

IC 741 As Non-Inverting Amplifier.

(1) To study IC 741 as Non-inverting amplifier

Apparatus:-

Signal generator, CRO, patch chord = 3 no.

Component value:-

R11 = 1K

R12 =

10K

R13 = 107

pot

RL = 10K

RF1 = 10K

RF2 =

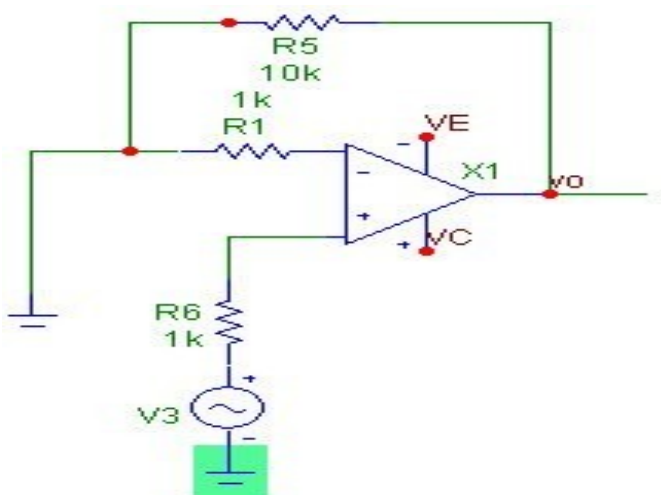
100K

RF3 = 33K

IC = 741.

Theory: -

An OP-AMP can be used for number of application like Amplifier, Adder, Subtractor, Rectifier, Multivibrators, and Analog computer etc. Here we are going to study 741 as a non-inverting amplifier. It is called as non-inverting amplifier because input is applied at pin no.3 i.e. non-inverting input. So we get o/p signal in phase with input signal. In this case the i/p signal is applied directly to the non-inverting (+ve) i/p terminal of the amplifier & the feed back resistor 'RF' is connected between the o/p terminal & negative i/p terminal. The 'R' is connected between the inverting terminal & ground. Note that V_i is not equal to zero in this case, meaning that non-inverting ckt has to virtual ground at one of it's i/p terminals.



Thus the closed loop gain of a non-inverting amplifier is always greater than or equal to unity & it is determined by R_1 & R_f .

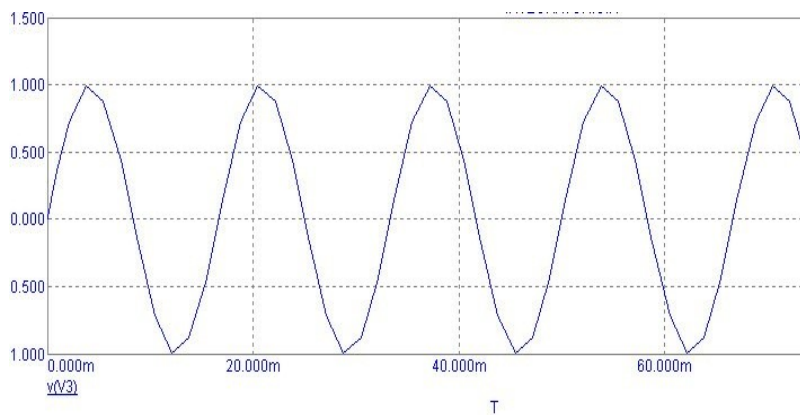
Procedure:-

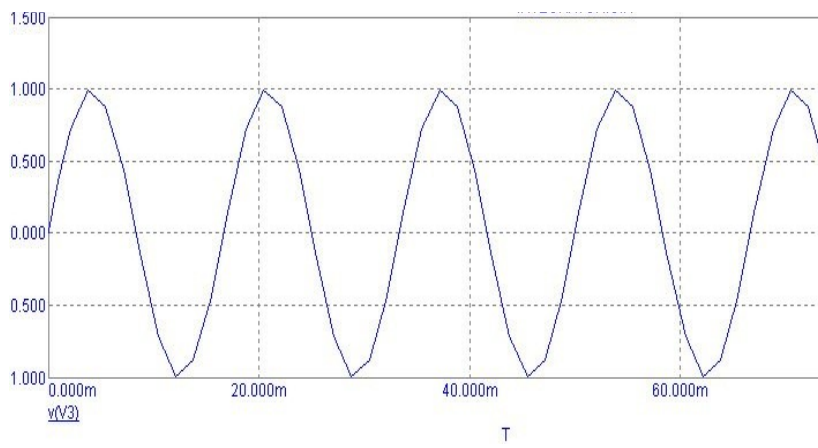
- (1) Connect the ckt. as shown in fig.
- (2) Select proper R_1 & R_f .
- (3) Connect 1- channel of CRO at o/p & other at i/p.
- (4) Connect signal generator at i/p.
- (5) Observe the change in o/p by changing R_1 , R_f and frequency of i/p.
- (6) Draw the waveform on graph paper.

Observation Table:-

SR.NO.	FREQUENCY (Hz)	O/P VOLTAGE V_o (volts)	GAIN $A_f = v_o/v_{in}$	GAIN in DB $20 \log_{10} A_f$

Input waveforms:-





Result:-

The I/p signal is amplified at the o/p & is in phase with I/p signal.

The input signal is amplified & inverted at the output of inverting amplifier. The input signal is amplified & noninverted at the output of inverting amplifier.