

## Experiment No. – 9

**Aim:** 1. Design a Feedback Amplifier with the close-loop Output resistance of 1k

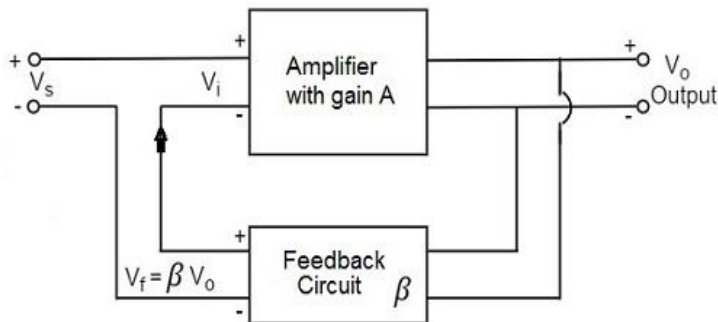
Given:  $A=200V/V$ ,  $R_{in}=\infty$ ,  $R_{out}=10K$

2. Repeat Part 1 with feedback Network as follows:

**Apparatus Required:** LTSpice Software

### Theory:

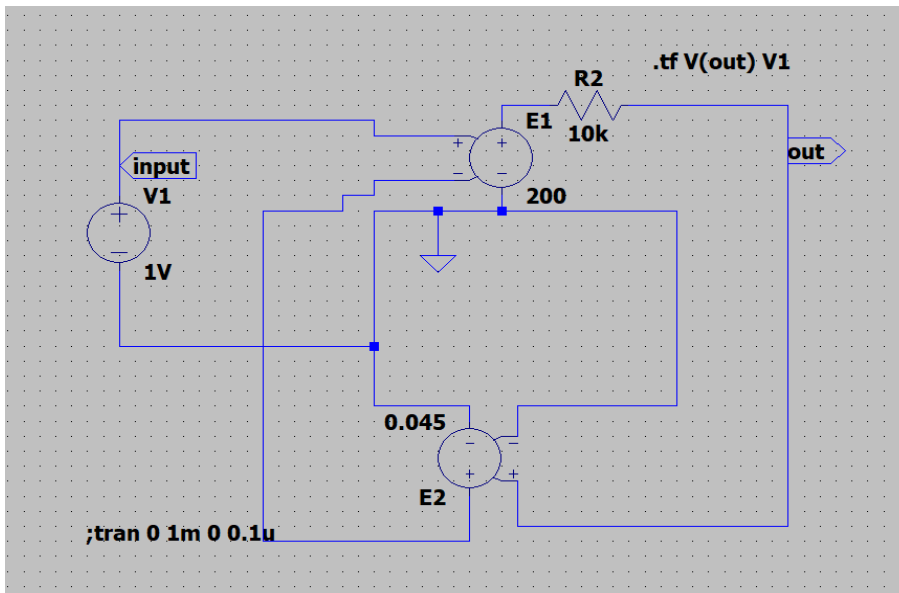
A feedback amplifier generally consists of two parts. They are the amplifier and the feedback circuit. The feedback circuit usually consists of resistors.



The process of injecting a fraction of output energy of some device back to the input is known as Feedback.

### Circuit Schematic 1:

With  $R_{in}=\infty$



### Output:

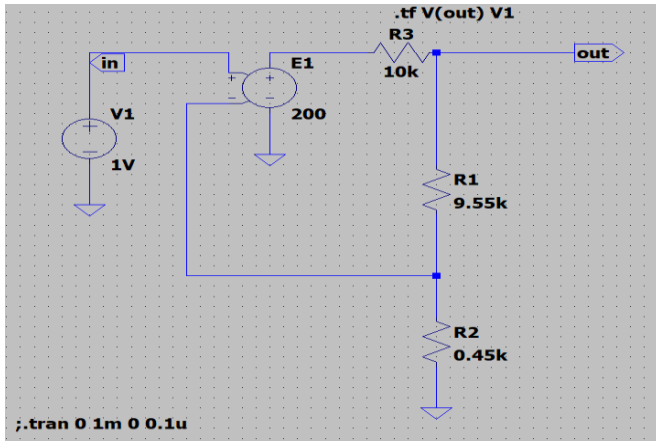
\* C:\Users\singh\Documents\LTSpice\Analog IC Design Lab\Lab9\feedback\_amp.asc

--- Transfer Function ---

Transfer_function:	20	transfer
v1#Input_impedance:	1e+020	impedance
output_impedance_at_V(out):	1000	impedance

## Circuit Schematic 2:

With input Resistance  $R_{in} = \infty$



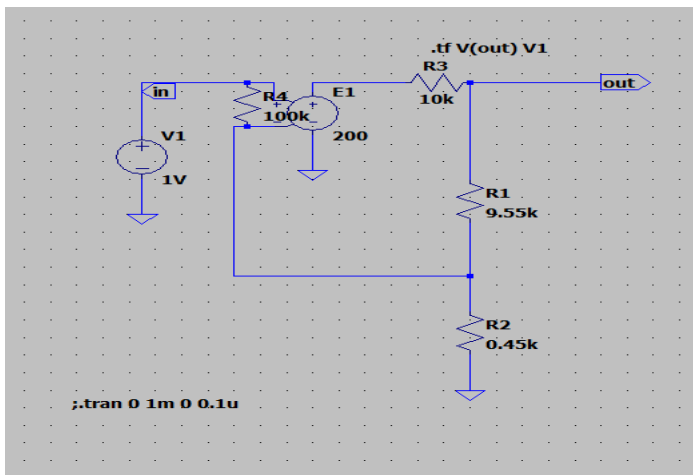
### Output:

\* C:\Users\singh\Documents\LTSpice\Analog IC Design Lab\Lab9\Draft2.asc

--- Transfer Function ---

Transfer_function:	18.1818	transfer
v1#Input_impedance:	1e+020	impedance
output_impedance_at_V(out):	909.091	impedance

With Input Resistance  $R_{in} = 100K$



### Output:

\* C:\Users\singh\Documents\LTSpice\Analog IC Design Lab\Lab9\Draft2.asc

--- Transfer Function ---

Transfer_function:	18.1677	transfer
v1#Input_impedance:	550440	impedance
output_impedance_at_V(out):	912.268	impedance

### Result:

The circuit is designed for a Feedback Amplifier with the close-loop and the output is verified to be correct.