

Experimental Procedure

Part One:

1. First, a simple comparator was designed and constructed as shown in figure1.
2. Then, the DC power supply was turned on, set to 5 volt in inverting input (pin 2).
3. After that, pin 7 (+V) and pin 4 (-V) were set to provide 10 volt, the function generator was set to 1 KHz, 12 peak-to-peak voltage, sine wave and pin 6 was connected to channel 2 on the oscilloscope.
4. The waveforms of the input and the output were obtained by using channel one and channel two of the oscilloscope respectively.
5. The frequency of the input was changed to 500 Hz and 2 kHz, the output of the waveforms were compared.

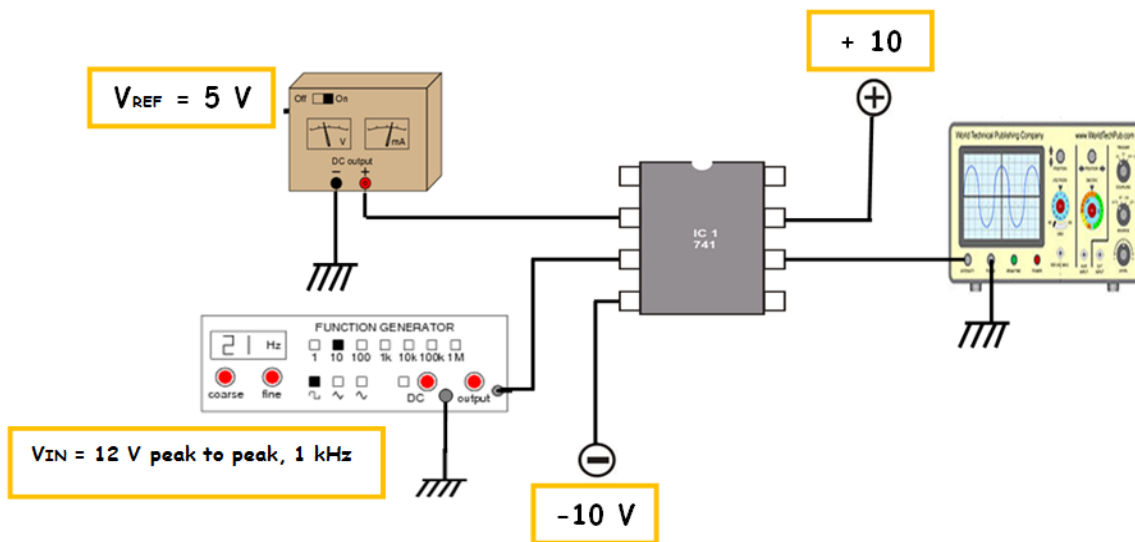


Figure1. The connection of the simple comparator circuit.

Part Two:

1. As shown in figure 2, the sources of the inverting and non-inverting inputs were changed and the waveforms of the output were compared with the waveforms in the part one.
2. The frequency of the input was changed to 500 Hz and 2 kHz, the output of the waveforms were compared.

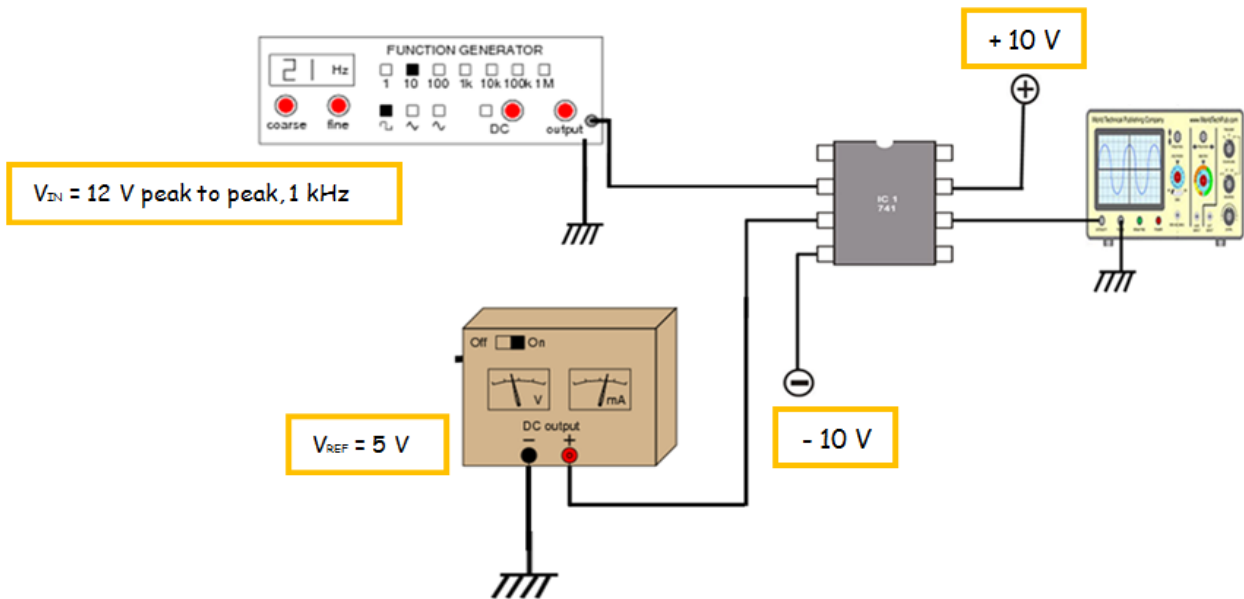


Figure 2. The sources of the inverting and non-inverting inputs were changed.

Part Three:

1. First, a simple comparator circuit was designed and constructed as shown in figure 3 to investigate the characteristics of a voltage comparator.
2. Then, the function generator was set to 1 KHz, 12 peak-to-peak voltage, sine wave and the output wave was obtained by using the oscilloscope.
3. After that, the value of the resistor R2 was Increasing and decreasing to Investigate the effect.

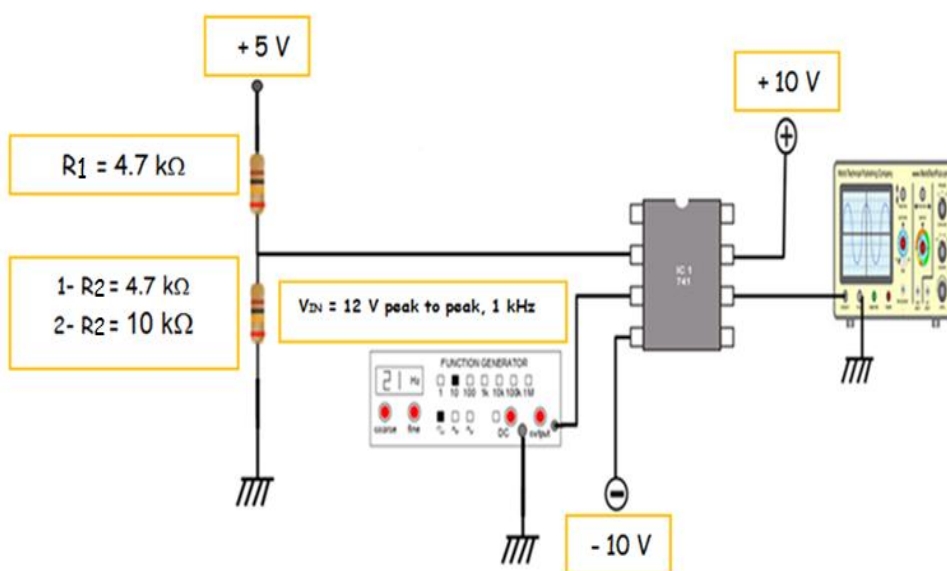


Figure3. The connection of the simple comparator circuit with different value of R2.