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**Lab 8**

**Study the sinusoidal and non-sinusoidal oscillators using LM741**

**Objectives**

To study the sinusoidal and non-sinusoidal oscillators using op-amp IC LM741

1. RC phase shift oscillator

2. Wein Bridge oscillator

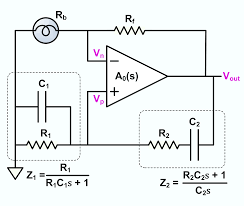
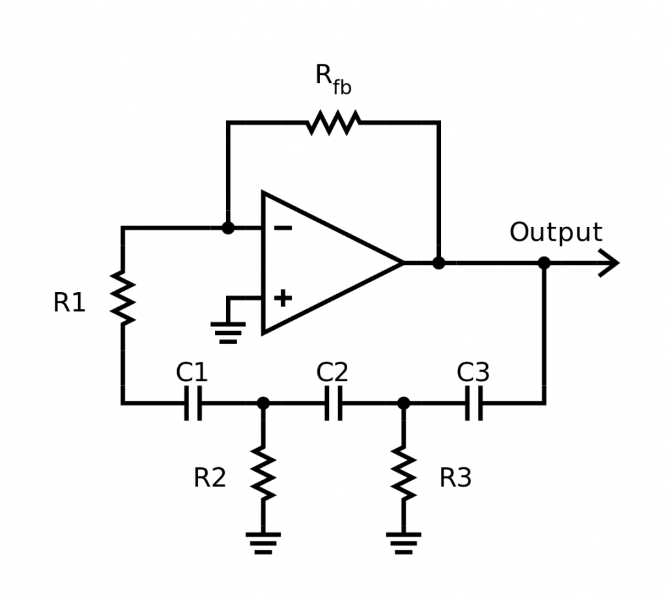
and draw output waveforms in each case.

Also draw the schematic for each filter and compare theoretical values with simulated ones.

**Oscillator Circuits**

An **oscillator** is a circuit which produces a continuous, repeated, alternating waveform without any input.

Oscillators basically convert unidirectional current flow from a DC source into an alternating waveform which is of the desired frequency, as decided by its circuit components.

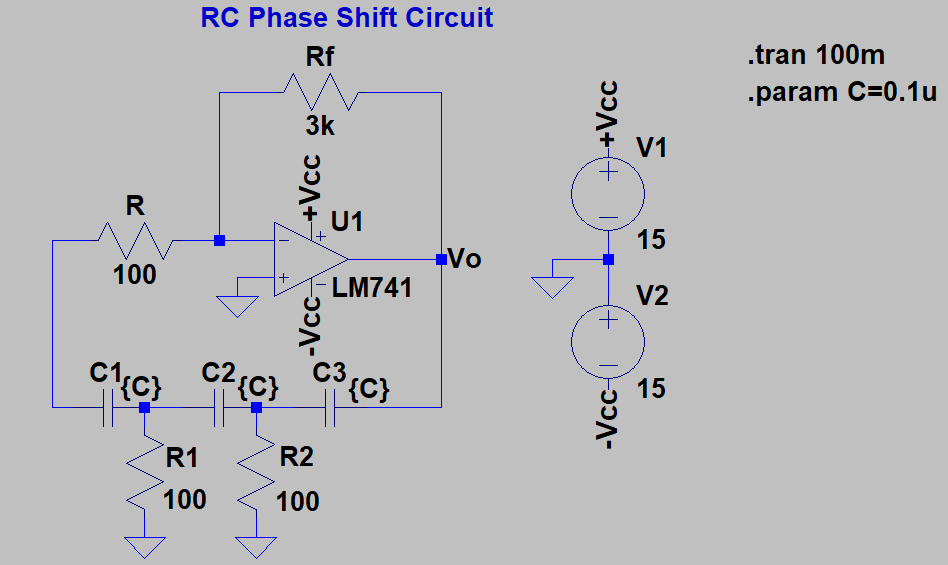


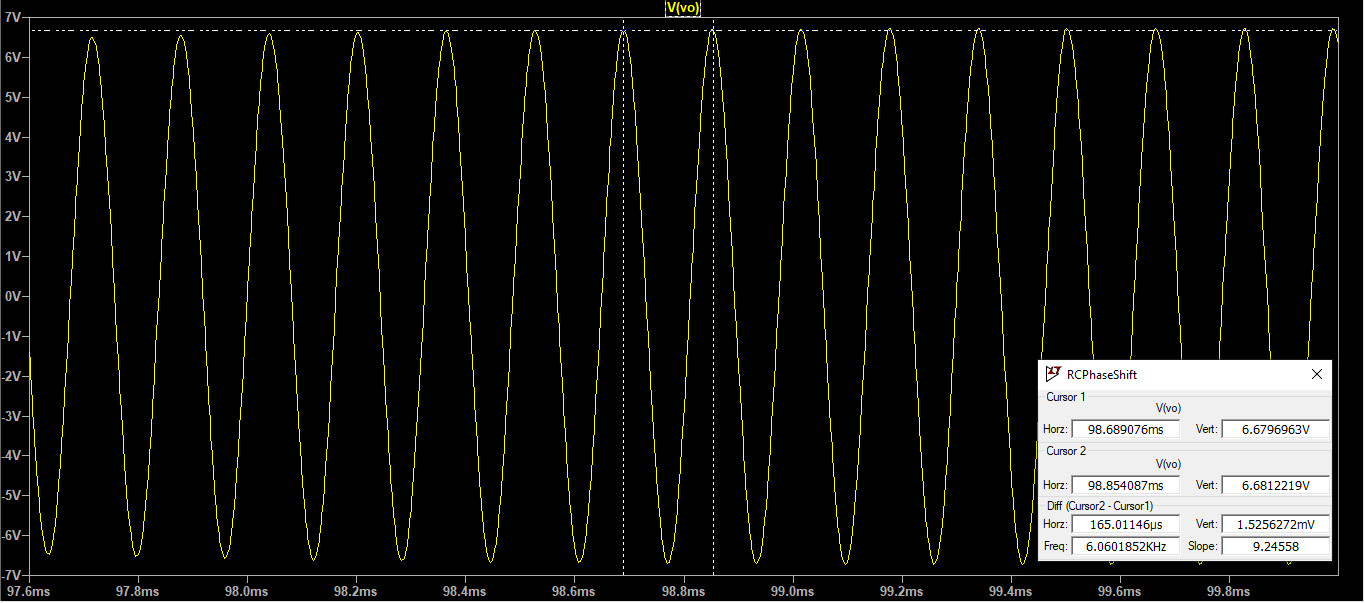
RC Phase Shift Oscillator Wein Bridge Oscillator

1. **RC Phase Shift Oscillator**

**C = 0.1μF**

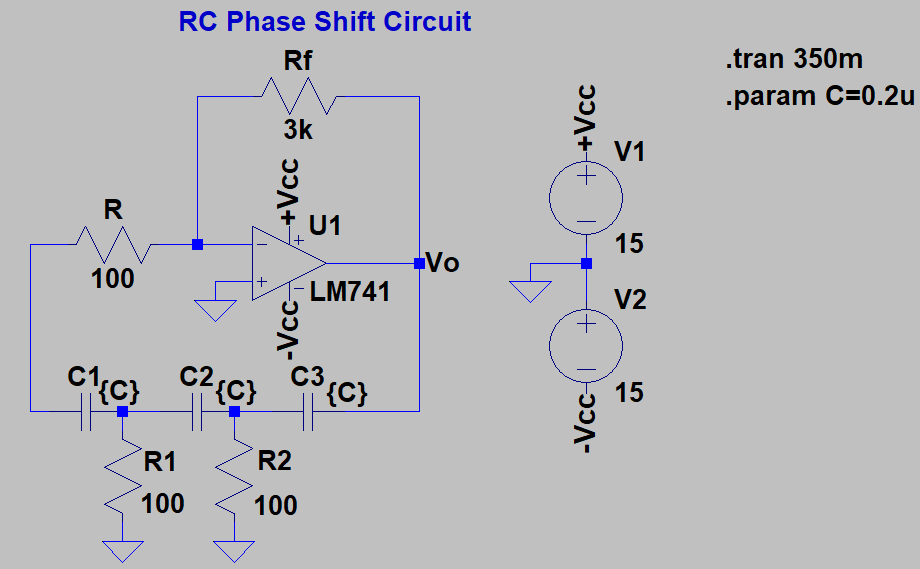
Schematic and Waveform

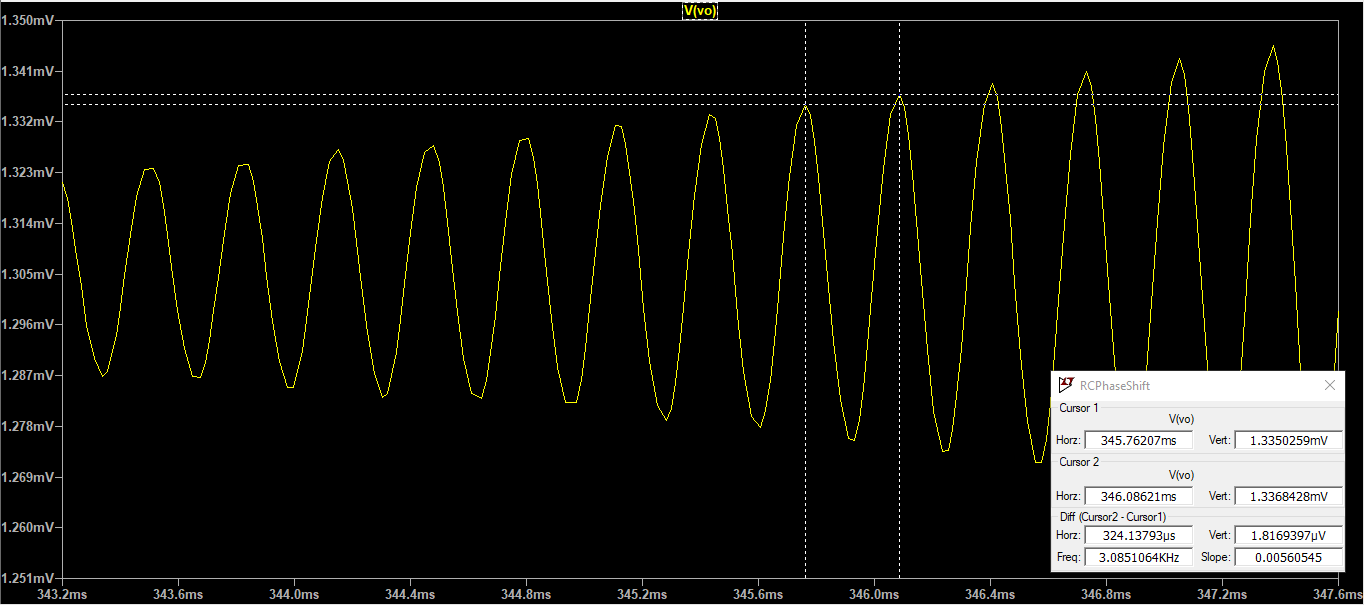




**C = 0.2μF**

Schematic and Waveform

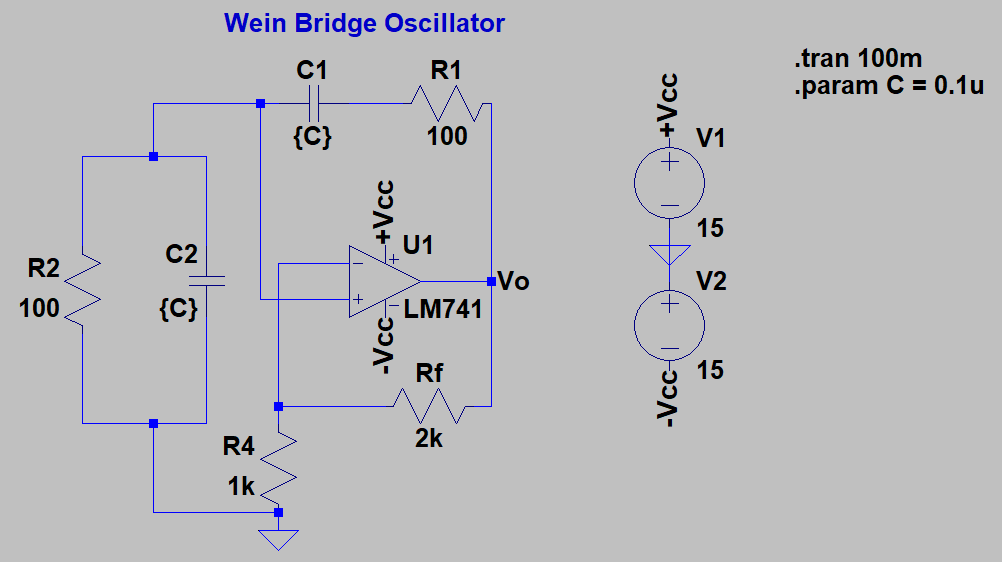


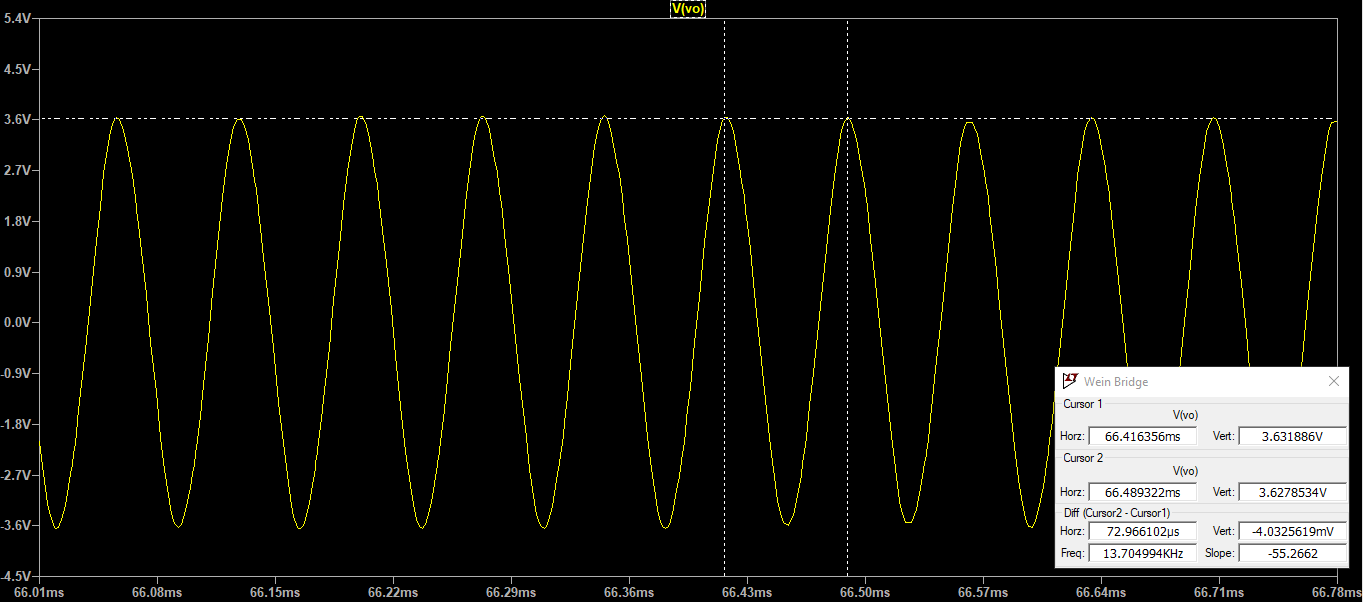


1. **Wein Bridge Oscillator**

**C = 0.1μF**

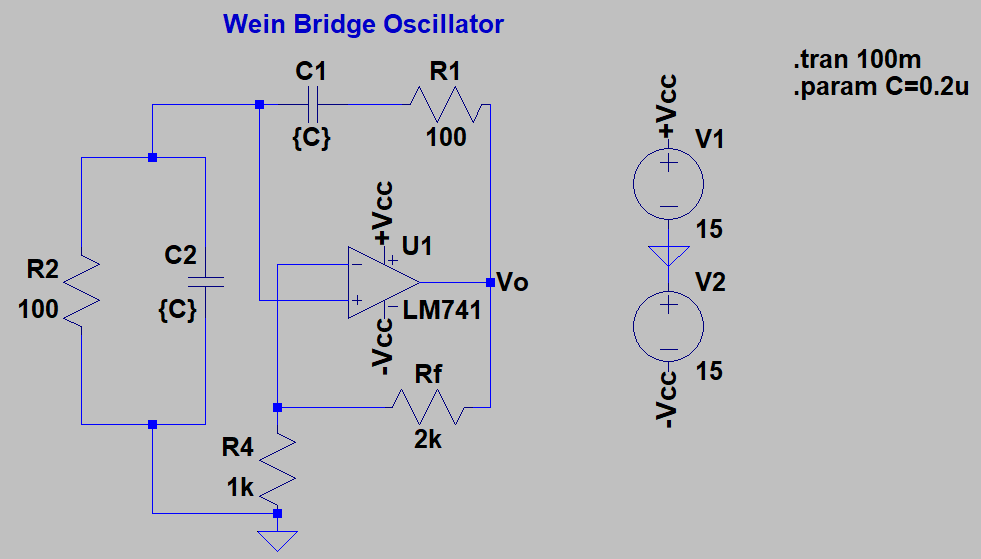
Schematic and Waveforms

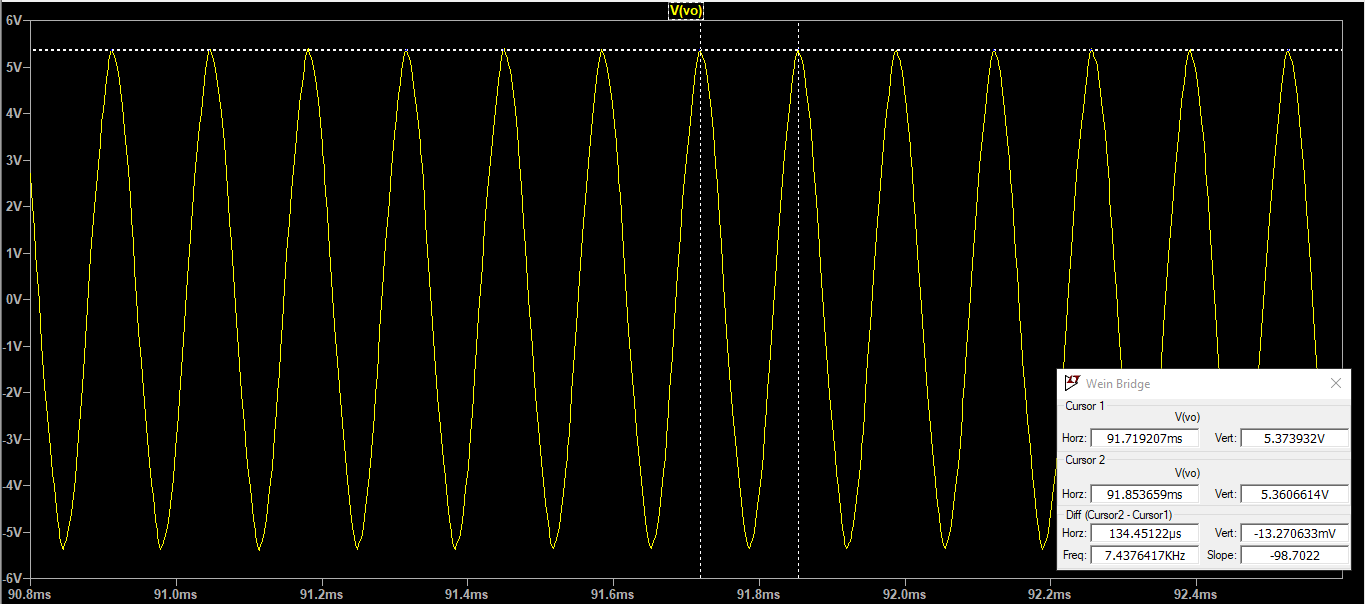




**C = 0.2μF**

Schematic and Waveforms





**Results**

|  |  |  |
| --- | --- | --- |
| **Oscillator** | **Theoretical value of oscillator frequency** | **Best simulated value of oscillator frequency** |
| RC phase shift oscillator  C = 0.1uF |  | 6.060 kHz |
| RC phase shift oscillator  C = 0.2uF |  | 3.085 kHz |
| Wein Bridge oscillator  C= 0.1uF |  | 13.705 kHz |
| Wein Bridge oscillator  C= 0.2uF |  | 7.437 kHz |