# Oscillator Circuits

***Analog Electronics Lab Experiment -8***

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**Lab Section**: P5
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## 1. Objective

To study the sinusoidal and non-sinusoidal oscillators

1) RC phase shift oscillator

2) Wein Bridge Oscillator

Upload a single PDF file on Nalanda which includes

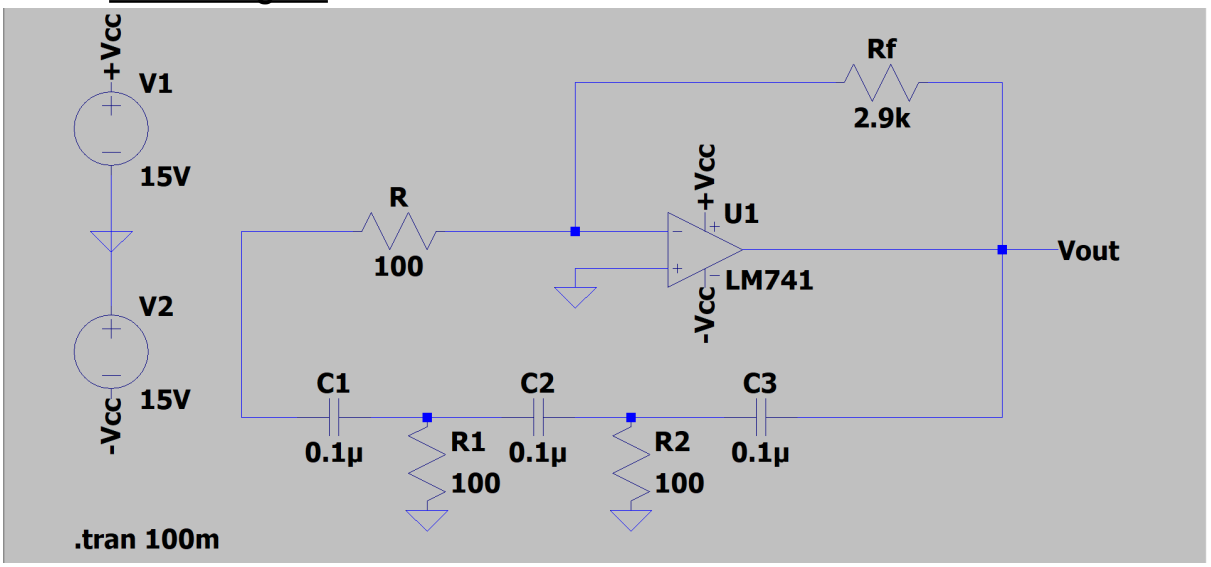
1) Circuit diagrams for all configurations.

2) Input and output waveforms

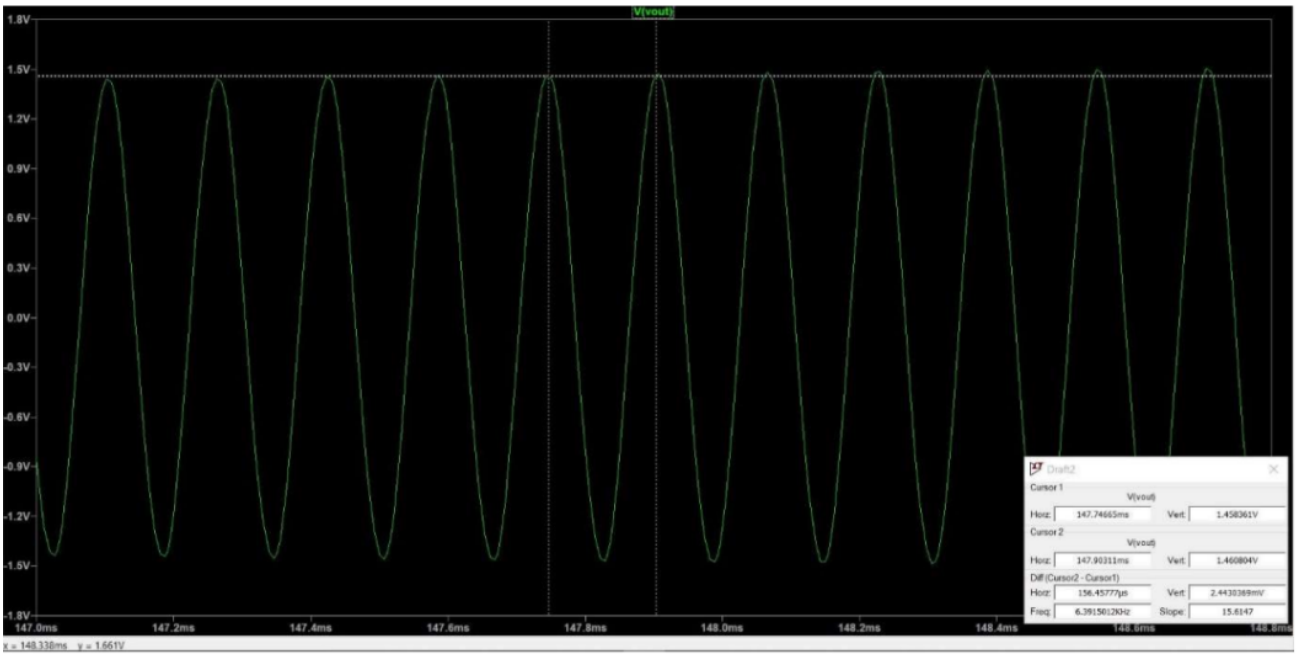
3)Compare your theoretical values with the practical ones.

# 2. RC Phase Shift Oscillator

1. **Circuit Diagram**:




2. **Resultant Curve and simulation result**



Simulated gain = We get the practical value of, (at Rf = 2.9 k-ohm)

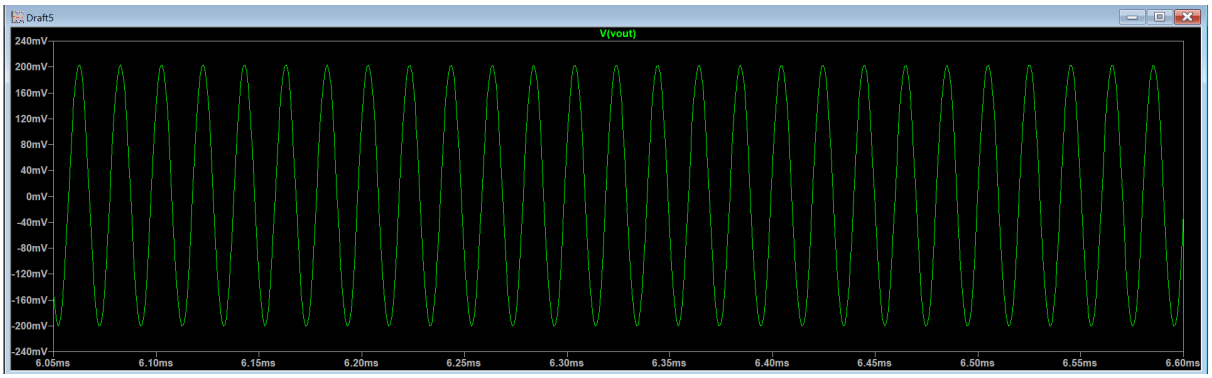
$f_0$ **= 6.475 kHz**

**Hand Calculations**

$f_0$ = 1/(2*pi*(6^0.5)*R*C) = **6.5kHz**

## 3. Changing the value of C

C => 2C



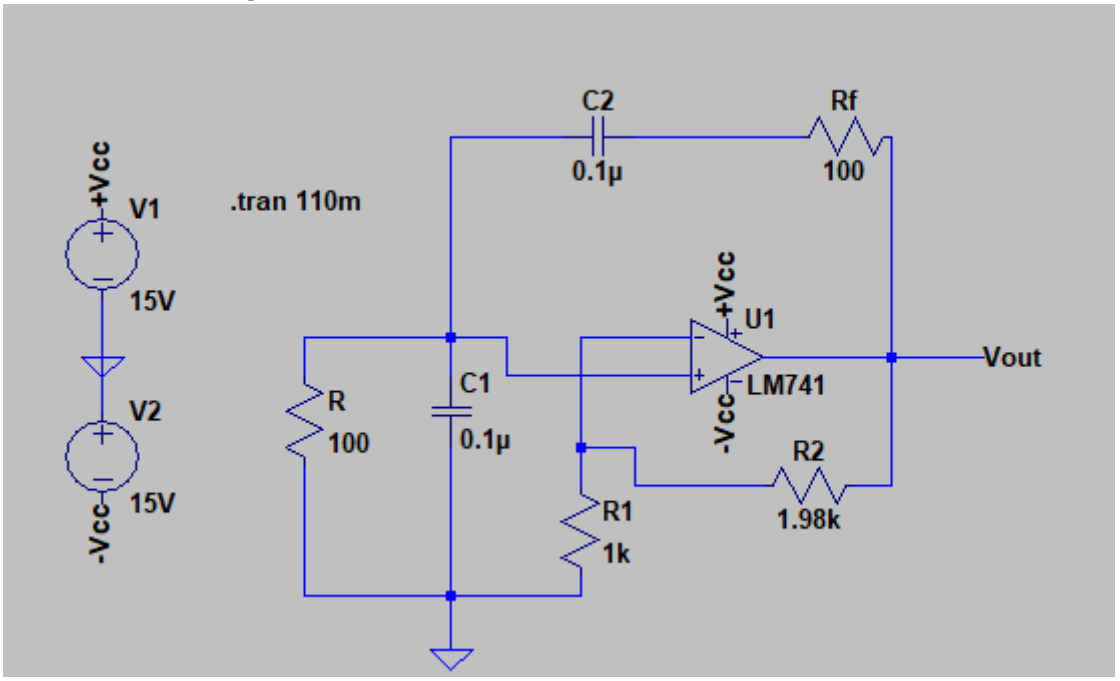

**Practical frequency => 3.13 kHz**
**Theoretical frequency => 3.25 kHz**

## 4. Changing the value of R

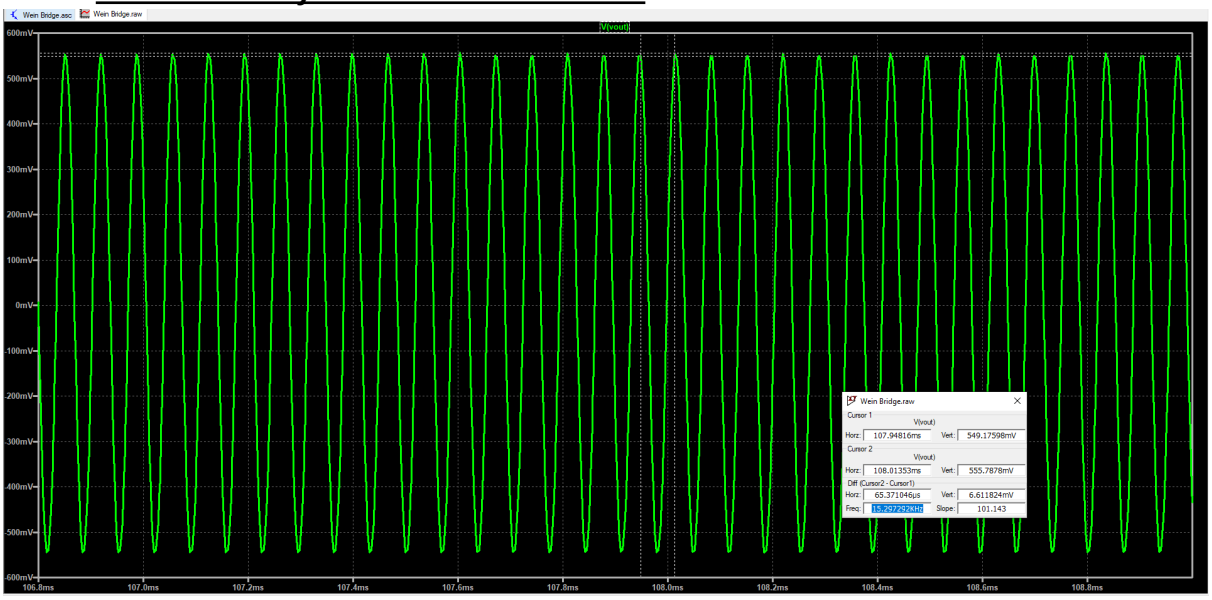
| Serial Number | Resistor | Frequency |
|---|---|---|
| 1 | 2 | - |
| 2 | 4 | 4.89 |
| 3 | 6 | 3.78 |
| 4 | 8 | 3.5 |
| 5 | 10 | 3.24 |

# 3. Wein Bridge Filter

1. **Circuit Diagram**:




2. **Resultant analysis and simulated result**




We get the practical value of, (at $R_F$ = 1.98 k-ohm)

$f_0$ = **15.297 kHz**

**Hand Calculations**

The theoretical value of $f_0$ is:

$f_0 = 1/(2*pi**R*C) =$ **16 kHz**

3. **Changing the value of R**

| Serial Number | Resistor | Frequency |
|---|---|---|
| 1 | 2 | 6.73 |
| 2 | 4 | 4.73 |
| 3 | 6 | 4.20 |
| 4 | 8 | 3.95 |
| 5 | 10 | 3.81 |