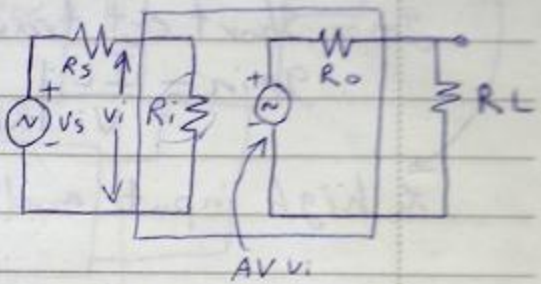
CHAPTER 3
Feed Back Amplifiers

3.1 Classification of Amplifiers

3.1.1 Voltage Amplifier

Ideally $R_i = \infty$, $R_o = 0$
Actually $R_i \gg R_s$ and
$R_o \ll R_L$.

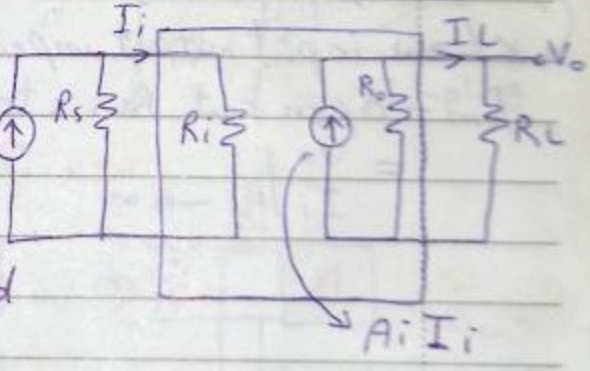


* All the gains must be independent of source and Load resistance.

$A_V \Rightarrow$ open cct. voltage gain $= \frac{V_o}{v_i}\Big|_{R_L \to \infty}$

3.1.2 Current Amplifier.

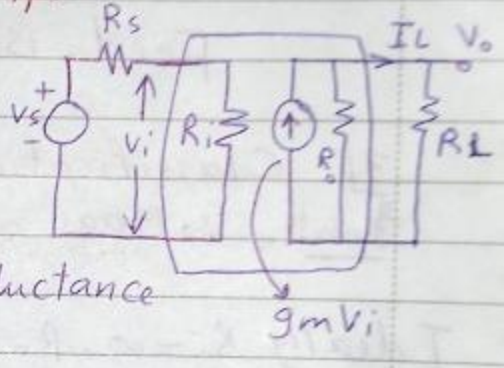
Ideally $R_i = 0$, $R_o = \infty$
Actually $R_i \ll R_s$, $R_o \gg R_L$



* Low input impedance and high output impedance

A_i = short cct. current gain
$= I_L / I_i\big|_{R_L \to \infty}$

3.1.3 Trans. conductance Amp.



Ideally $R_i = \infty$, $R_o = \infty$

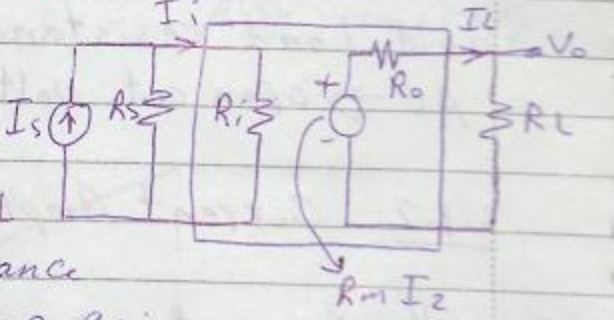
Actually $R_i \gg R_s$, $R_o \gg R_L$

g_m = Short cct trans conductance

$$\text{gain} = \frac{I_L}{V_i}\Big|_{R_L \to 0}$$

* high input and output impedances

3.1.4 Transistance Amp.



Ideally $R_i = 0$, $R_o = 0$

Actually $R_i \ll R_s$, $R_o \ll R_L$

* Low input output impedance

R_m = open cct Resistance gain

$$= \frac{V_o}{I_i}\Big|_{R_L \to \infty}$$