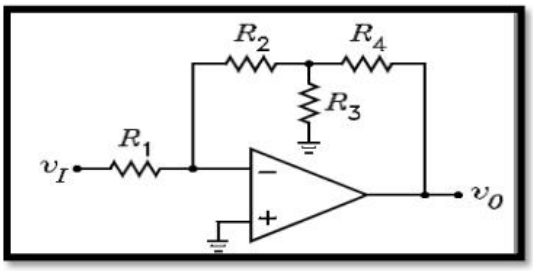
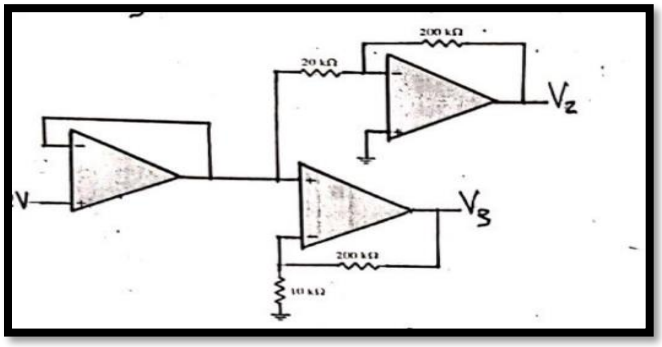
Department:Electronics and communication engineering
Lecturer: Dr. Fatma hossam
Course: ECE332 Electronic Tests and Measurements (2)

Sheet 1

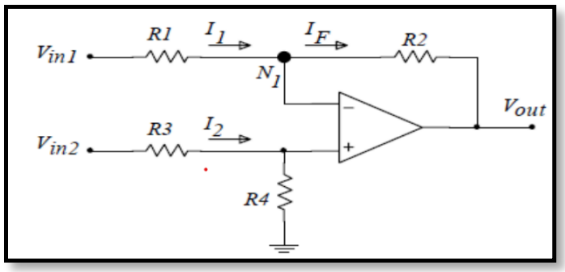
1. For the ***inverting amplifier*** with a ***T feedback*** network in **Fig.3**, ***find*** the ***value*** of ***resistor R_3*** which give an ***input resistance of 10 kΩ***, a ***gain*** of **−100**, and ***$R_2 = R_4 =$ 100 kΩ***.



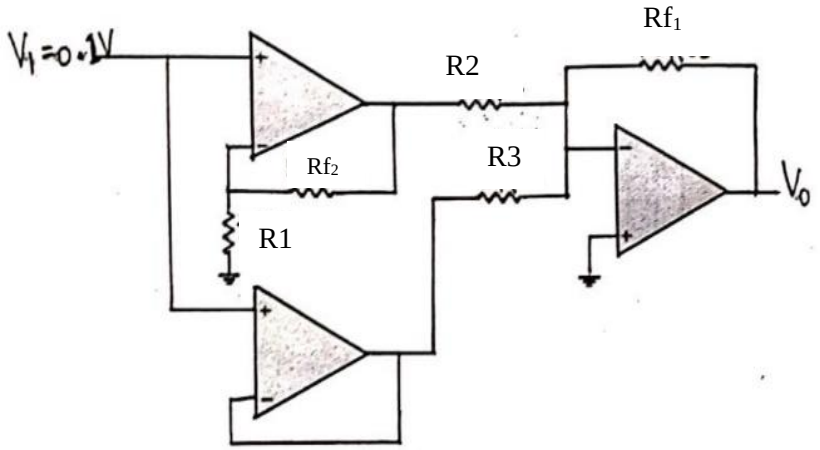
2. For the following circuit with resistance **Rf=200kΩ, R1=20kΩ** and **R3=10kΩ**, and **input** voltage **v_1=0.2v** calculate v_2 and v_3



3. For the **difference amplifier**, If R1=R3=10 kΩ and R2=R4= 100 kΩ If V1 = 0.1 V and V2 = 0.3 V. calculate the voltage gain Av = (v_o/v_i) and output voltage v_o.



4. For the following op-amp circuit with Rf_1=400k ,Rf_2=200k, R1=20k, R2=20k, R3=10k calculate output voltage v_o.



5. Using ideal Op-Amps, **construct the circuit** for solving the three following linear equation, if Rf = R' f = R = 100 kΩ.

X + 2 Y + 3 Z = 6,

2 X + Y + 4 Z = 7,

4 X + 3 Y + Z =8

6. The **differentiator circuit** has value of 0.001µF for **C** and a value of 10kΩ for **R**. The input signal of 10v **triangular waves** for 4ms time period. Calculate the output voltage waveform.

7. The **integrator circuit** has 1µF for **C** and a value of 100kΩ for **R**. The input signal of 10v **square wave** for 2ms time period. Calculate the output voltage waveform.