EXPERIMENT:

AIM: Measure transformation ratio K of single-phase transformer.

Apparatus Required:

Sl	Equipment	Rating	Type	Qua
1.	Volt meter	0-300V	M	2
2.	1-Ø Transformer	3 KVA, 115/230V	1:2 Ratio	1
3.	1-Ø Auto	230V, 0-270V/15A		1

Theory:

The transformation ratio is defined as the ratio of the secondary voltage to primary voltage. It is denoted by the letter K.

Transformation Ratio of Transformer

This constant is called **transformation ratio of transformer,** if $T_2 > T_1$, $K > 1$, then the transformer is step up transformer. If $T_2 < T_1$, $K < 1$, then the transformer is step down transformer.

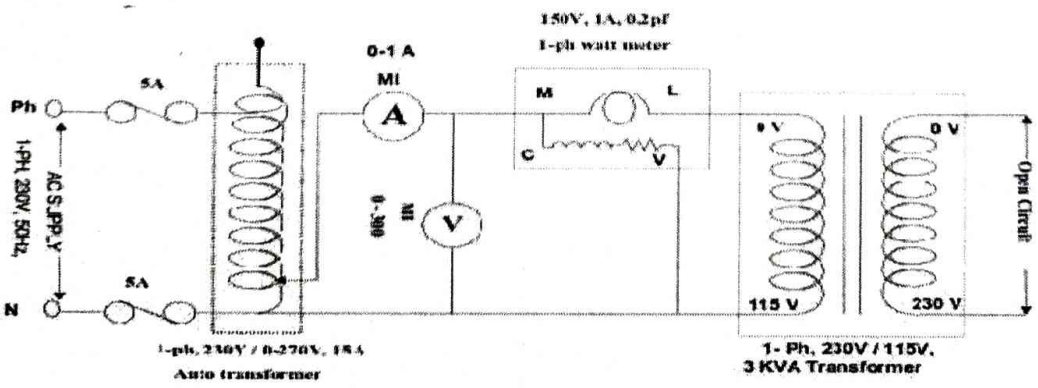
Voltage Ratio of Transformer

This above stated ratio is also known as **voltage ratio of transformer** if it is expressed as ratio of the primary and secondary voltages of transformer.

Turns Ratio of Transformer

As the voltage in primary and secondary of transformer is directly proportional to the number of turns in the respective winding, the transformation ratio of transformer is sometime expressed in ratio of turns and referred as **turns ratio of transformer.**

Circuit Diagram:



Procedure:

1) Connections are given as per circuit diagram

2) Switch on the power supply

3) With the help of Auto-Transformer, Apply voltage to HV side in steps (230V)

4) At each step note down Voltmeter, Ammeter and Wattmeter readings

5) After reaching maximum voltage of 230V on HV side, the supply is switched off

Tabular Column

Sl No	Primary voltage(V1)	Secondary voltage(V2)	Ratio V2/V1
1	110V	220V	2
2	110V	73.33V	0.66
3	110V	183.32V	1.66

Conclusion:

Viva Questions:

1. A transformer is an electrical device that works on the principle of self-induction. True or false
2. The output power in the step-up transformer used in practice is _____.
3. In the transformer, the power of the secondary coil is _____.