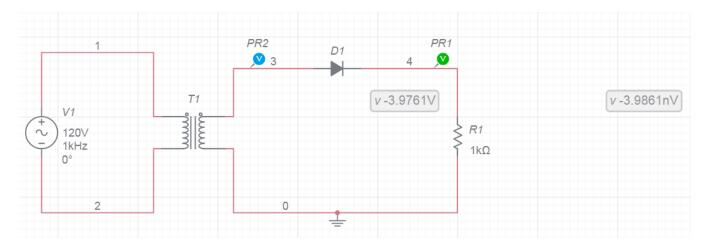
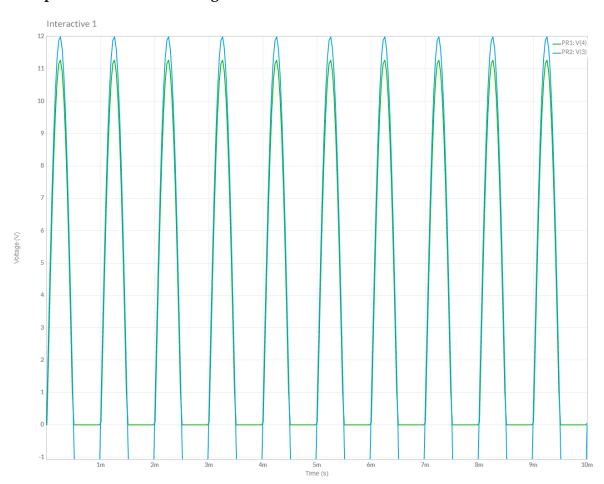
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	ABHISHER SHARMA.
	Department of Computer Science and Engineering
	THIRD YEAR. SECTION - "I"
	ROLL NO OI
	ENROLLMENT NO. 12019009001127.
	ANALOG ELECTRONICS CIRCUITS LAB.
	ASSIGNMENT - 1.
	(Experiment No.: 01)
	Dale :- 06.08.2021.
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	University of Engineering & Management, Kolkala

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	17 of 1 (100 302 A 300) soules
	Title: Study of Ripple and Regulation characteristics of Half
	wave and full wave restilier with and without using
	a consider the way of the same street of
	Title: Study of Ripple and Regulation characteristics of Half wave and Full wave nectifier with and without using a capacitor.
	Aim: The aim of this experiment is to make a circuit which
	will show the effect on Ripple factor for both the Half
	and Full wave rectifier based on with or without
	capacitors. Also, the same principle is used in Half wave
	rectifier while converting from AC to DC.
	Section A: Half wave rectifier without using a capacitor.
	s yakımı
1.	Apparlus negwied: - i williams wit middless (1)
/	a. AC power source (120V).
	b. Diode il reger all grant Talegorge all lle per I all
	c. Resistor (IKD). Danikans mit unique
	d. Transformer (IPIS). Land mon and by gras El
medi	e. Ground! I and time and an aide willow and small the
()	f. voltmeters, all and well has dinner all and by
hr	a dance entrong was aft solut during blaz alt morel (3)
	Procedure: (will be same for all the four cases)
	(a) Open Multisim Live Simulator in your browser and
	dick on new circuit for creating a new circuit.
	(b) Drag all the apparatus and place them accordingly.
	(b) Drag all the apparatus and place them accordingly. (c) After placing the apparatus, connect them using the
	connecting wires.
	(d) Place the voltmeters for taking the readings.
	(e) Save the curlint
	(4) Run the simulation and from the split graph area find
	(f) Run the simulation and from the split graph area find out the graph based on the readings that the circuit
	is providing.
	(g) Take the readings from the curve and then provide the analysis based on the data.
	the analysis based on the data.
	U

Circuit Diagram of Half wave rectifier without using capacitor

Circuit Simulation:

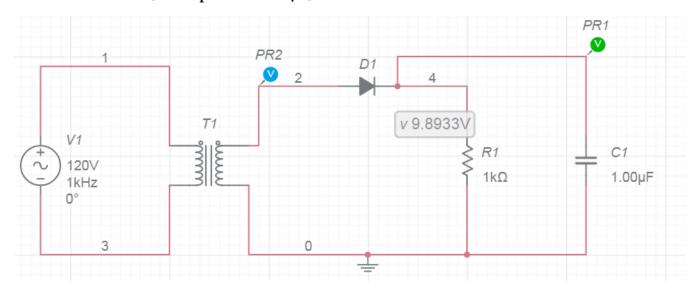


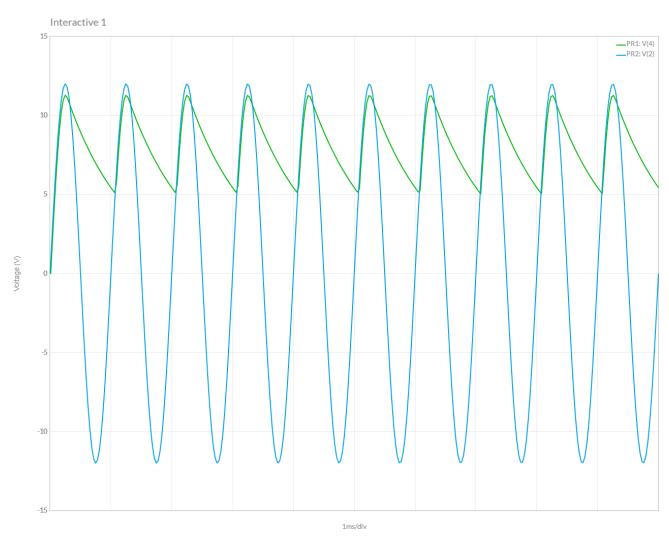


	Section B: Half wave nectifier with a capacitor of different values (1 MF, 4.5 MF, and 10 MF).
	values (LUF, 4.5 MF, and 10 MF)
5	The I will be a light and I could be a light on the
	Apparatus Required:
	(a) AC power source (120V).
	(b) Diode
	(c) Resistor (1ka).
	(d) Transformer (IPIS)
	(P) William I was a suite a see that have
	4 Voltmeters
	(g) Capacilors (Luf. 4.5 µF and 10 µF).
7-	10 me we have freeling could not still a V walnut M
	Procedure:
	(a) Open MultiSim Live Simulator in your browser and click on new circuit for creating a new circuit.
	on new circuit for creating a new circuit.
	(b) Drag all the apparalus from the apparalus box and
	place them accordingly.
	(c) connect them using wires.
	(d) Place the voltmeters on the circuit for taking the reading
	(a) Save the circuit and then Run the simulation.
	(2) From the split graph take the corresponding graph and
	(e) Save the circuit and then Run the simulation. (f) From the split graph take the conversionding graph and then provide analyse based on the graph.
	(e) Save the circuit and then Run the simulation. (f) From the split graph take the corresponding graph and then provide analyse based on the graph.
	(e) Save the circuit and then Run the simulation. (f) From the split graph take the corresponding graph and then provide analyse based on the graph.
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	(e) Save the circuit and then Run the simulation. (f) From the split graph take the corresponding graph and then provide analyse based on the graph.
	(2) Save the circuit and then Run the simulation. (4) From the split graph take the converse ponding graph and then provide analyse based on the graph.
	(2) Save the circuit and then Run the simulation. (4) From the split graph take the corresponding graph and then provide analyse based on the graph.
	(2) From the split graph take the corresponding graph and then provide analyse based on the graph.
	(2) From the split graph take the converse ponding graph and then provide analyse based on the graph.
	(2) From the split graph take the corresponding graph and then provide analyse based on the graph.
01.0	(e) Save the circuit and then Run the simulation. (f) From the split graph take the conversponding graph and then provide analyse based on the graph.
	(d) Place the voltmeters on the circuit for taking the reading (e) Save the circuit and then Run the simulation. (f) From the split graph take the convesponding graph and then provide analyse based on the graph.

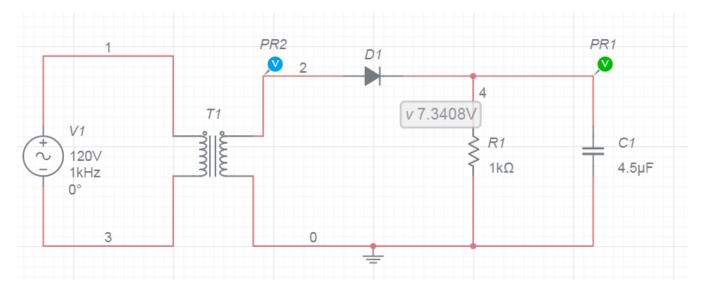
Circuit Diagram of Half wave rectifier with different types of capacitors

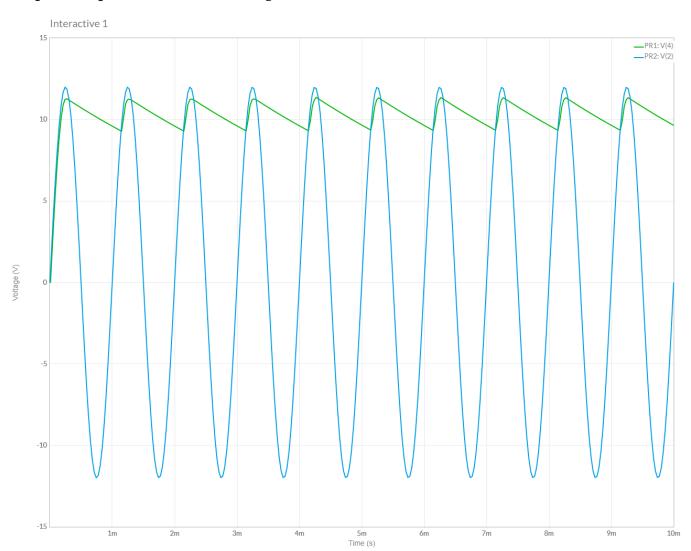
Circuit Simulation : [For Capacitance of 1µF]



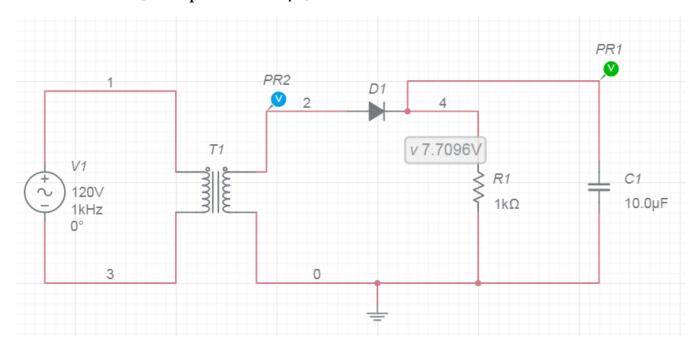


Circuit Simulation : [For Capacitance of $4.5\mu F$]

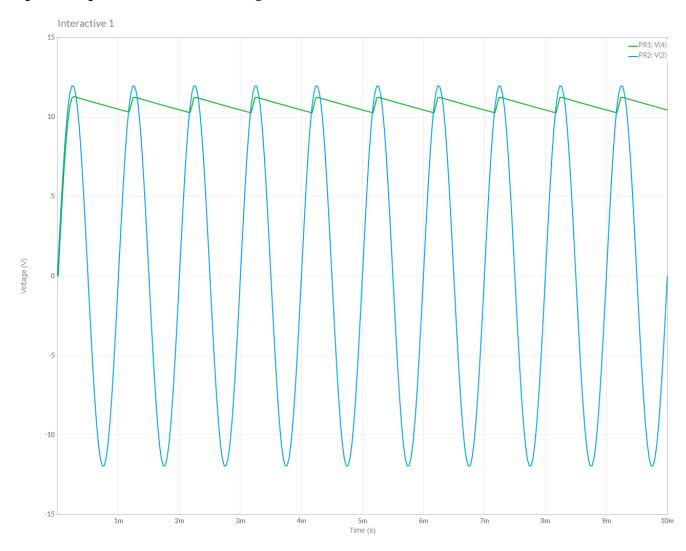




Circuit Simulation : [For Capacitance of 10μF]



Graphical Representation of the Voltage:



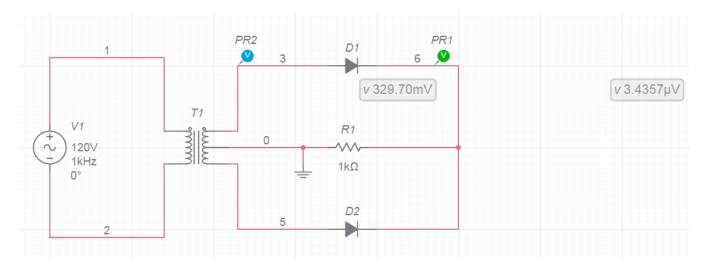
Observation:

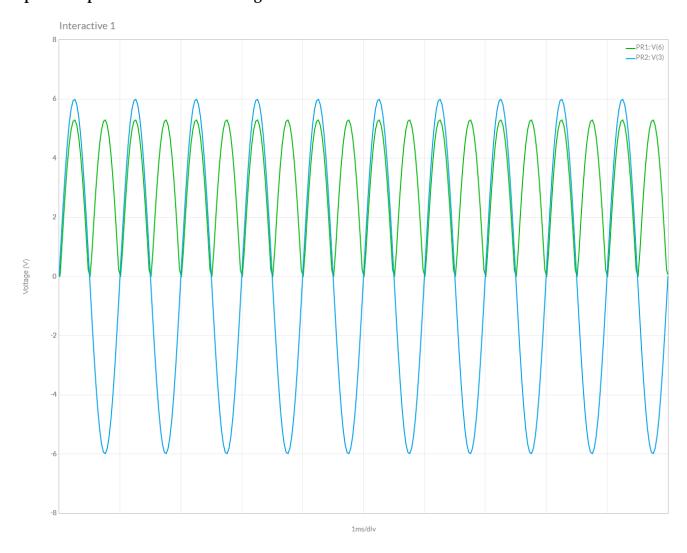
As the capacitance values increase, the AC voltage gets more bypassed by the capacitor and the resistor is having the pure DC voltage through the line. That's why the graph is considering to be like that and the voltage becomes more DC rather tends to be pure DC.

Apparatus Required:	
Apparatus Required:- (i) AC porour course (120 v).	- Kniver Thereas A
(ii) Diodus	erri seepes rooms N 14
(iii) Resistor (1K-D).	" - I'm warning to " III
(iv) Transformer (IPIS cente	er tapped)
(V) Ground.	Strait W
(vi) voltmeters.	62 - 6 1
100000000000000000000000000000000000000	and on love the
Procedure:	in a desired that have
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2. Place the apparatus according	direly and amost them we
the connecting wires	rew evenit. dingly and connect them use
3. place the voltage tops for to	sking the required readings
4. Save the circuit and bur	the circulation
5. From the split graph ontil	the simulation by take the graph and analy
it secondingly.	in since size of the arrange arrange
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Circuit Diagram of Full wave rectifier without using Capacitors

Circuit Simulation:

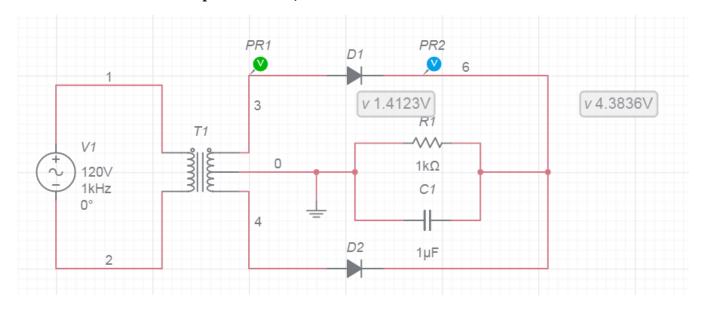


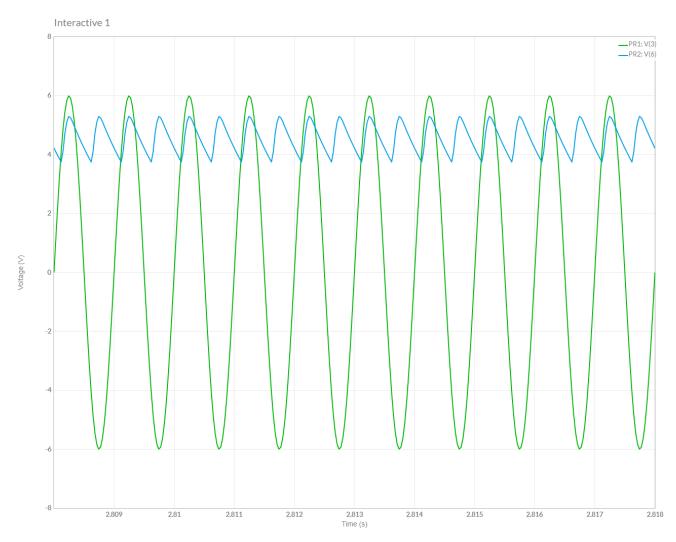


	Section D: Full wave nectifier with a capacitor of different values (1 pt. 4.5 pt and 10 pt).
	values (1 p.F. 4.5 p.F and 10 p.F).
	Lapanallia Reamined :-
	Apparatus Required:
	(a) AC power source (120V).
	(b) Transformer (1P15 center tapped)
	(c) Resistor (1k2) I must only 21711 commenced wil
	(d) Diodes
	(e) Ground and miles (b)
	(8) voltmeters.
	(g) capacitors (1 μF, 4.5 μF and 10 μF)
11	I true that the singulated in any borners and about
	Procedure: - lineris ours & Ciliana - at Marin was
	(a) Open Multisim Live Simulator in your browser and
	click on new circuit for creating a new circuit.
	(b) Place all the apparatus accordingly and connect-
	them using the connecting wires.
	(c) Add voltmeters to take the readings from the circuit
ł	(d) From the split graph section find out the graphs
	based on the different values of the capacitor and then
	analyze them for the observation.
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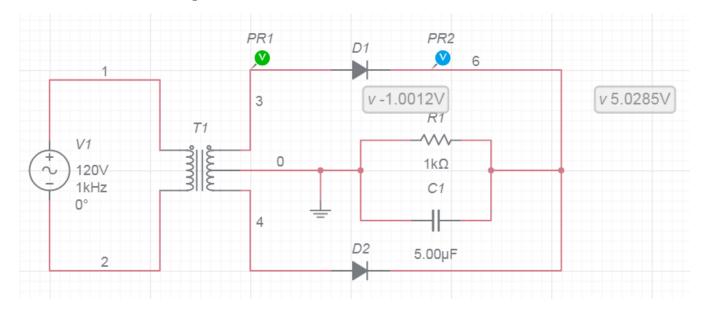
Circuit Diagram of Full wave rectifier using different values of Capacitors

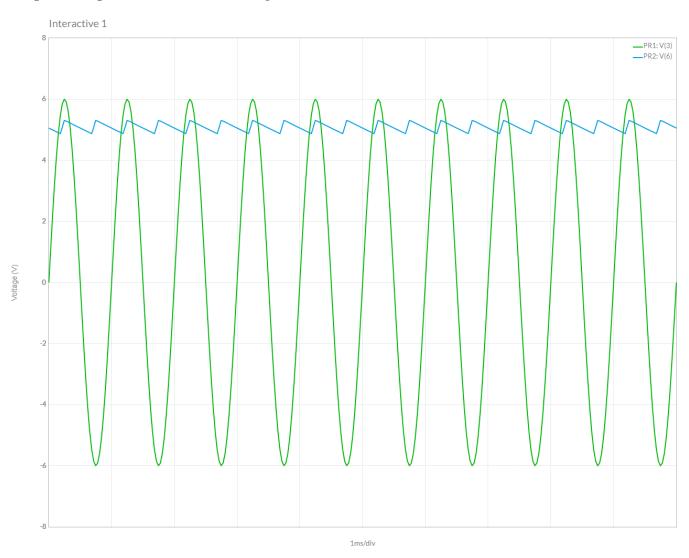
Circuit Simulation : [For Capacitance of 1µF]



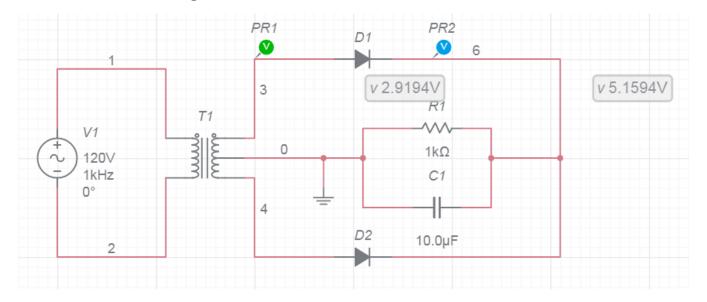


Circuit Simulation : [For Capacitance of $5\mu F$]

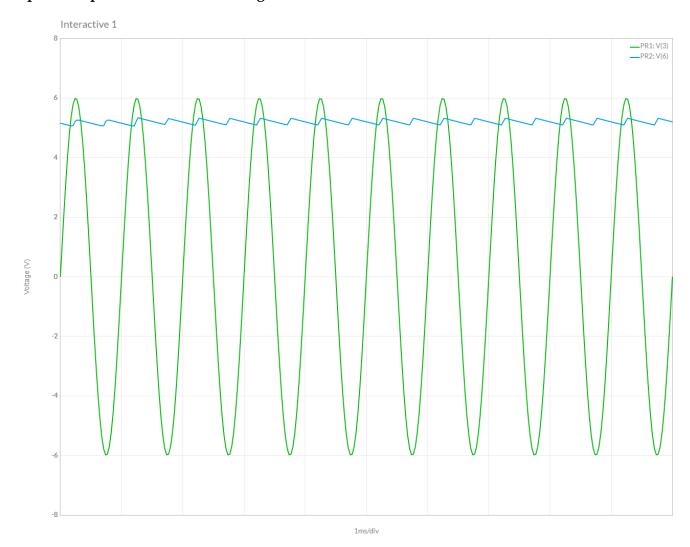




Circuit Simulation : [For Capacitance of 10µF]



Graphical Representation of the Voltage:



Observation:

As the capacitance values increase, the AC voltage gets more bypassed by the capacitor and the resistor is having the pure DC voltage through the line. That's why the graph is considering to be like that and the voltage becomes more DC rather tends to be pure DC.

For both the half and full wave rectifiers we have seen that capacitance decreased the ripple factor and make the voltage tends to be pure DC by increasing the value of the C.