voltage, voltage drop across resistor.
5. Vary the current by changing the no of lamps & take readings.
6. Switch off the supply & disconnect the circuit.

OBERVATION TABLE:

Sr. No.	Supply Voltage V_S volts	Current I Amp.	Voltage drop across resistor V_R	Power (watt)
1				
2				
3				

COMPUTATION TABLE:

Sr. No.	$R=V_R/I$	$P=V_RICOS\emptyset$
1		
2		
3		

CONCLUSION: