

Class Assignment 02

Submitted on time? (YES/ NO): Yes

Task 01: Complete the Table 01.

40 points

Task 02: Attach screenshots of the simulated circuit of the experiment showing all Multimeter/ simulation readings as mentioned in the class.

30 points

Task -03: Discuss your observation from this experiment in brief.

30 points

NOTE: You must submit PDF of this file

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Task: 01

Table- 2.1

	Half Wave Rectifier (Fig 2.4)	Full Wave Rectifier (Fig 2.5)
V_{out} (without capacitor)	4.34 V	3.71 V
V_{out} (with 0.22 μF)	1.51 V	630 mV
V_{out} (with 10 μF)	34.6 mV	22.5 mV

Task: 02

Attach the screenshots of the simulated circuits with i/o waveforms below:

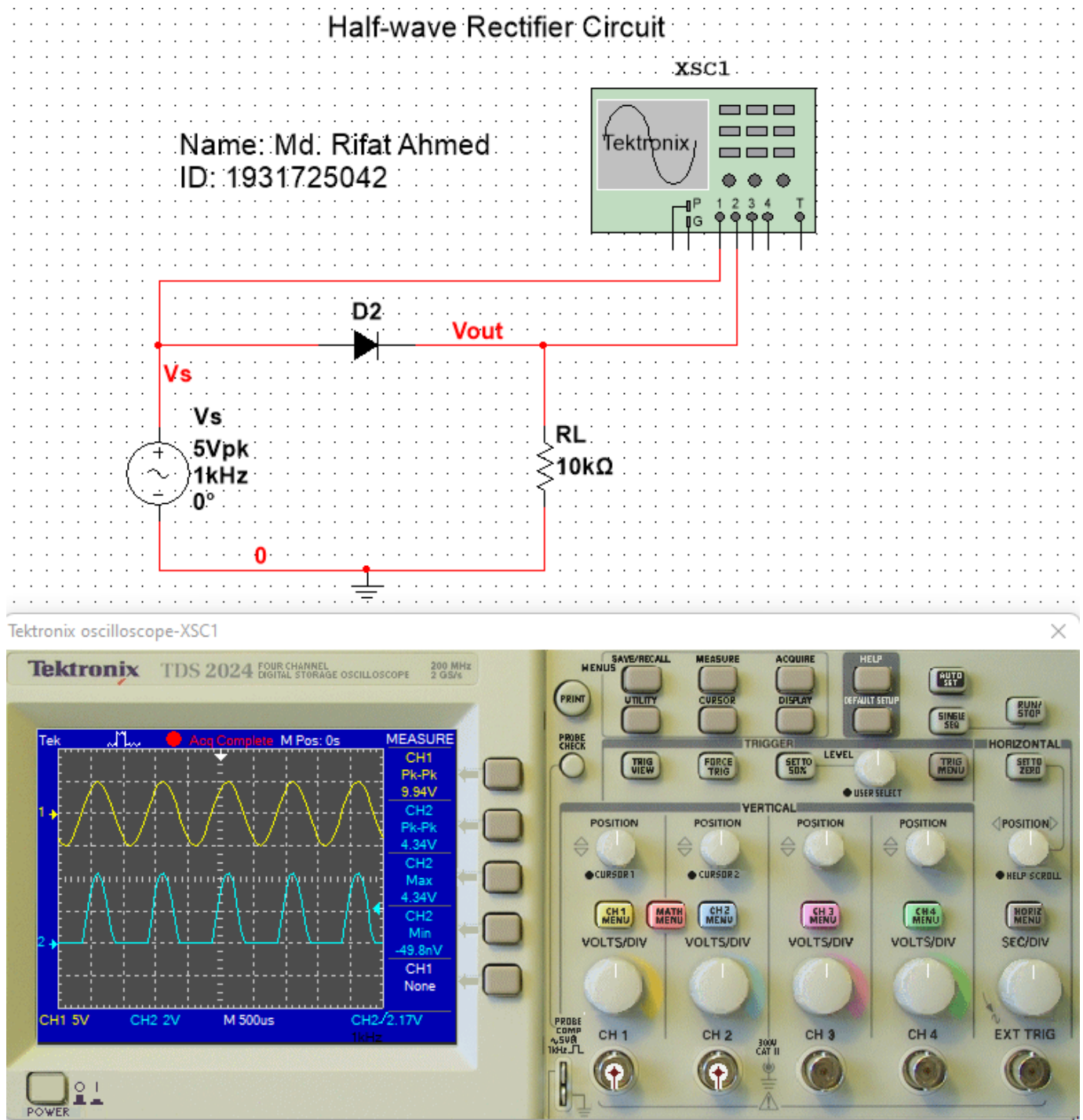
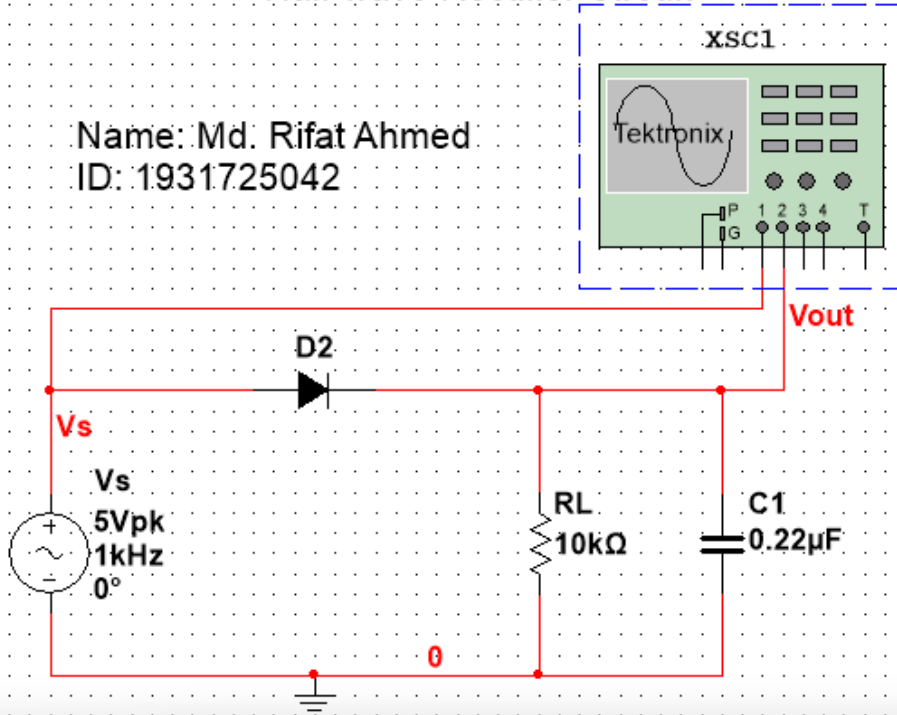


Figure – 1: Half-wave Rectifier Circuit with No Capacitor

Half-wave Rectifier Circuit

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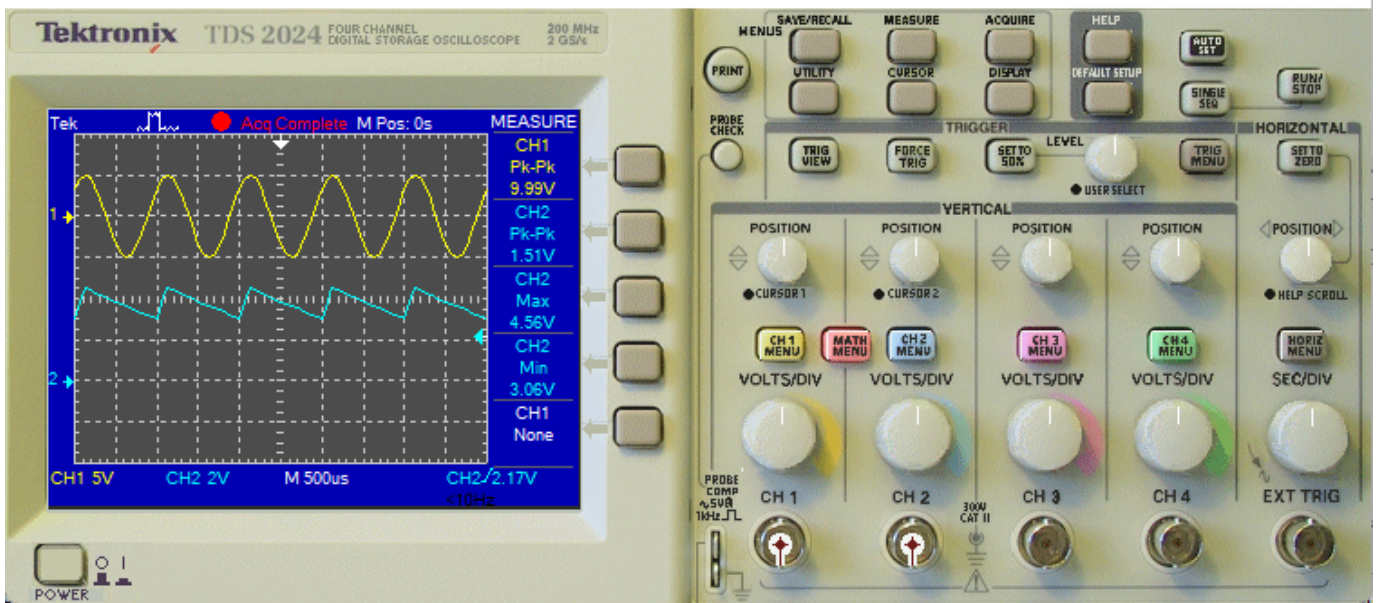


Figure – 2: Half-wave Rectifier Circuit with 0.22μF Capacitor

Half-wave Rectifier Circuit

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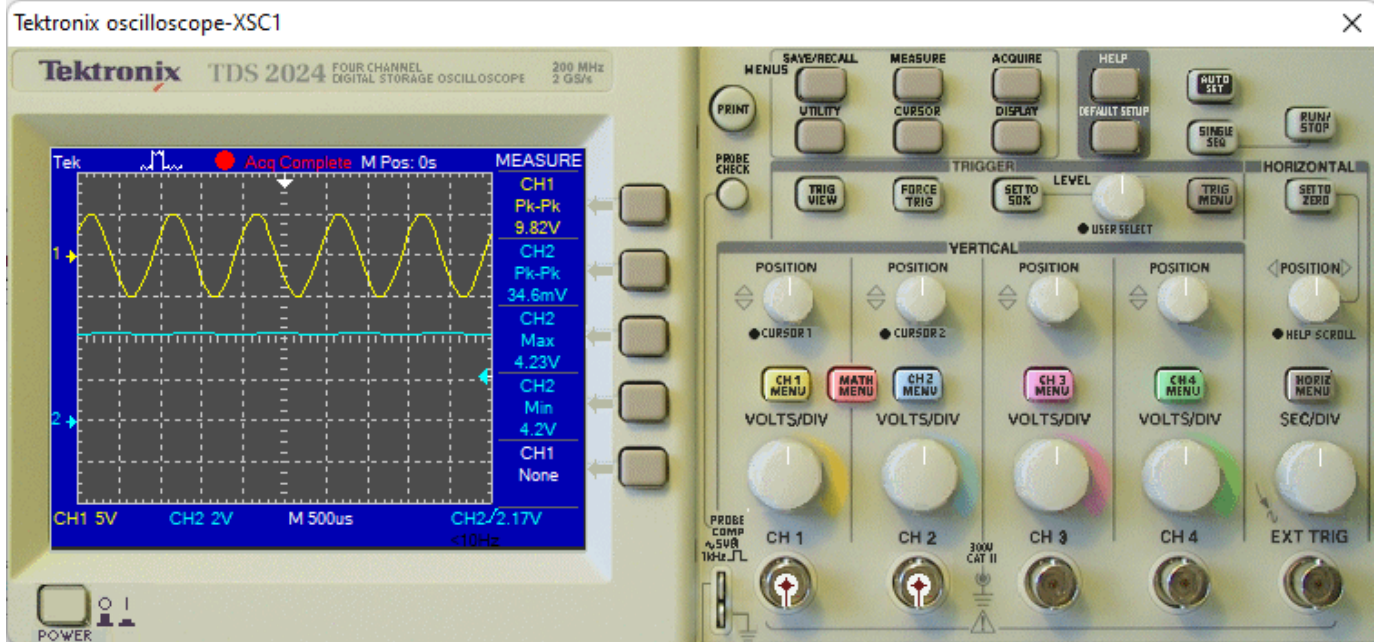
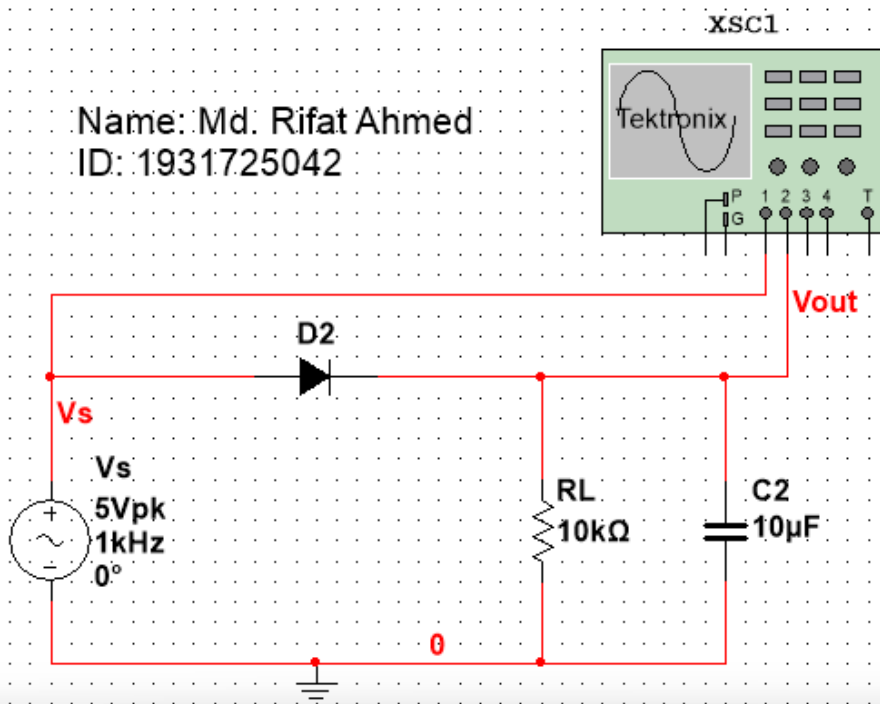
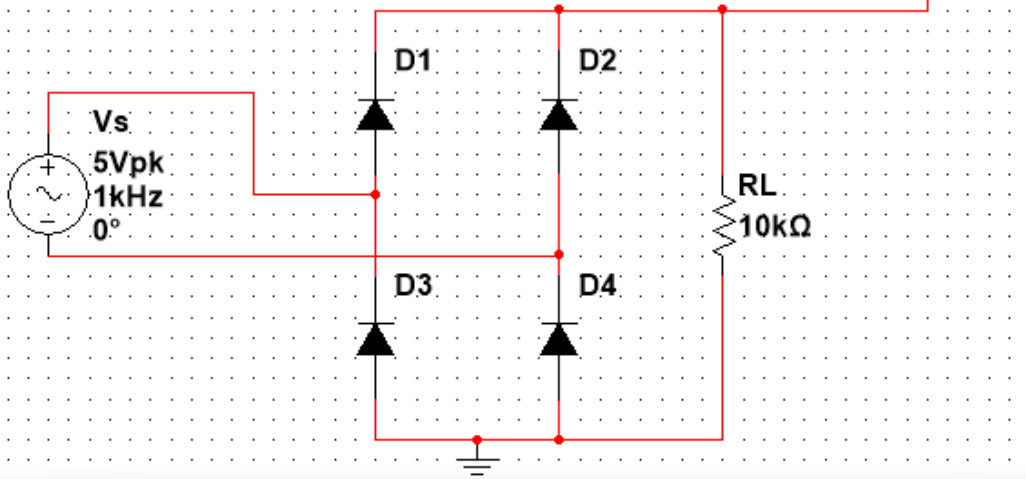


Figure – 3: Half-wave Rectifier Circuit with 10μF Capacitor

Full-wave Rectifier Circuit

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XSC1



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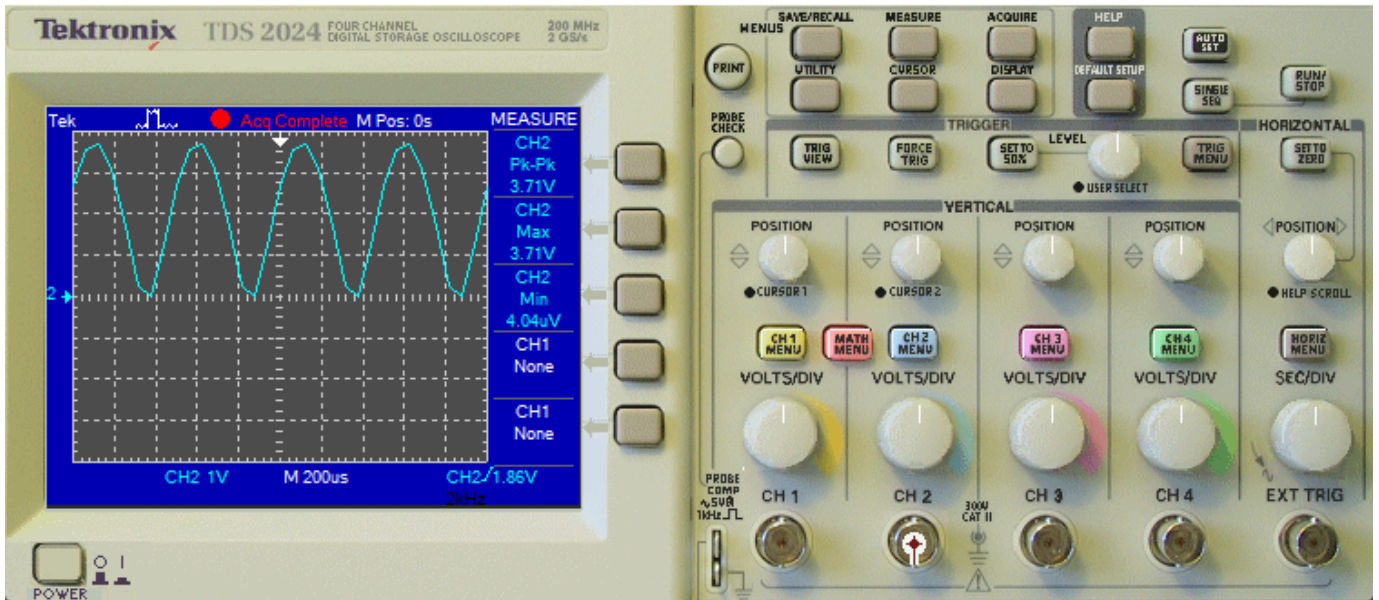
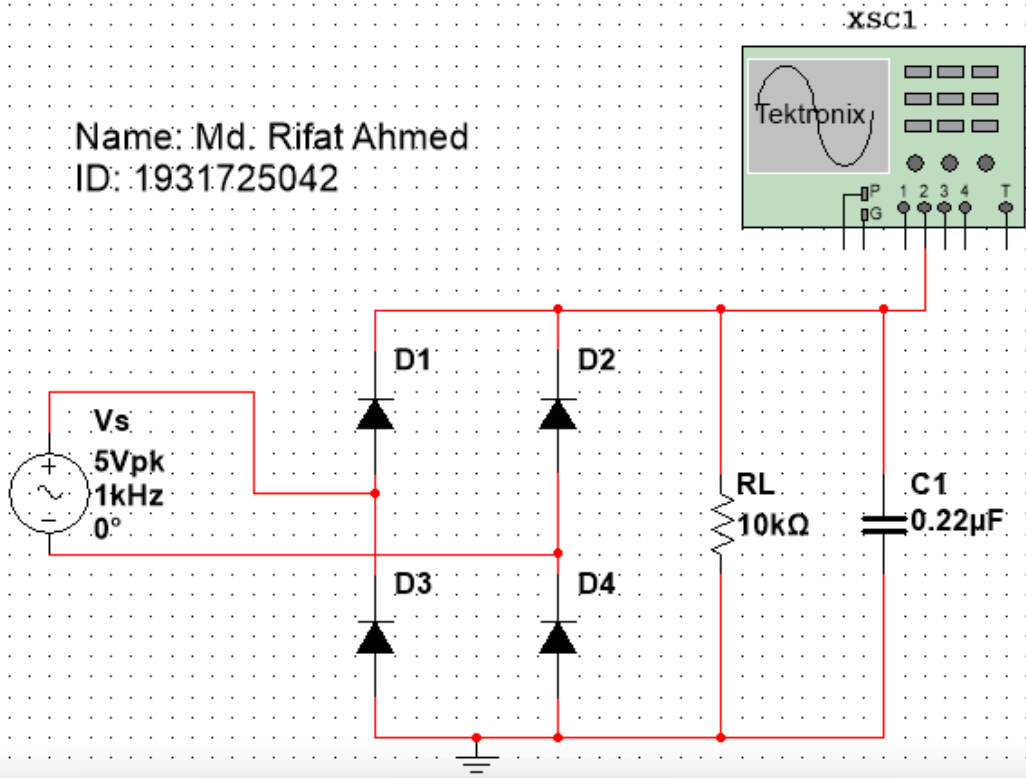


Figure – 4: Full-wave Rectifier Circuit with No Capacitor

Full-wave Rectifier Circuit

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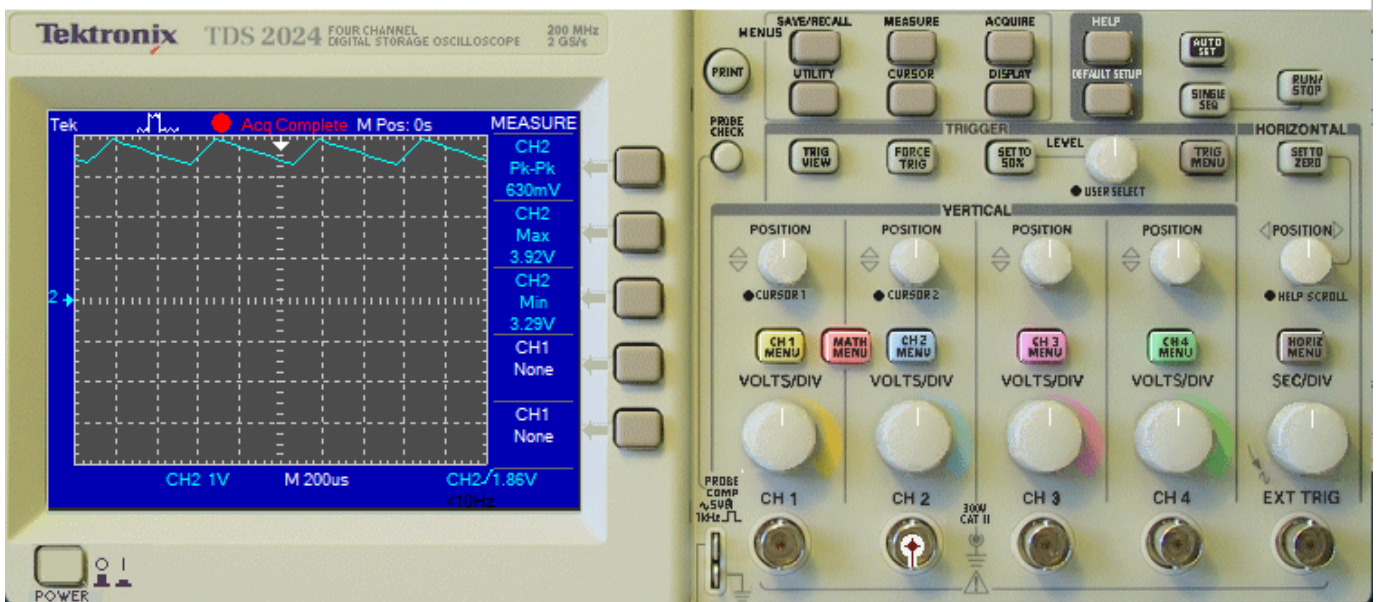


Figure – 5: Full-wave Rectifier Circuit with 0.22μF Capacitor

Full-wave Rectifier Circuit

Name: Md. Rifat Ahmed
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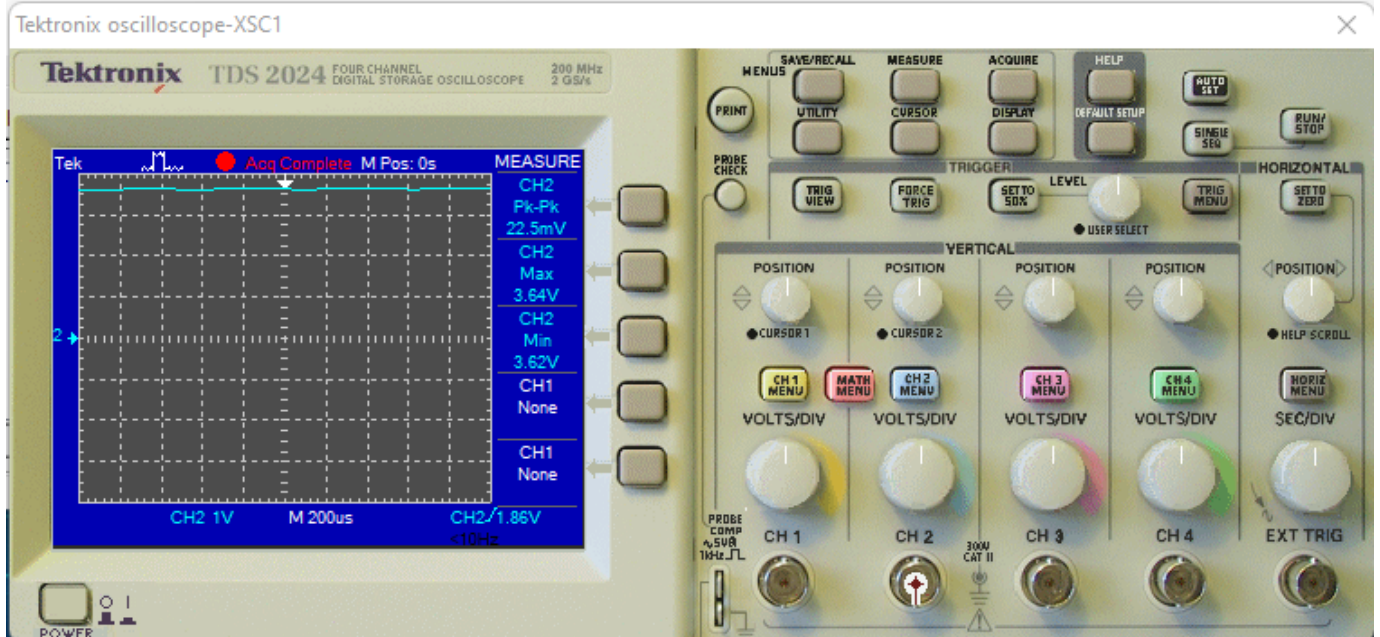
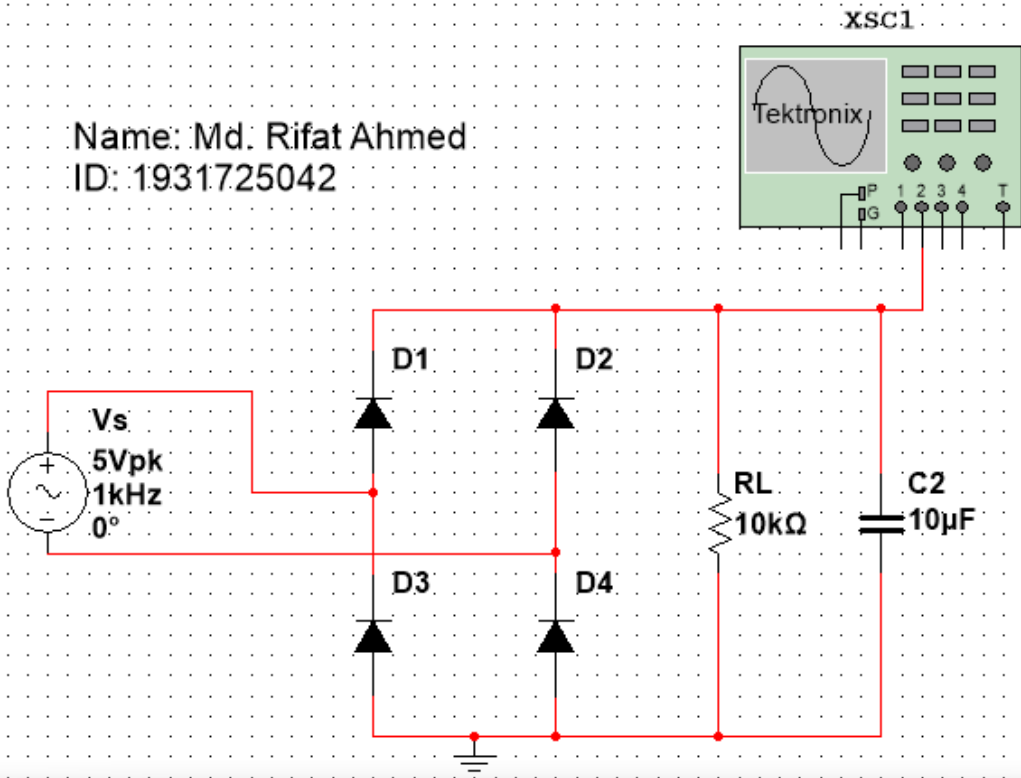
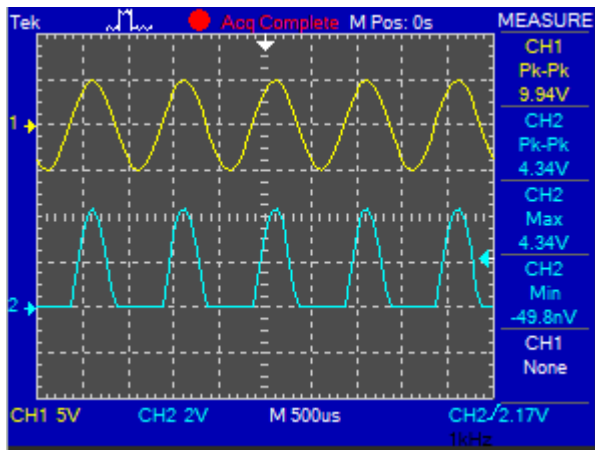


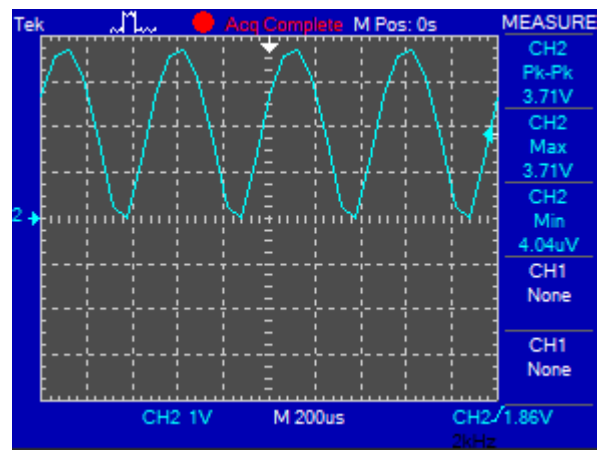
Figure – 6: Full-wave Rectifier Circuit with 10μF Capacitor

Class Assignment 02

Attach only waveforms below:



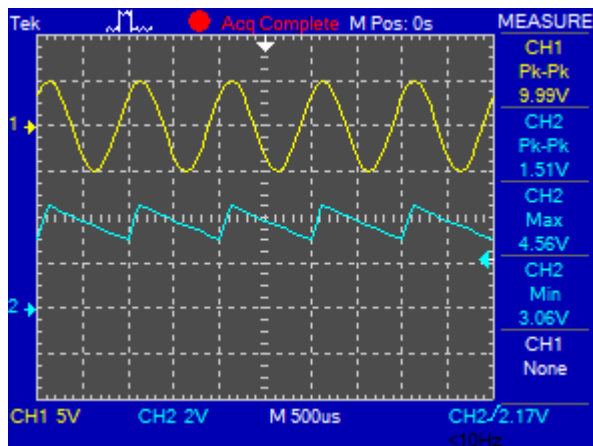
a) Input-output without capacitor (Fig. 1)



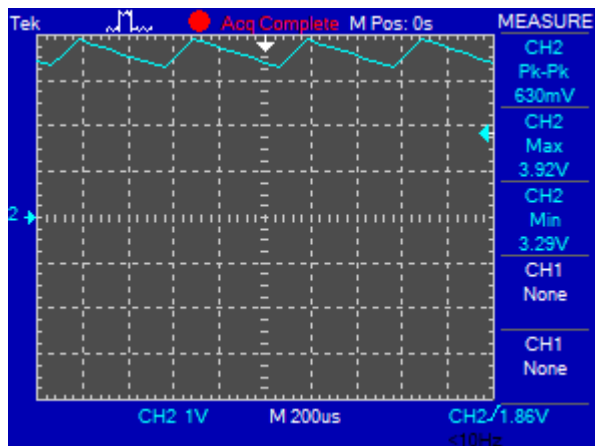
d) Input-output without capacitor (Fig. 4)

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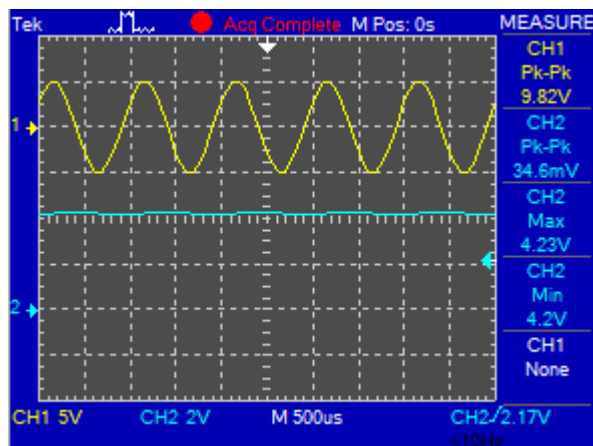
Due date: 30th Oct, 2021, 5:50 PM



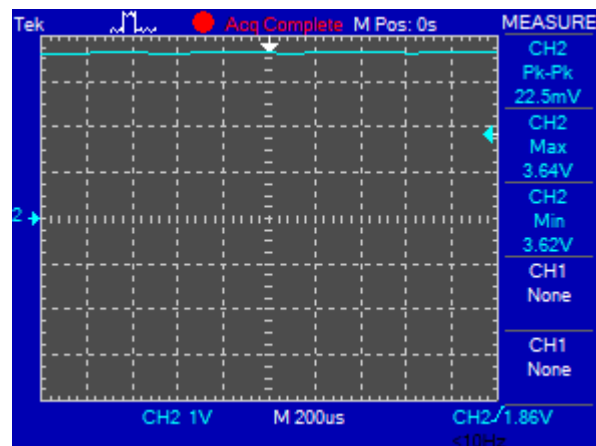
b) Input-output with 0.22uF (Fig. 2)



e) Input-output with 0.22uF (Fig. 5)



c) Input-output with 10uF (Fig. 3)



f) Input-output with 10uF (Fig. 6)

Due date: 30th Oct, 2021, 5:50 PM

Task: 03

Observation:

In this experiment we learnt about rectifier circuits. In a half wave rectifier circuit there's only one diode whereas in a full wave rectifier circuit there are four diodes. In a half wave rectifier, the load receives only half of the total input power and due to the presence of ripple output voltage wave is not smooth. On the other hand, a full wave rectifier is designed using a bridge so it has both the half cycle present in the output voltage. Which is why in a full wave rectifier the output wave is smoother. And during this experiment we saw that for both half wave and full wave rectifier there was a curve when no capacitor was added to the circuit. But when we added a $0.22\mu\text{F}$ capacitor to both they started giving smaller waves and as we increased the capacitance to $10\mu\text{F}$ the lines in both the circuit got flattened for peak-to-peak voltage meaning the AC source were almost acting like an DC source. So, by adding more capacitance we can make a rectifier circuit with an AC source act like an DC source.