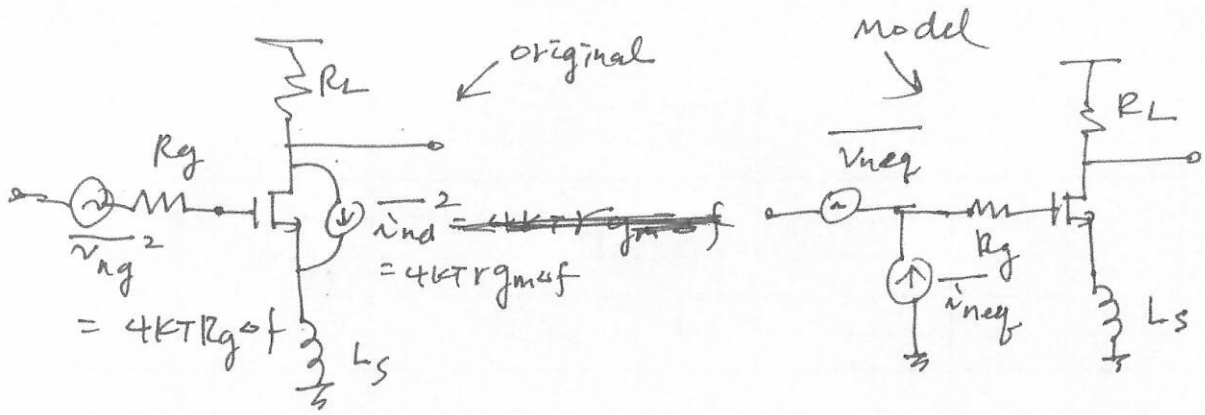

1) Equivalent input noise generators.

① Computing $\overline{v_{neq}}$ ⇒ short input to ground.

From original circuit, output noise current is

$$\overline{i_{on}} = \overline{v_{ng}} \cdot \frac{g_m}{1+g_m \cdot sL_s} + \overline{i_{nd}} \frac{\frac{1}{g_m}}{\frac{1}{g_m}+sL_s}$$

$$= \frac{1}{1+g_m \cdot sL_s}\left(\overline{v_{ng}} \cdot g_m + \overline{i_{nd}}\right) \quad -(A)$$

From model, output noise current is

$$\overline{i_{on}} = \overline{v_{neq}} \frac{g_m}{1+g_m \cdot sL_s} \quad -(B)$$

⇒ From (A) and (B),

$$\overline{v_{neq}} = \overline{v_{ng}} + \frac{\overline{i_{nd}}}{g_m}$$