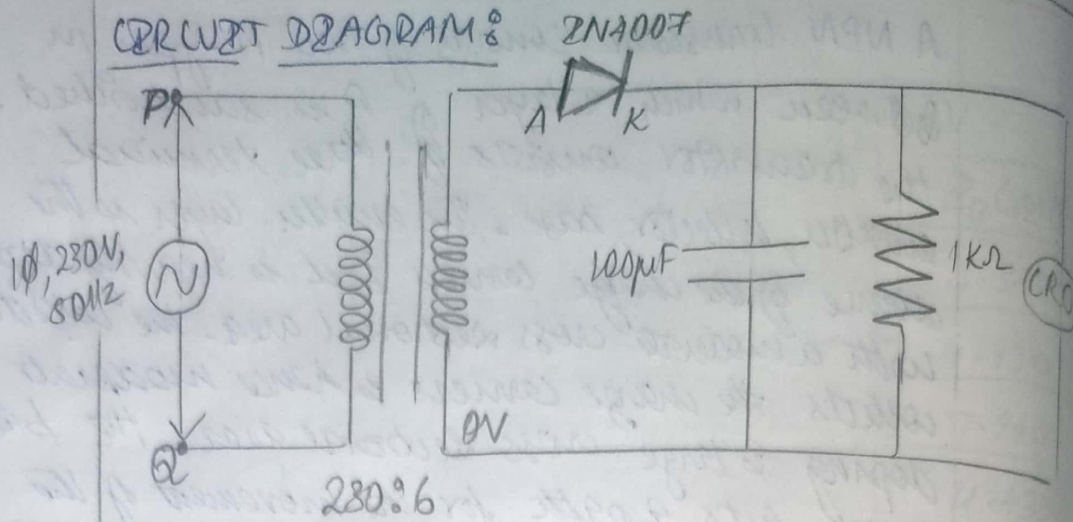
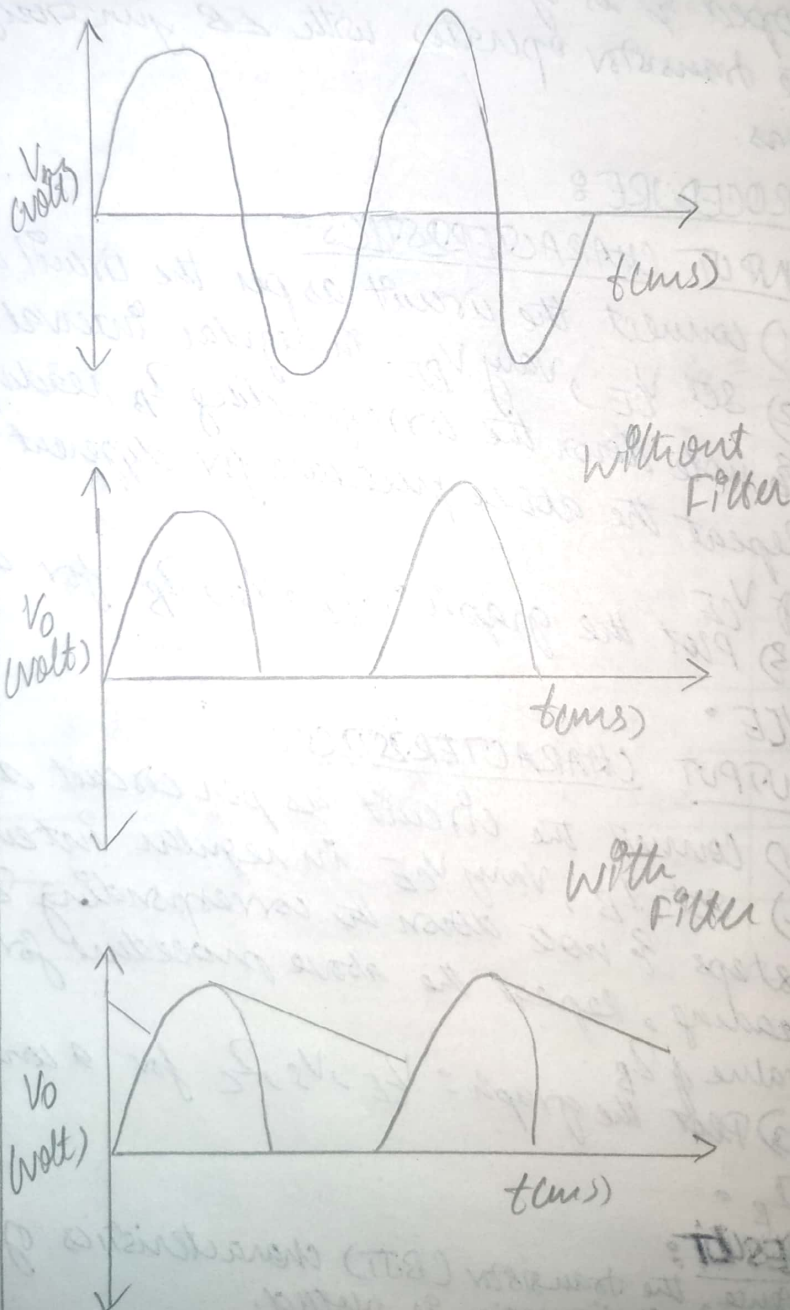


### CIRCUIT DIAGRAM :



### MODEL GRAPH :



Exp A.08

## SINGLE PHASE HALF WAVE RECTIFIER

AIM:

To construct a half wave rectifier using diode and to draw its performance characteristics.

APPARATUS REQUIRED:

S.No	Name	Range	Qty
01)	Transformer	230/ (6-0-60)	1
02)	R.P.S	(0-30)V	2

COMPONENTS REQUIRED:

S.No	Name	Range	Qty
01)	Diode	2N4007	1
02)	Resistor	1K $\Omega$	1
03)	Bread Board	-	1
04)	Capacitor	100 $\mu$ F	1
05)	CRO	-	1

Formulae:

without filter

i)  $V_{rms} = V_m / 2$

ii)  $V_{dc} = V$

iii)  $\text{Ripple factor} = \sqrt{\left(\frac{V_{rms}}{V_{dc}}\right)^2 - 1}$

iv)  $\text{Efficiency} = (V_{dc}/V_{rms})^2 \times 100$

with filter

i)  $V_{rms} = \sqrt{V_{rms}^2 - V_{dc}^2}$

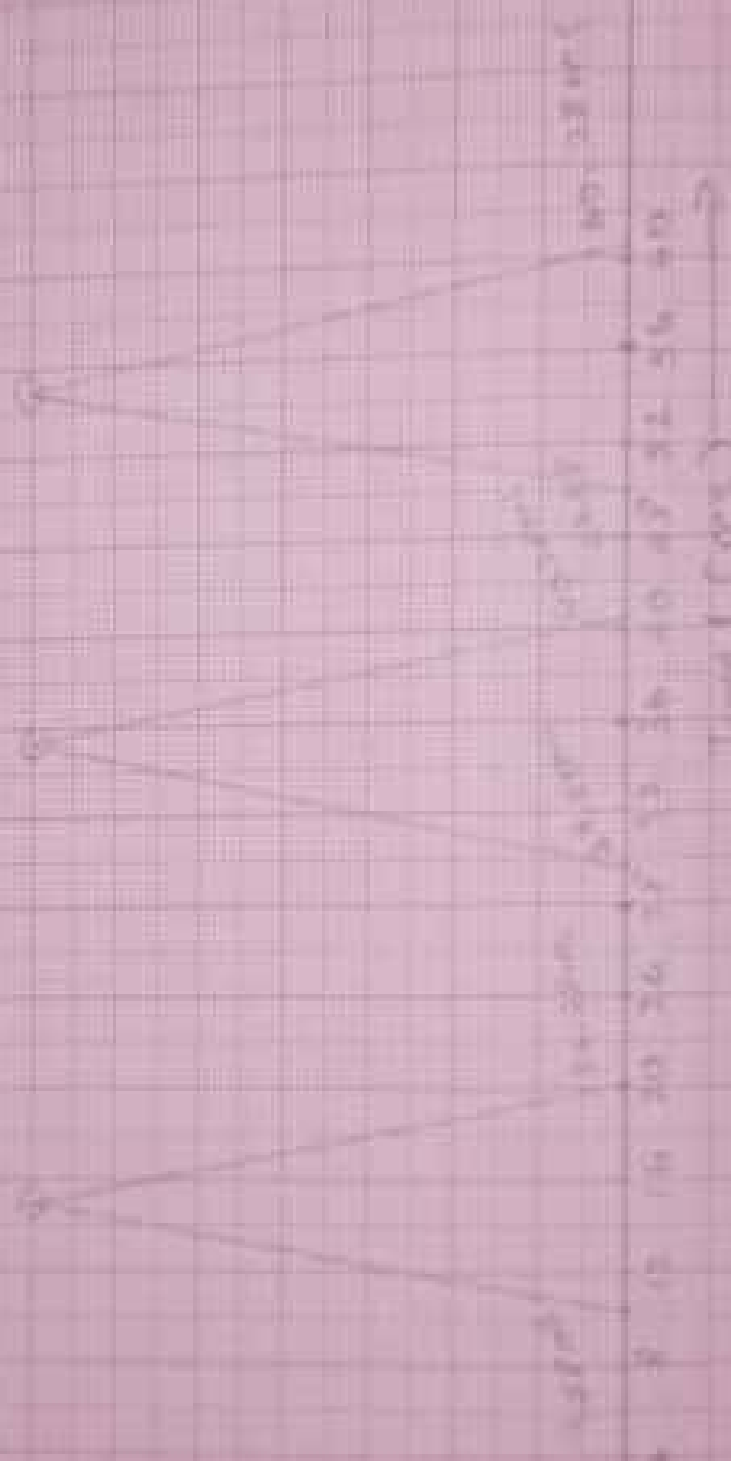
ii)  $V_{rms} = V_{pp} / \sqrt{3} \times 2$ , Where  $V_{pp}$  is peak value of ripple voltage

iii)  $V_{dc} = V_m - 0.5 \times V_{pp}$

iv)  $\text{Ripple factor} = V_{rms} / V_{dc}$

100  
50  
0

100  
50  
0





## PROCEDURE:

### Without filter

- 1) Give the connections as per the circuit diagram.
- 2) A 230V, 50Hz AC Input given to primary side of the transformer where phase end of the secondary is connected to anode terminal of the diode.
- 3) Observe the output across the  $1K\Omega$  load with use of CRO.
- 4) Plot its performance graph.

### With filter

- 1) Connections made as per the circuit diagram.
- 2) A 230V, 50Hz AC Input given to primary side of the transformer where phase end of the secondary is connected to anode terminal of the diode.
- 3) Connect the capacitor across  $1K\Omega$  load.
- 4) Observe the output across  $1K\Omega$  load with use of CRO.
- 5) Plot its performance graph.

## RESULT:

A half wave rectifier was constructed using a diode and its performance characteristics were drawn.