DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING
BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY
COURSE NO.: EEE 208
EXPT. NO. 08

Name of the Experiment: Study of Wien Bridge Oscillator

Objective

The objective of this experiment is to study the operation of the Wien bridge oscillator

Theory

An oscillator circuit in which a balanced bridge is used as the feedback network to make 180^0 phase shift (condition for an oscillator) is the Wien bridge oscillator.

Theoretically its frequency of oscillation is given by $f = \frac{1}{2\pi RC}$

In reference to fig: 1 below, the oscillation is maintained when R_2/R_1 ratio is approximately 2. Notice that if R_2 is made appreciably greater than $2R_1$ a square wave oscillation is produced and if R2 is made less than $2R_1$ oscillation decays and ceases.

Equipments Required

1.	OPAMP 741	1piece
2.	Trainer Board	1 unit
3.	Regulated power supply	1 unit
4.	Oscilloscope	1 unit
5.	Resistor 100k, 10k	2 pieces each
	20K, 20K (POT)	1 piece each
6.	Capacitor 0.1μF	2 pieces

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Circuit Diagrams

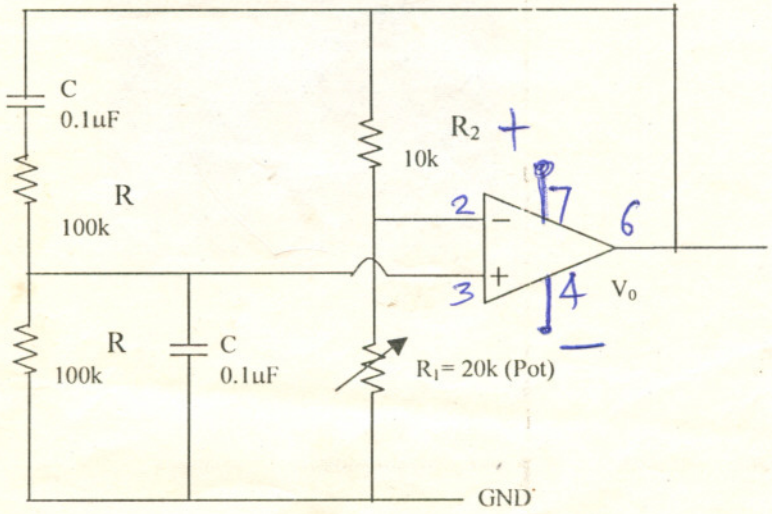

Fig: 1

Procedures

1) Set up the circuit as shown in the Fig1.

2) Connect the oscilloscope lead to the output of the amplifier. Adjust the potentiometer in order to obtain a sinusoidal waveform which is just maintained. Measure the ratio of $R2/R_1$ and frequency of oscillation.

3) Replace the resistor R with 10k. Repeat step 2.

Reports

1) Draw the output wave shapes.
2) Compare the observed frequency with the theoretical one.
3) Describe the significance of R_2/R_1 ratio.
4) What are the methods of changing frequency of Wien bridge oscillator?

Updated by: Yeasir Arafat on 7th February, 2006