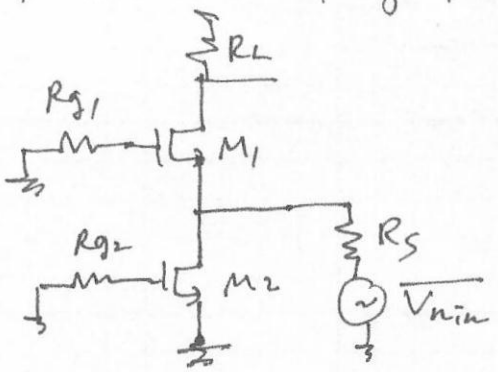
2) Input referred noise voltage, $\overline{V_{nin}}$



$$\overline{V_{nin}} \cdot \frac{\frac{1}{g_{m1}}}{R_S + \frac{1}{g_{m1}}} \cdot g_{m1} = \overline{i_{nd1}} \frac{\frac{1}{g_{m1}}}{\frac{1}{g_{m1}} + R_S} + \overline{V_{ng1}} \frac{g_{m1}}{1 + g_{m1} R_S}$$

Voltage across C_{gs} of M_1

equivalent noise current in model circuit

effective output noise current in original circuit

$$\therefore \overline{V_{nin}} = \overline{i_{nd1}} \cdot \frac{1}{g_{m1}} + \overline{V_{ng1}}$$

3) Correlation admittance

$$\overline{V_{neq}} = \frac{1}{g_{m1}} \overline{i_{nd1}} + \overline{V_{ng1}}$$

$$\overline{i_{neq}} = \overline{i_{nd2}} + g_{m2} \overline{V_{ng2}}$$

$$Y_c = \frac{\overline{V_{neq}}^{*} \, \overline{i_{neq}}}{\overline{V_{neq}}^{2}} = \frac{0}{\left(\frac{1}{g_{m1}}\right)^2 \overline{i_{nd1}}^{2}} = 0$$

$\therefore \overline{i_{nc}} = 0$

$\therefore \overline{i_{nw}} = \overline{i_{neq}} = \overline{i_{nd2}} + g_{m2} \overline{V_{ng2}}$