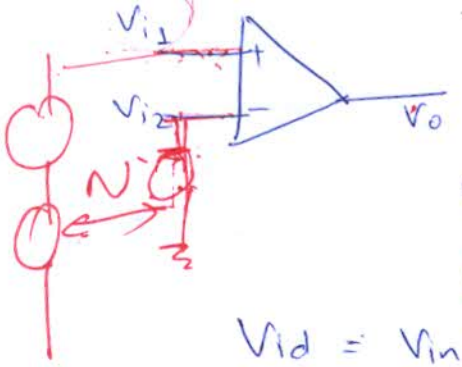


$A_d = 100$ $A_{CM} = 0.01$.

$V_{i1} = 1V + 5mV \times \sin(\omega t)$

$V_{i2} = 1V - 5mV \times \sin(\omega t)$.

$V_{id} = V_{in1} - V_{in2} = 10mV \times \sin(\omega t)$.

$V_{ic} = \frac{V_{in1} + V_{in2}}{2} = 1V$.

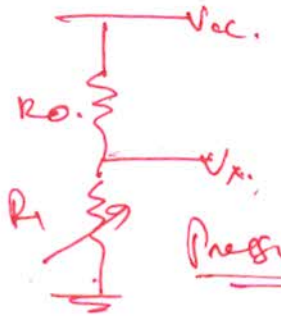
$V_o = A_d V_{id} + A_{CM} V_{ic}$

$= 1V \times \sin(\omega t) + 10mV$

Whatever is common is rejected & whatever is different is amplified.

Application.

① Noise Cancellation.

② 

Pressure sensor.

Amplifying small signal immersed in a large signal.

$V_x = 0.5 V_{CC} + 0.5 V_{CC} \times \frac{\Delta R}{R_0}$

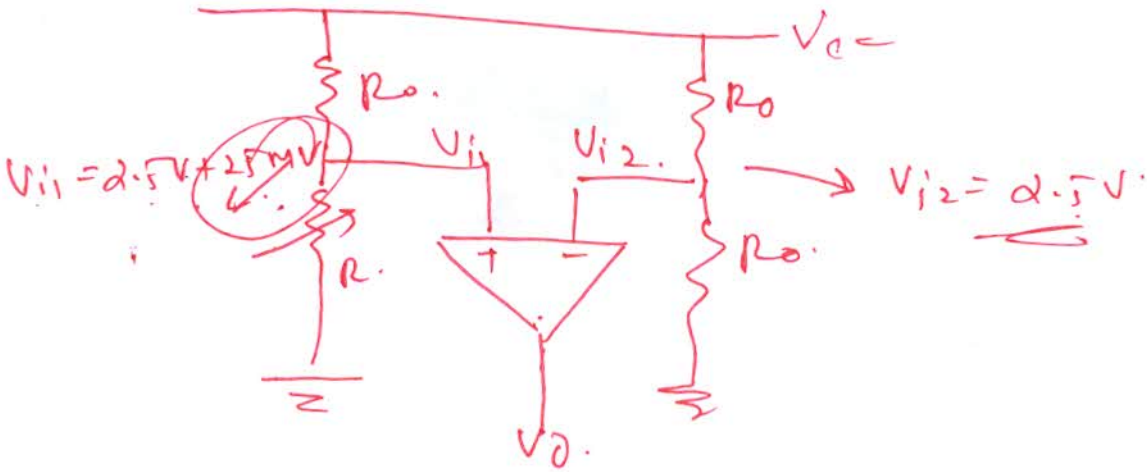
Unwanted component. ← Interested in this signal.

$V_{CC} = 5V$ $\frac{\Delta R}{R_0} = 1\%$.

$V_x = 2.5V + 25mV$ (Both signal are DC)

If Amplified then will saturate. & can't detect the required signal.

Differential Amplifier is a network



only the signal will appear at the output & the common mode signal will be cancelled.