ASSIGNMENT-6

INTRODUCTION TO ELCTRICAL ENGINEERING

Professor- Dr. Neethu Mohan

Team Members

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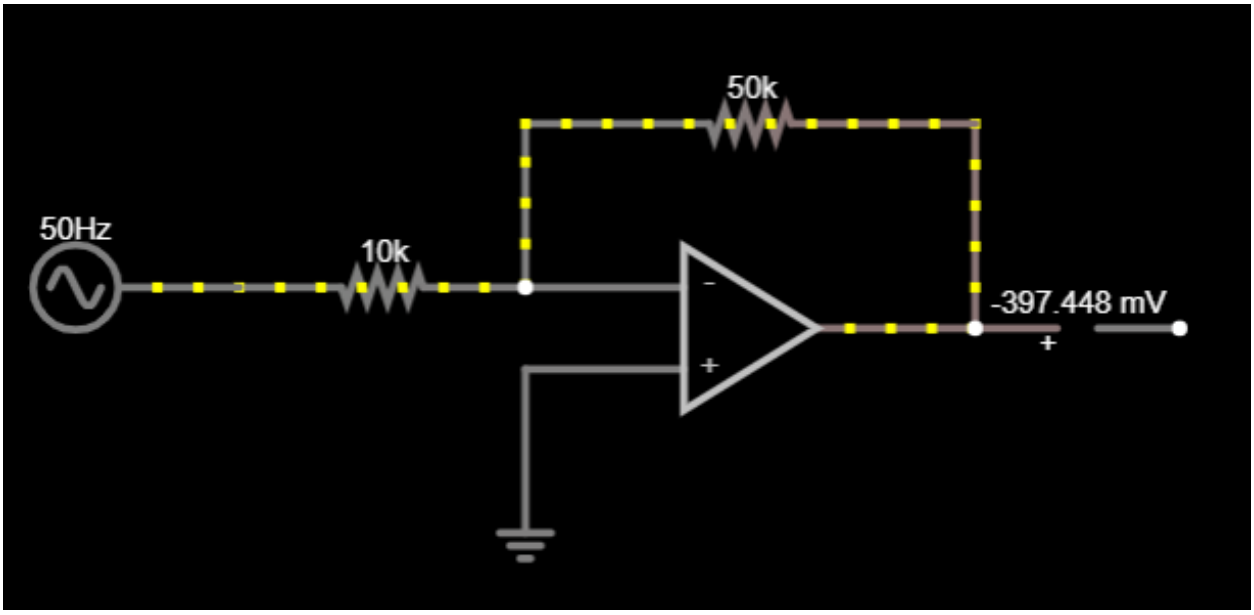
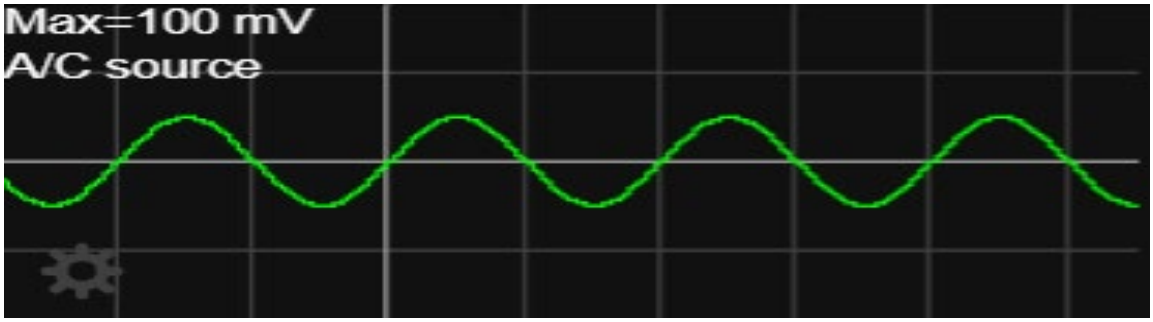
QUESTION

1. Implement the following circuits in Falstad circuit simulator. Also upload the files along with input/output waveforms.
    1. Inverting amplifier
    2. Non inverting amplifier
    3. Summing amplifier
    4. Difference amplifier
    5. Integrator
    6. Differentiator
    7. Inverting comparator
    8. Non inverting comparator
    9. Zero-crossing detector
    10. Schmitt Trigger
    11. Astable multivibrator
    12. Resistive-ladder DAC

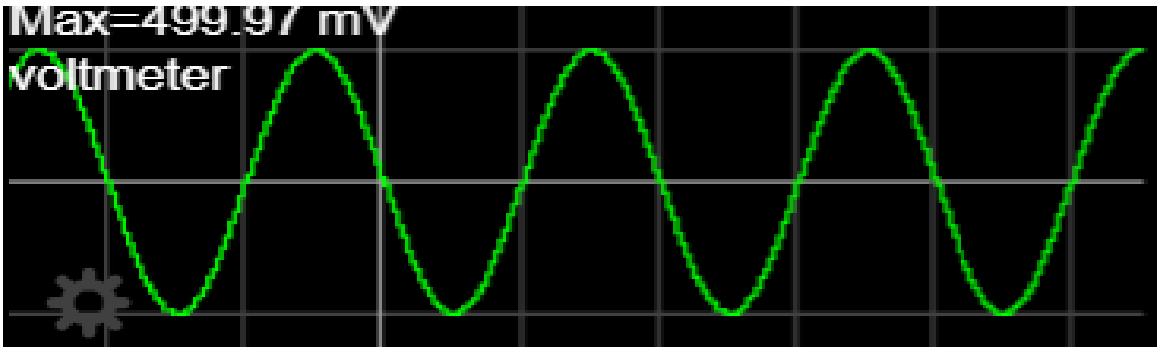
1. Inverting Amplifier [LINK]

Circuit Diagram



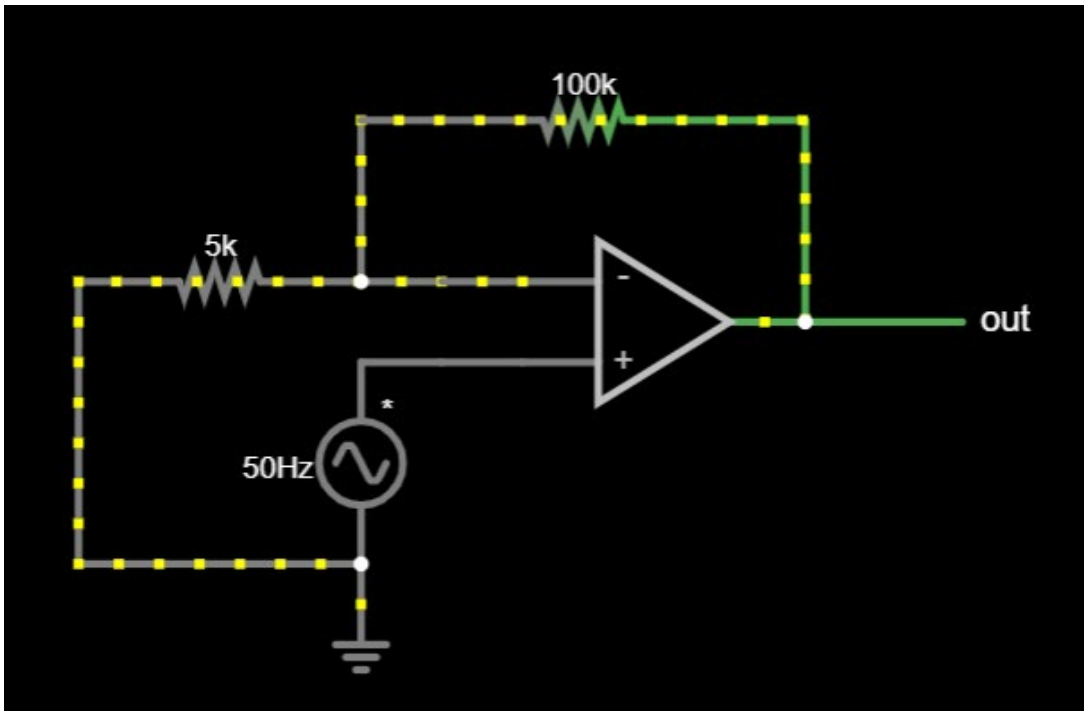


Output



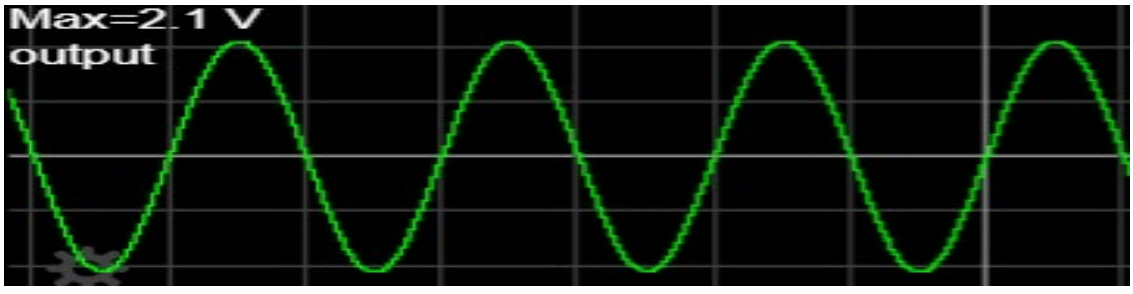
2. Non-Inverting Amplifier [LINK]

Circuit Diagram



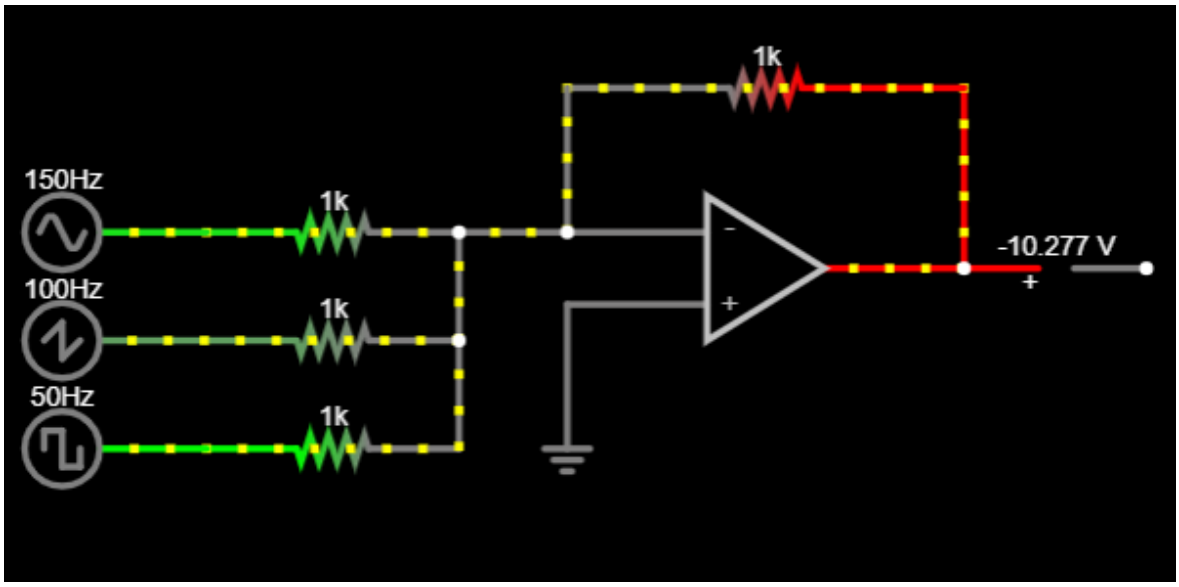
Input

Output

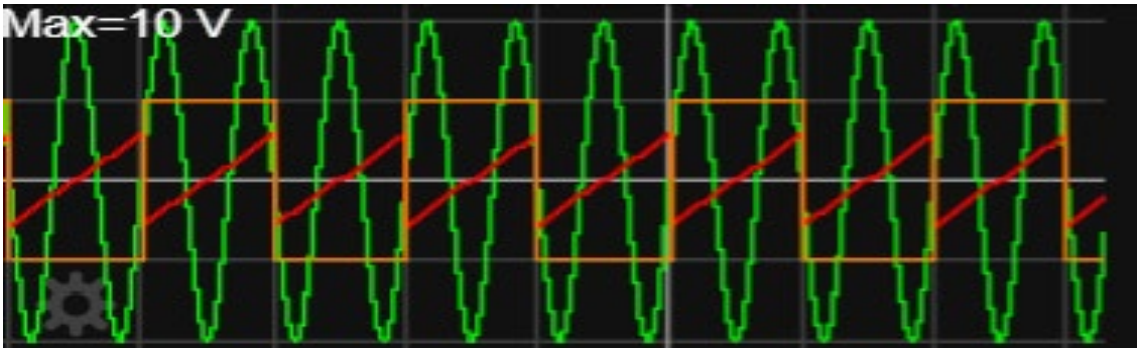


3. Summing Amplifier [LINK]

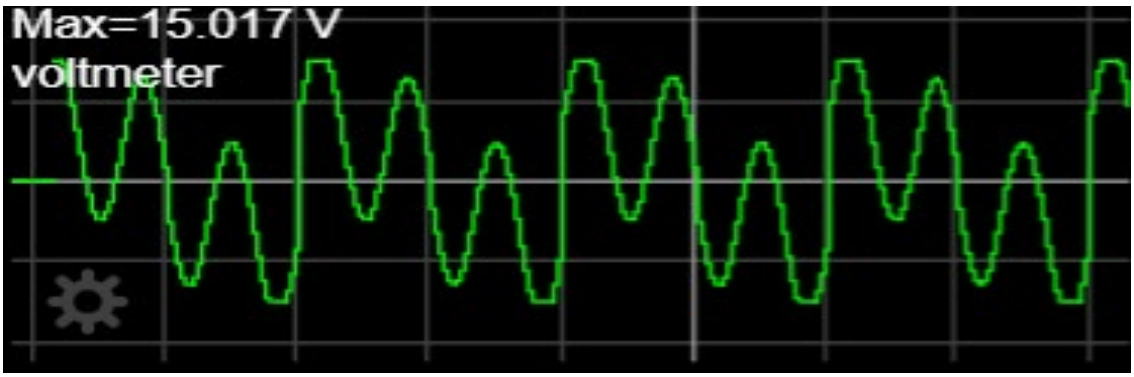
Circuit Diagram



Input

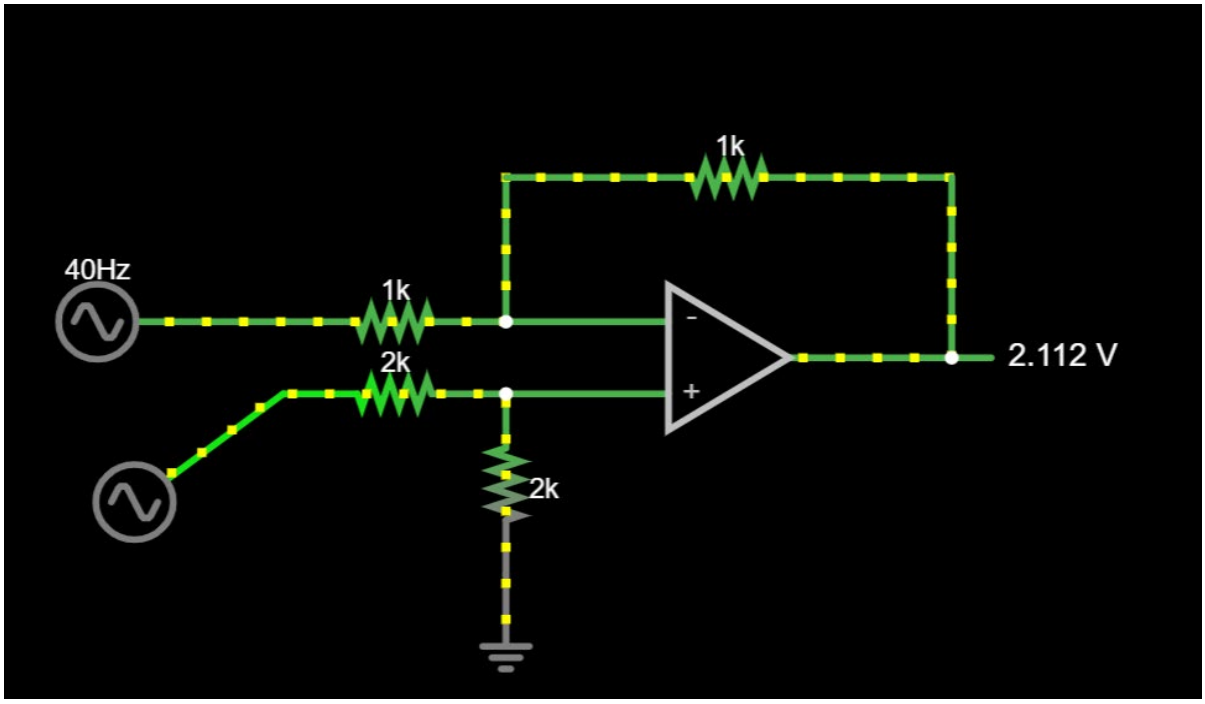


Output

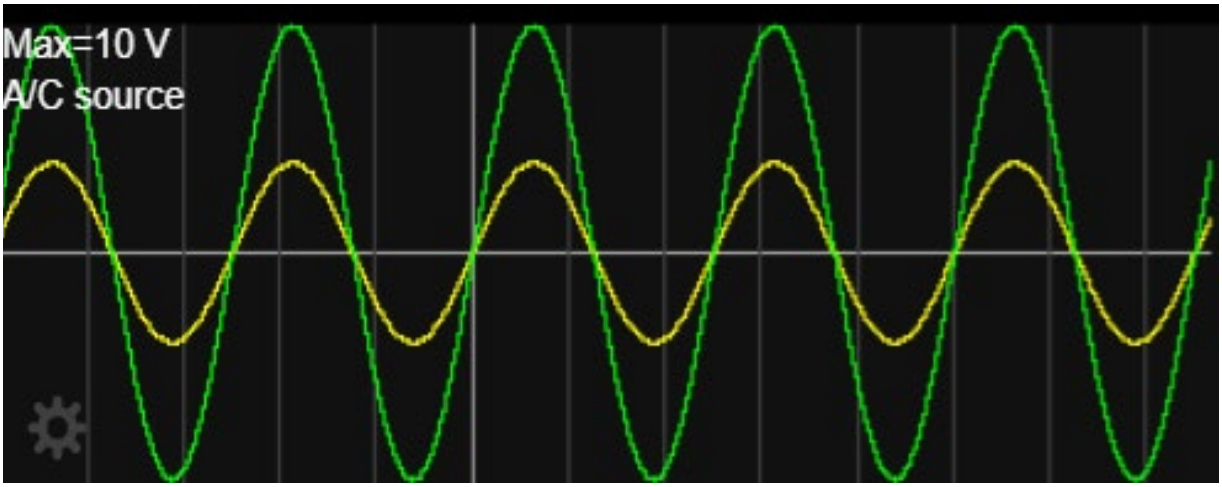


4.Difference Amplifier

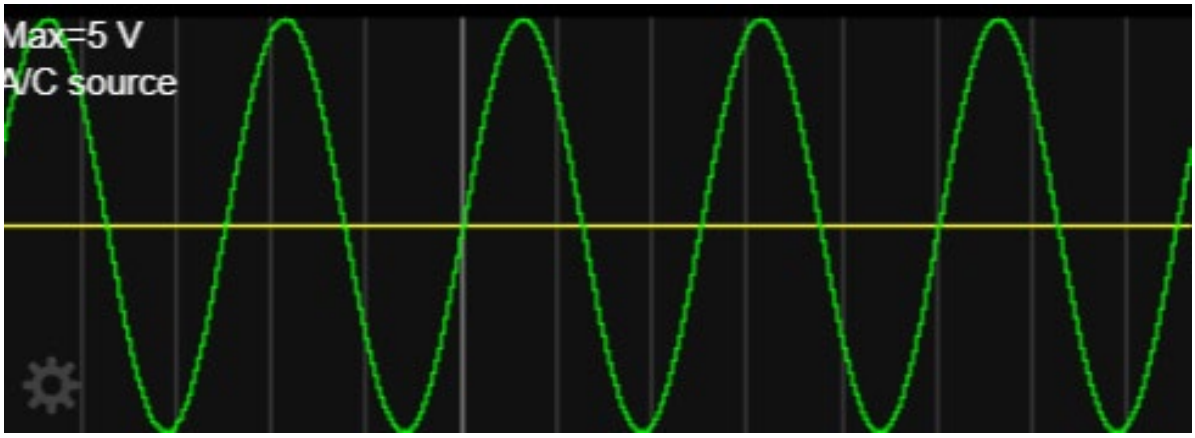
Circuit Diagram



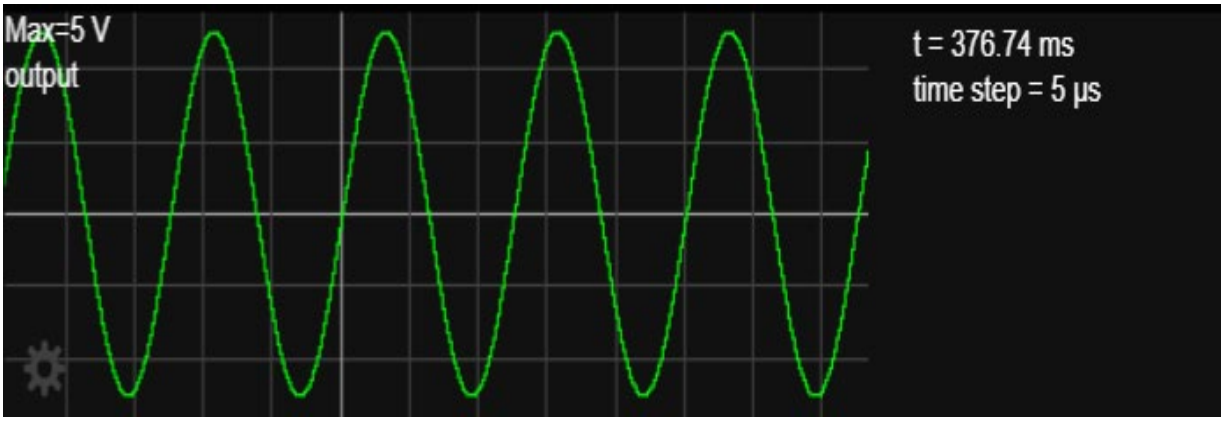
Input-1



Input-2



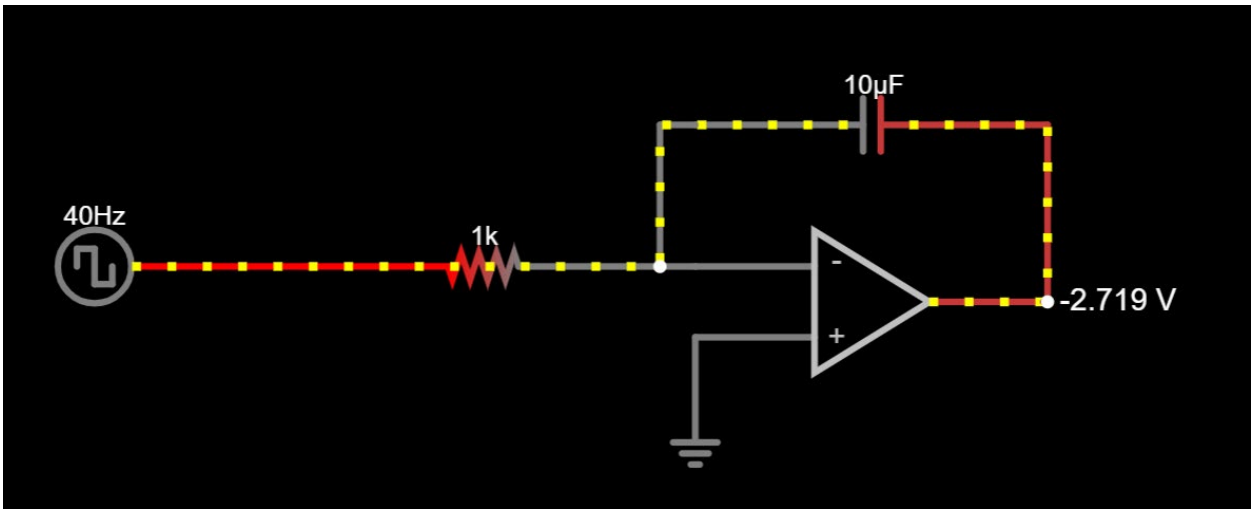
Output



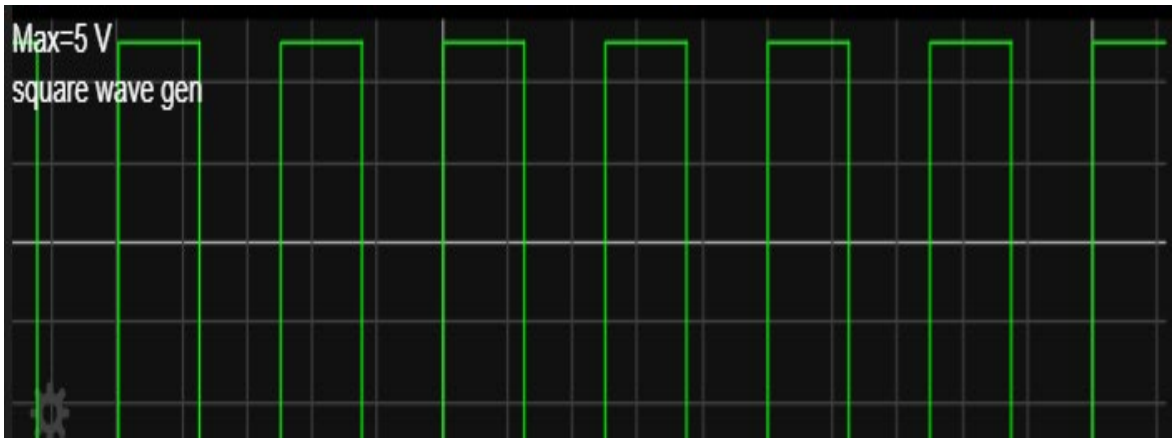
[Link]

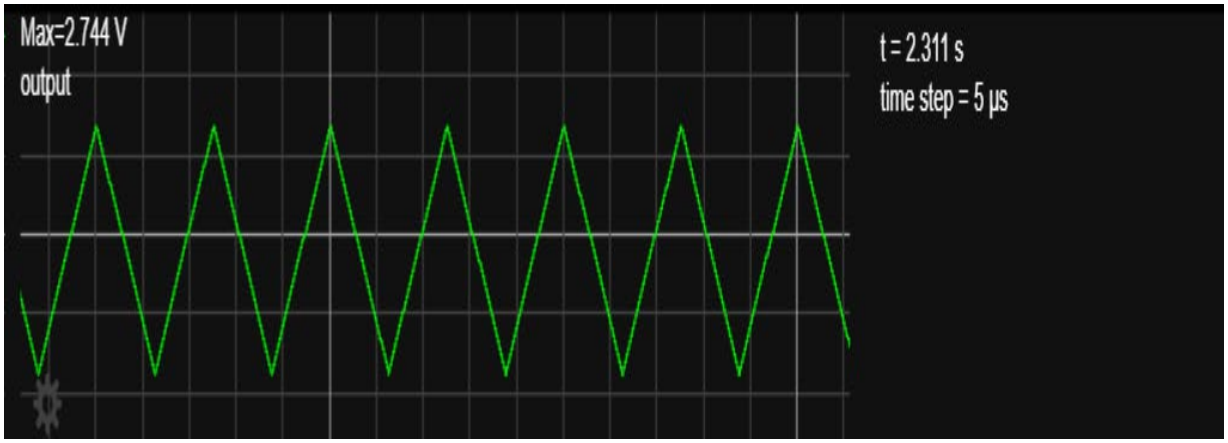
5.Integrator

Circuit Diagram



Input

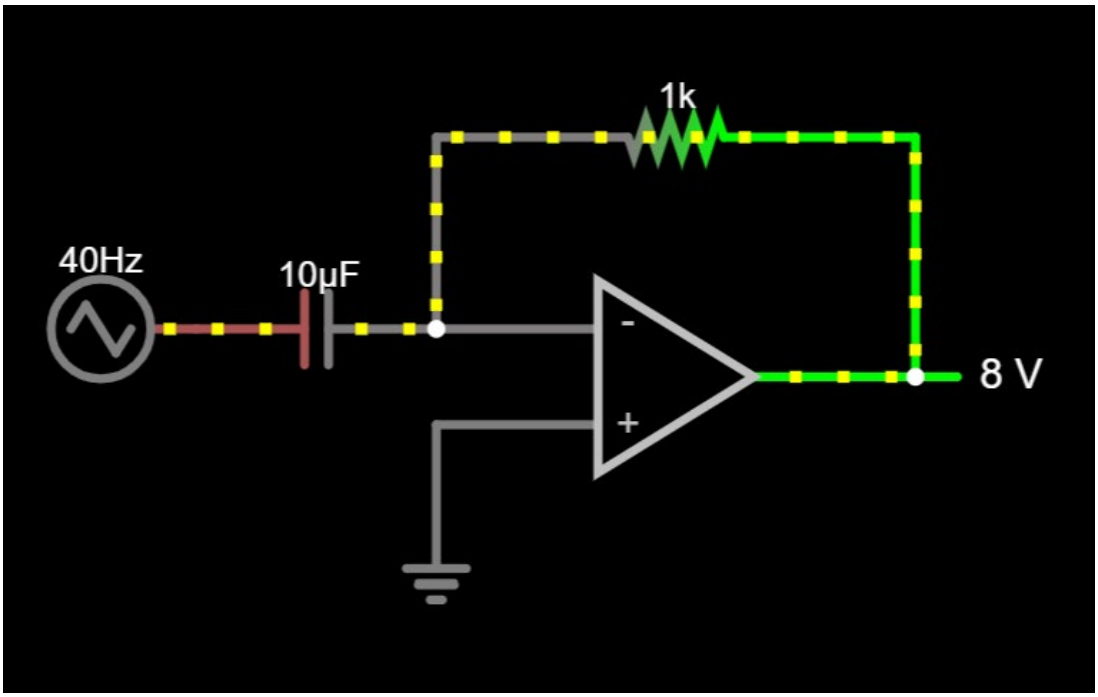




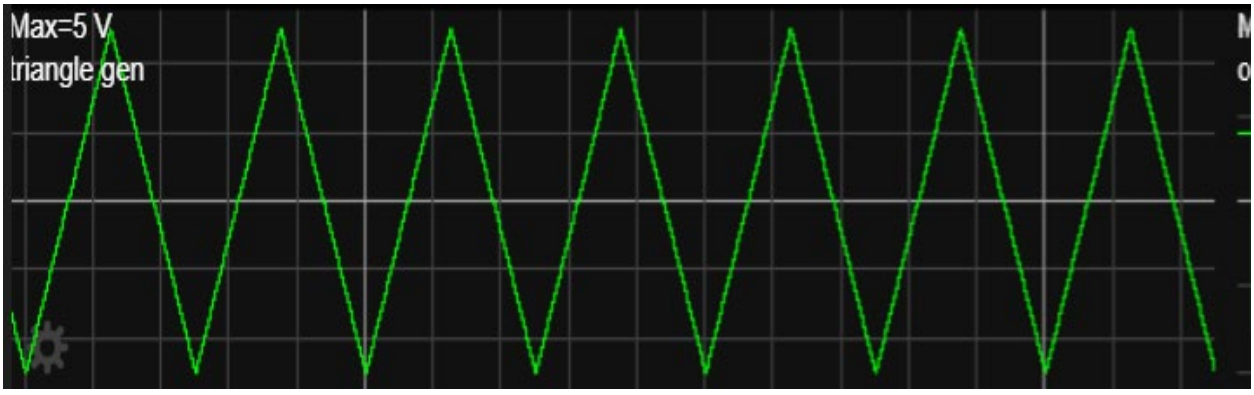
Link

6.Differentiator

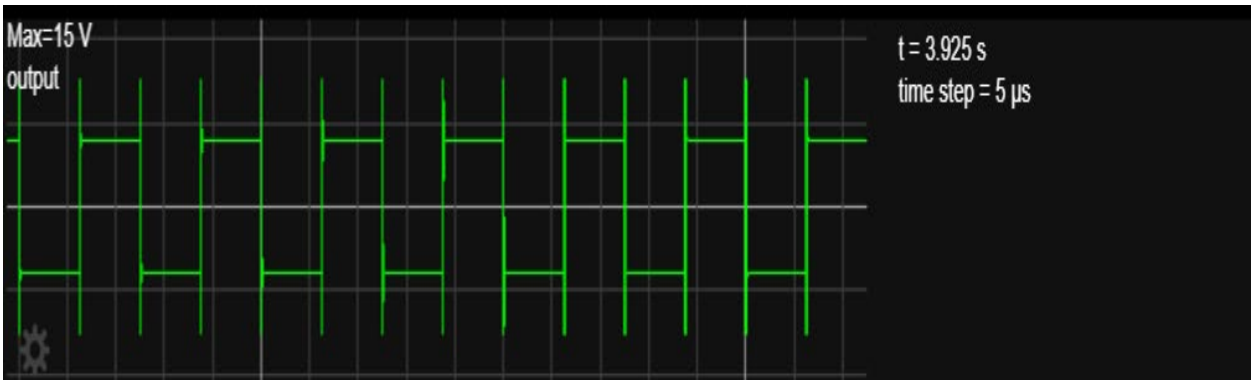
Circuit Diagram



Input



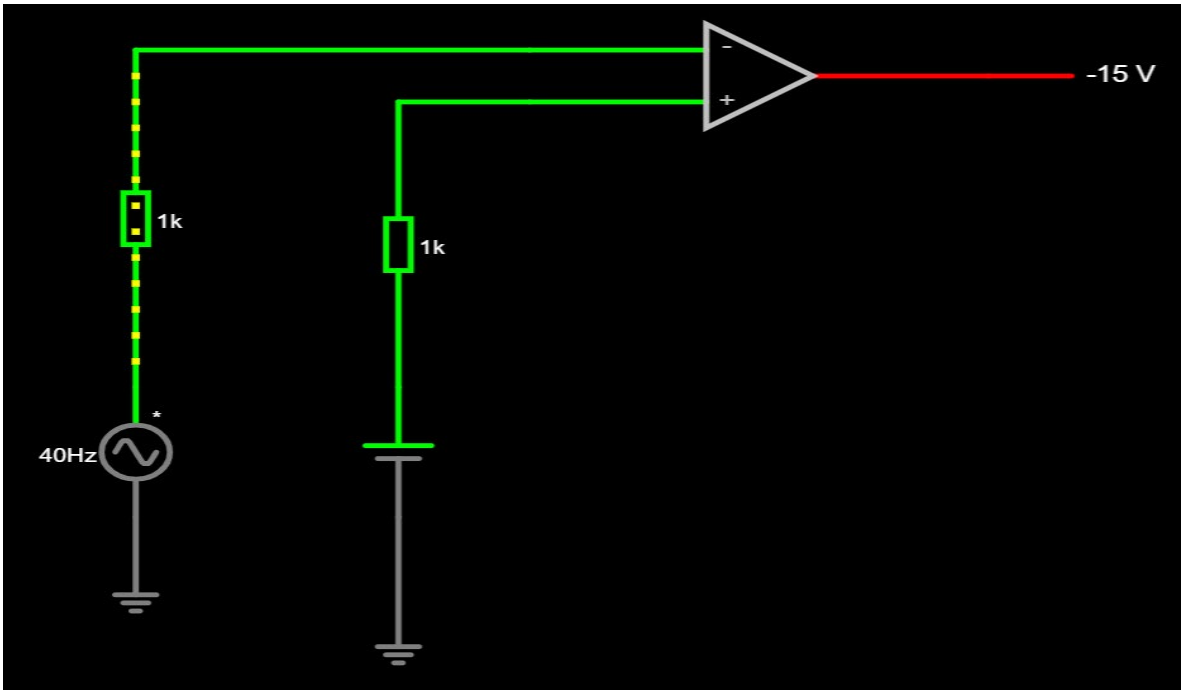
Output



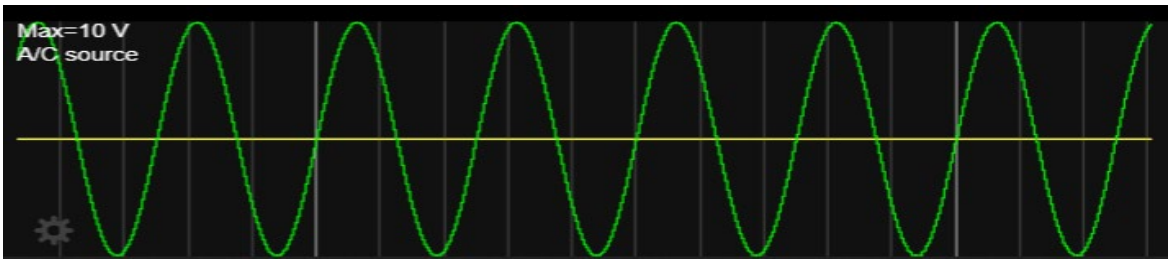
[Link]

7.INVERTING COMPARATOR

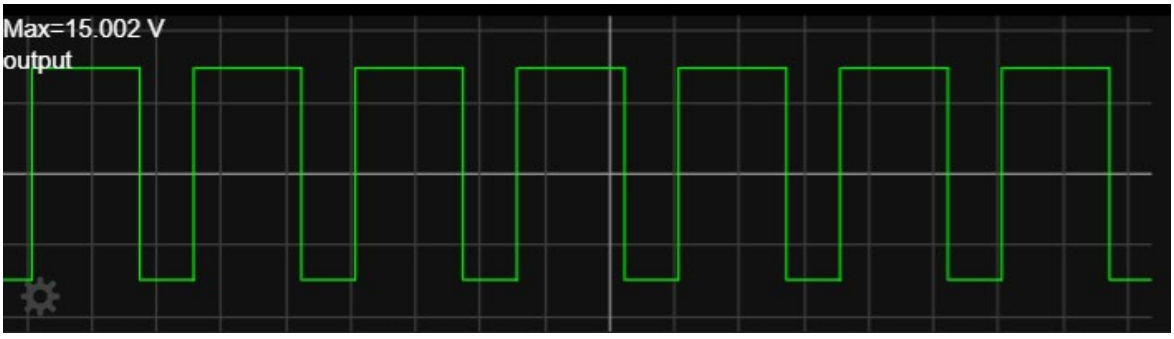
Circuit Diagram : -



Input : -



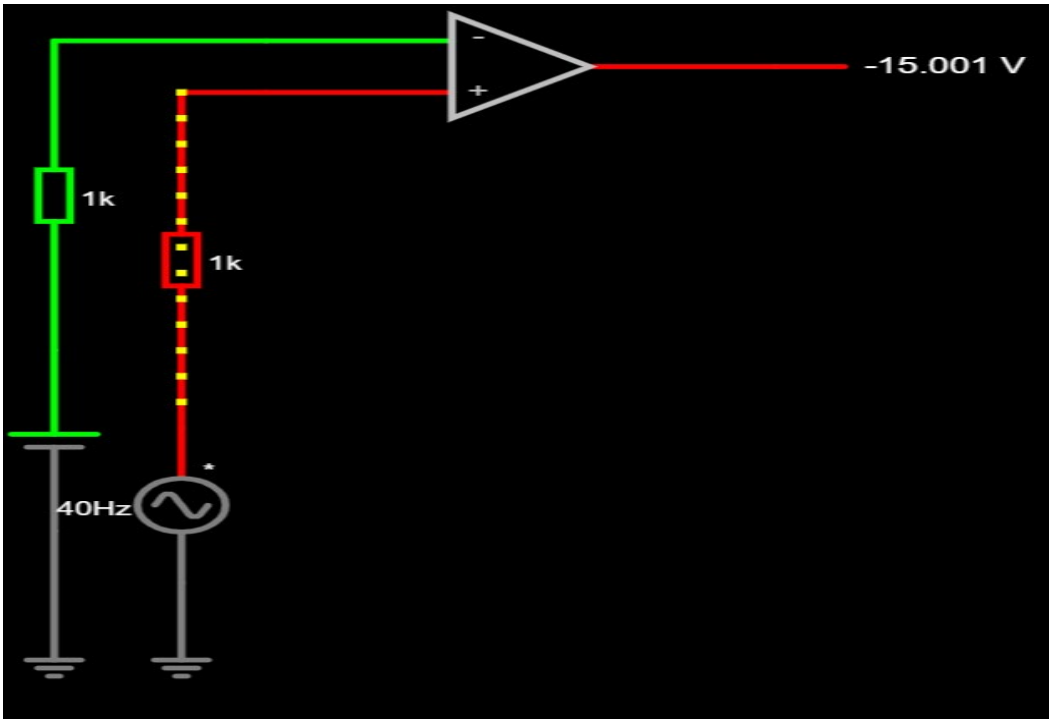
Output : -



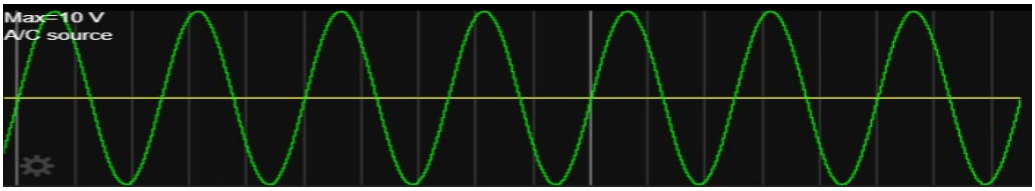
LINK

8.NON-INVERTING COMPARATOR

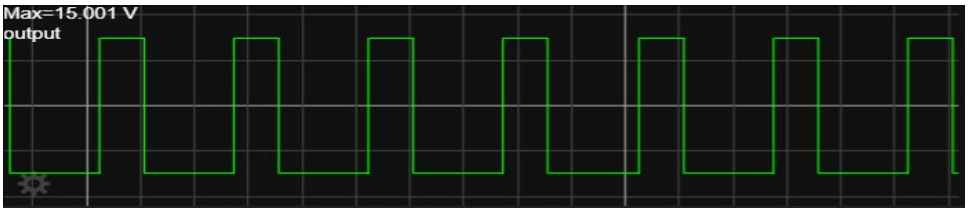
CIRCUIT DIAGRAM: -



INPUT: -



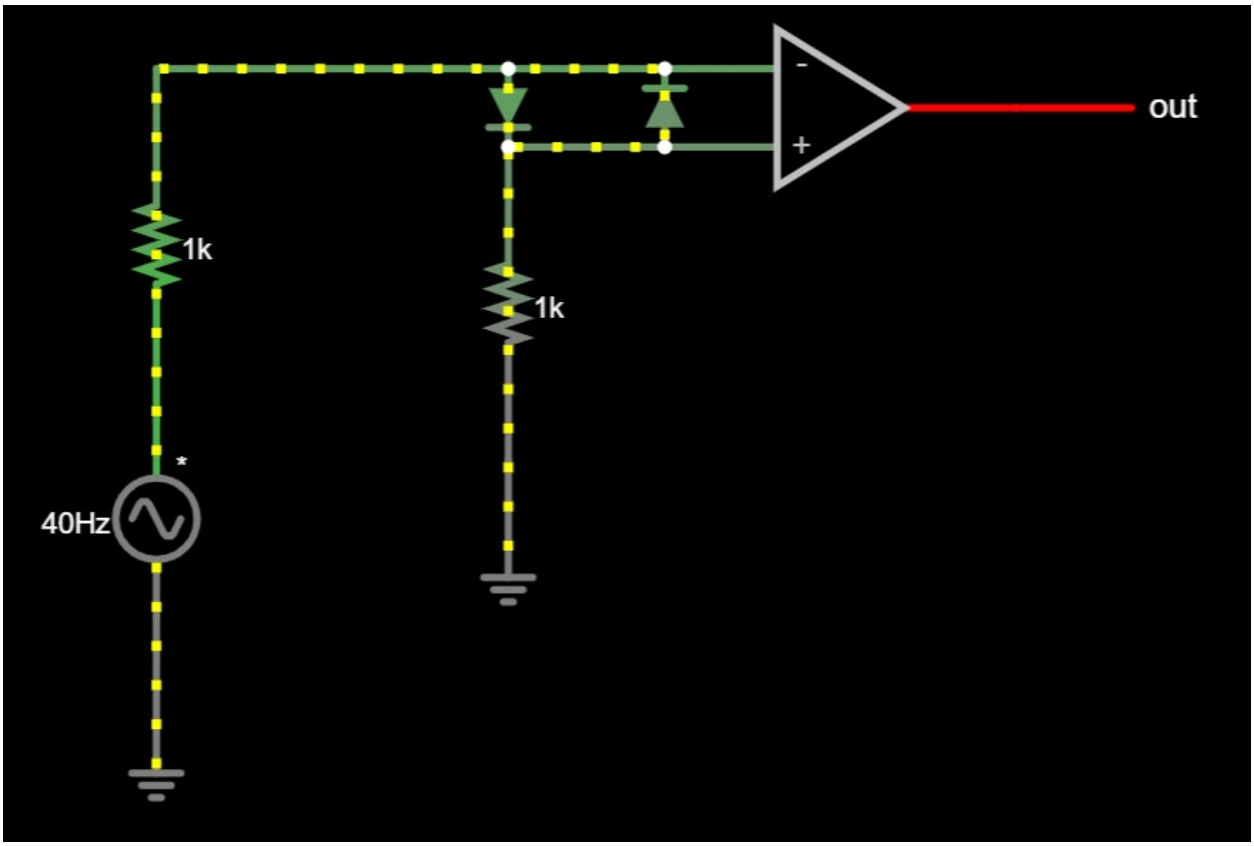
OUTPUT: -



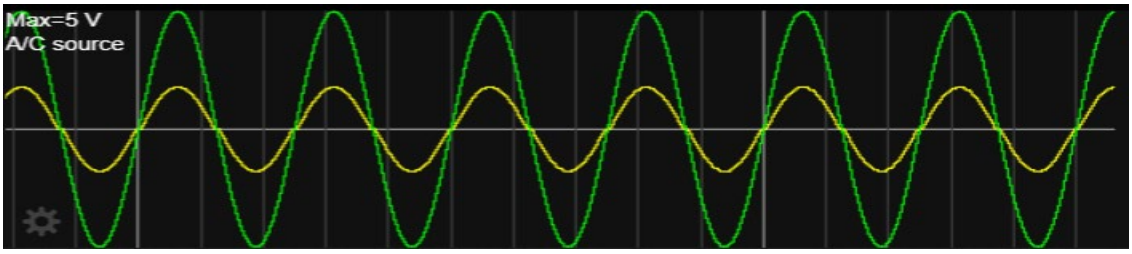
LINK

9.ZERO-CROSSING DETECTOR

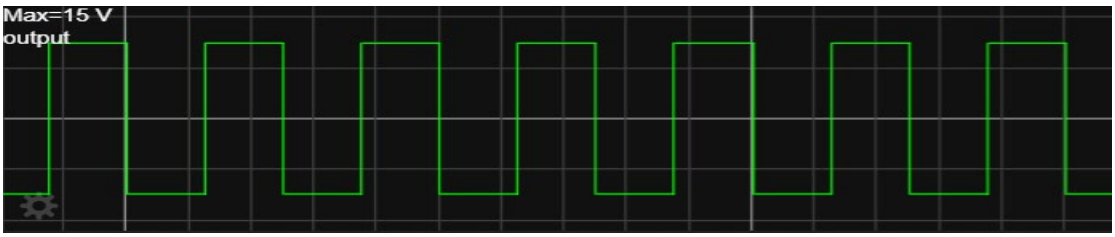
CIRCUIT DIAGRAM: -



INPUT: -



OUTPUT: -

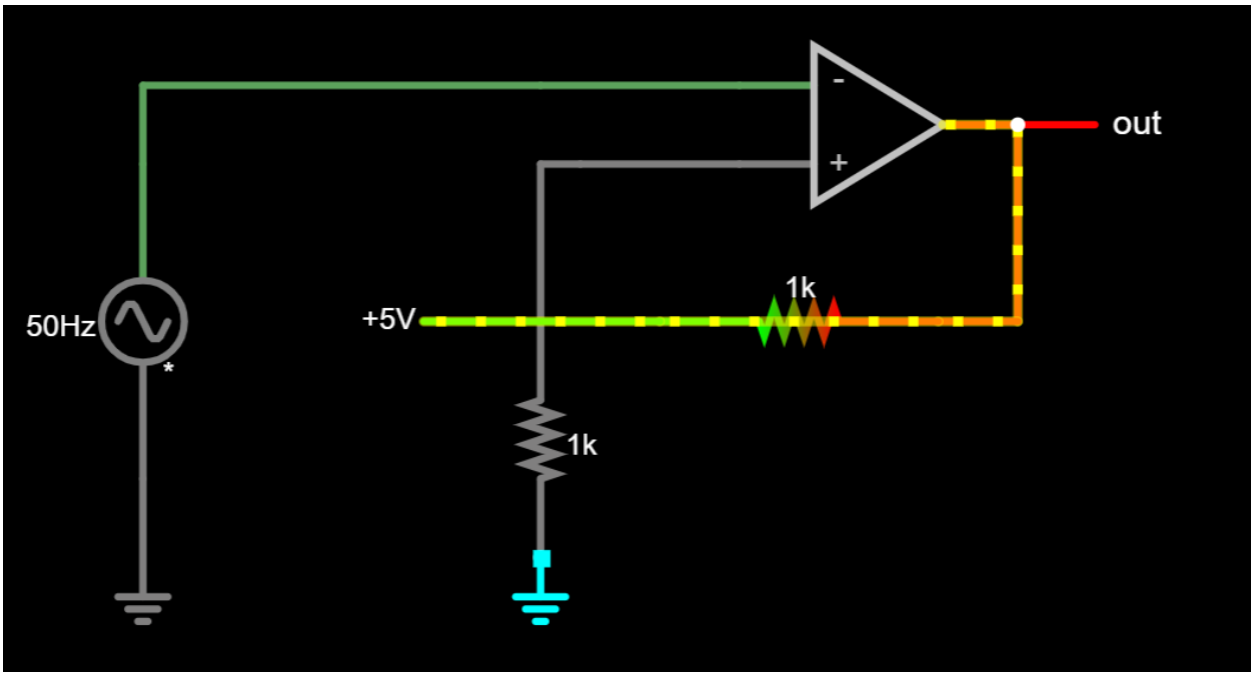


LINK

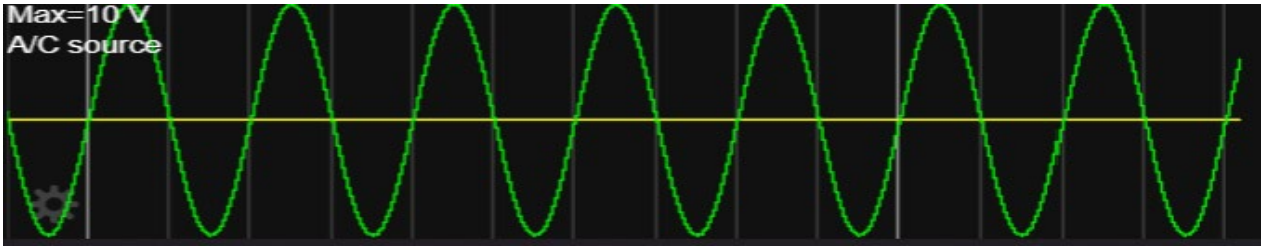
10) Schmitt Trigger

a) Ideal Op-AMP (LINK)

Picture: -



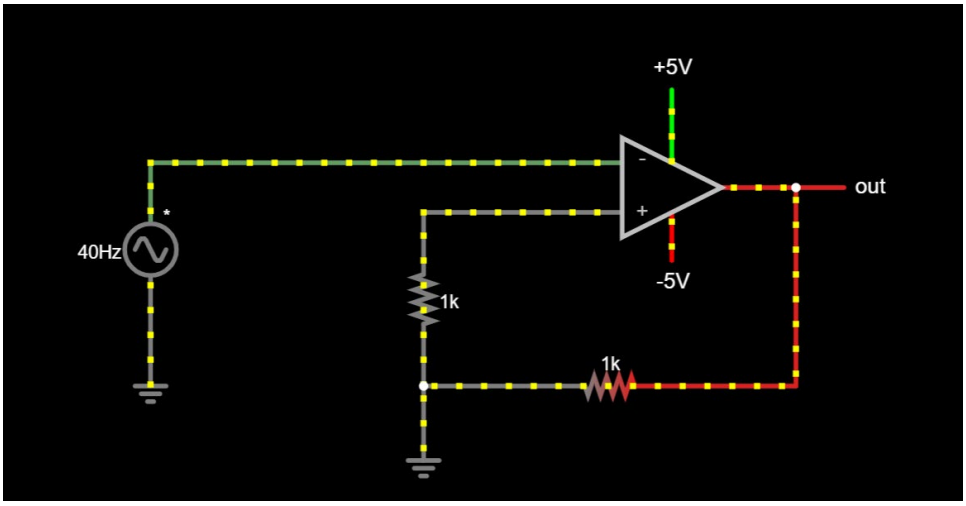
Input:



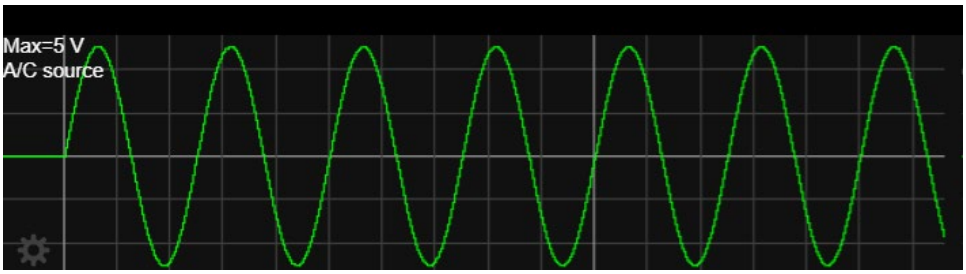
Output:

b) **Non-Ideal Op-AMP (LINK)**

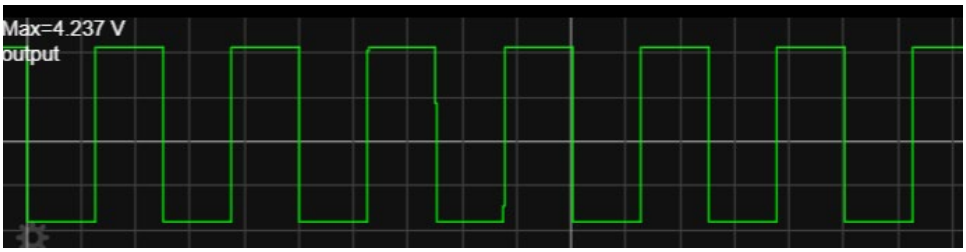
Circuit:



Input waveform: -



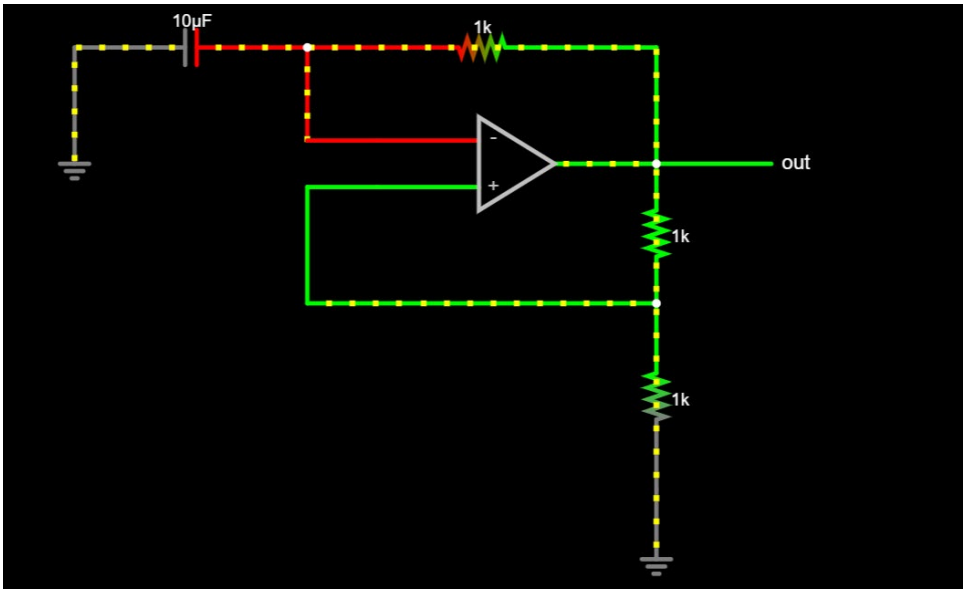
Output Waveform: -



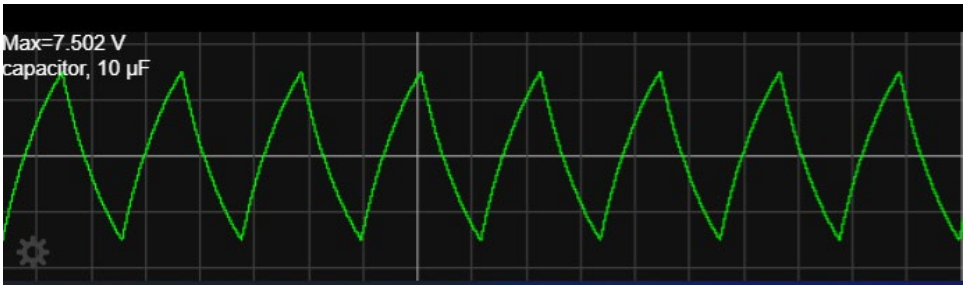
11)Astable Multivibrator (Link)

a) Ideal Op-AMP

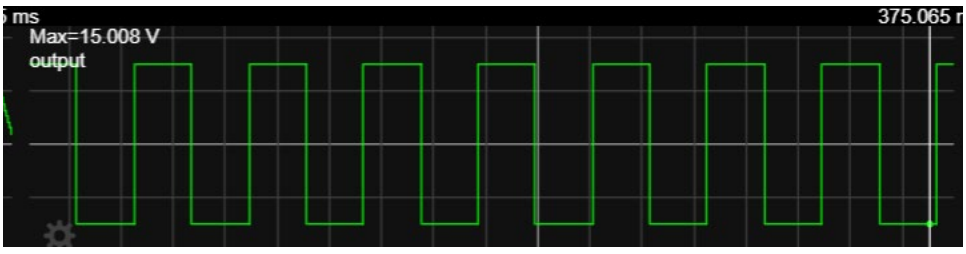
Circuit : -



Input waveform: -

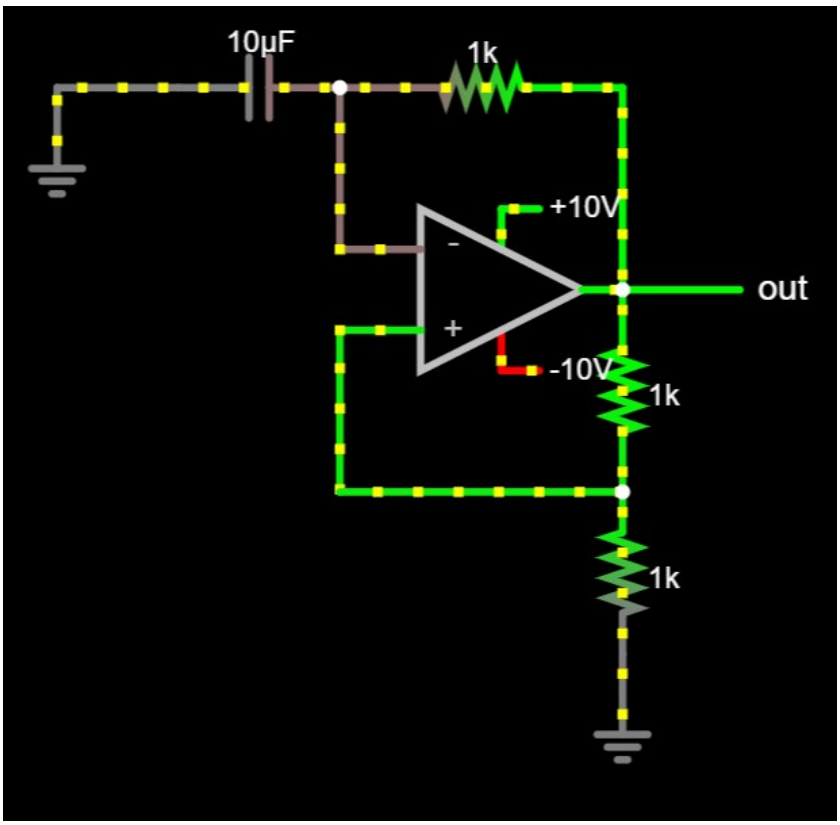


Output Waveform: -

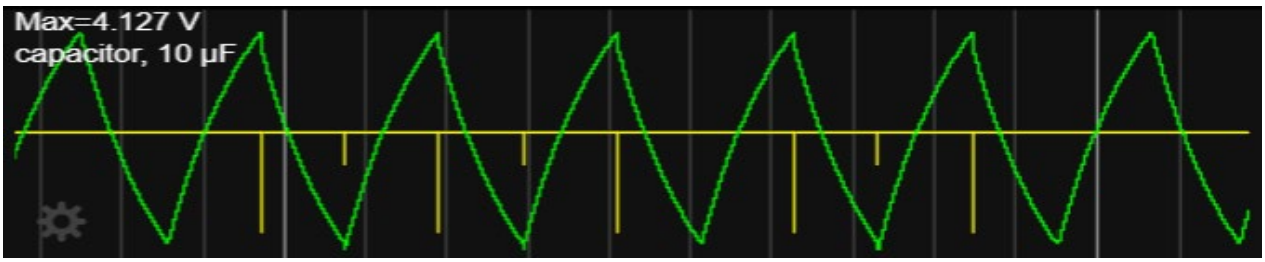


b) Non-Ideal Op-AMP (LINK)

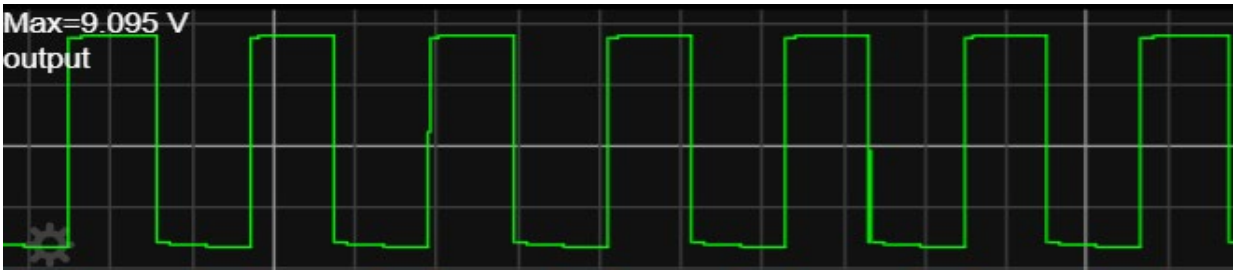
Circuit:



Input:

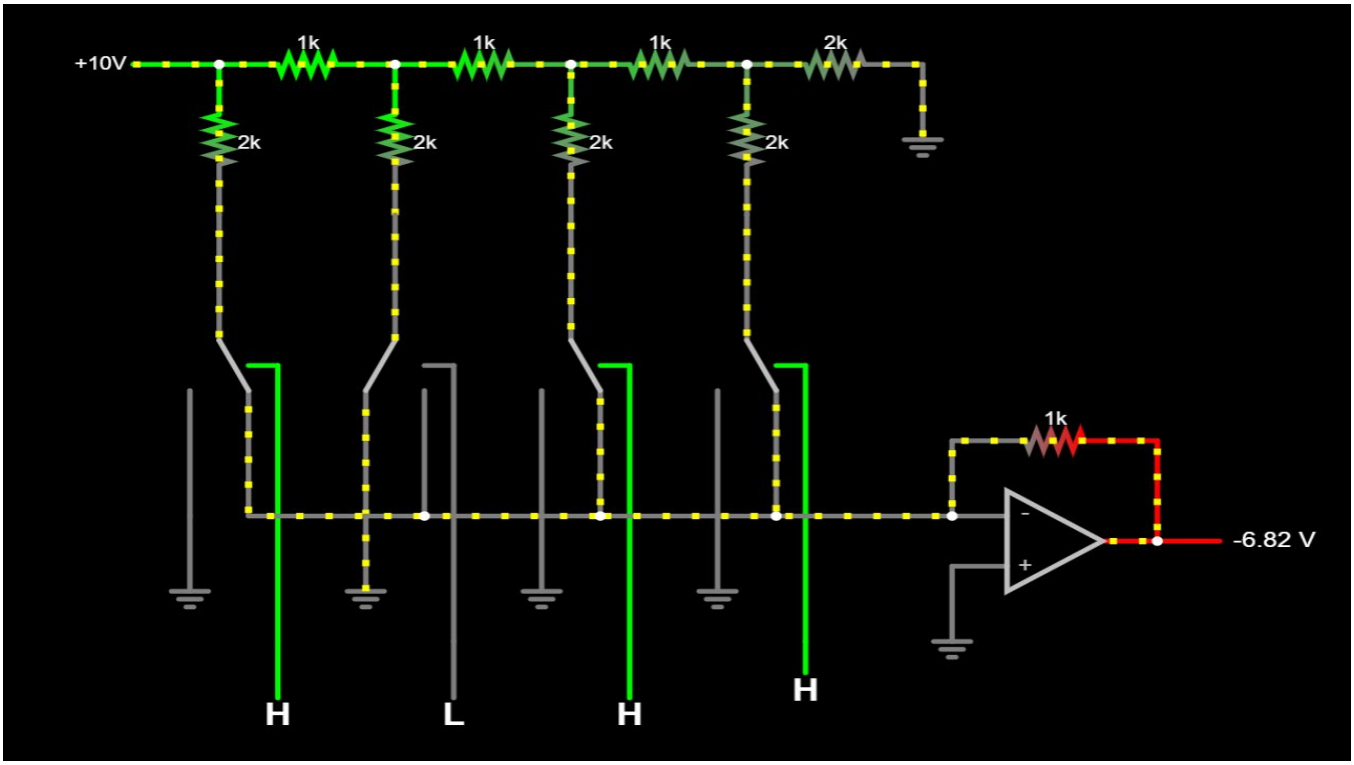


Output:

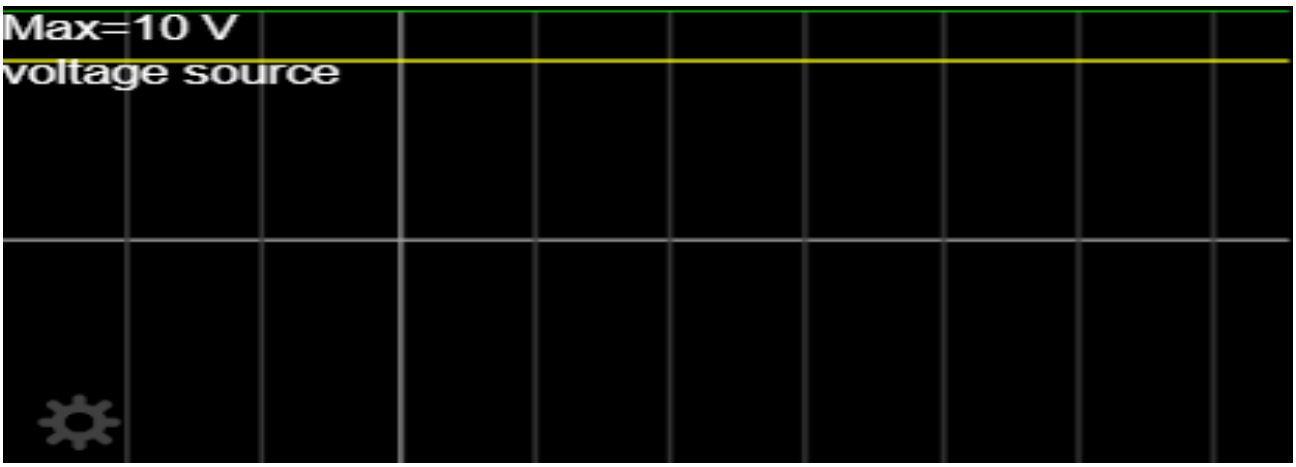


12) Resistive-ladder DAC(Link)

Picture: -



INPUT:



OUTPUT: