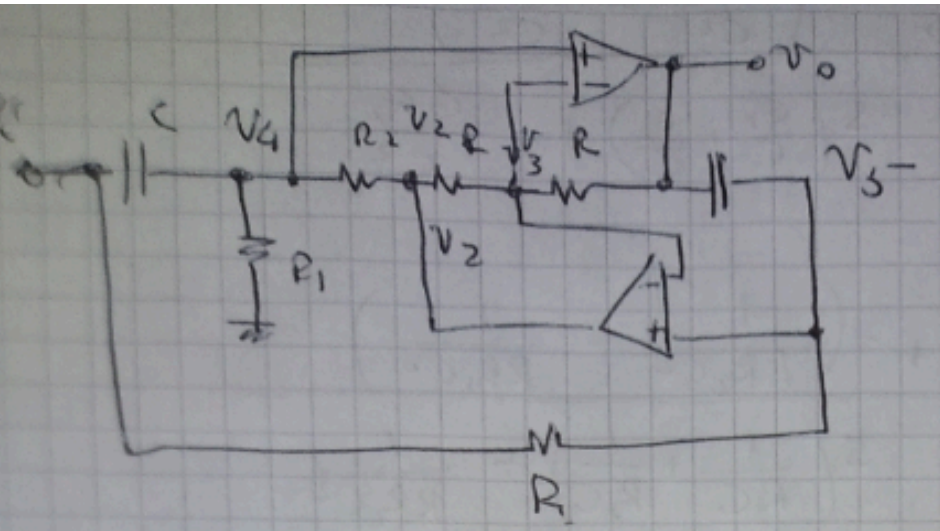

$$\boxed{V_4 = V_3 = V_5} \quad (1)$$

$$\begin{cases} V_4 (sC + G_1 + G_2) = V_2 G_2 + V_i \cdot sC \\ 2\cancel{G}\, V_3 = V_0 \cancel{G} + V_2 \cancel{G} \cdot \Rightarrow \boxed{V_2 = 2V_3 - V_0} \quad (2) \\ (sC+G) V_5 = V_i \cdot G + V_0 sC \end{cases} \Rightarrow V_5 = V_i \frac{G}{sC+G} + V_0 \frac{sC}{sC+G}$$

(1) e (2) y (3)

$$\begin{cases} V_5 (sC + G_1 + G_2) = 2V_3 G_2 - V_0 G_2 + V_i \cdot sC \\ V_i \left(\frac{G}{sC+G}\right) + V_0 \left(\frac{sC}{sC+G}\right)(sC + G_1 + G_2) = G_2 (2V_5 - V_0) + V_i \, sC \end{cases}$$

$$\downarrow$$

$$V_0 \left(\frac{s^2C^2 + sC(G_1+G_2)}{sC+G} + G_2 - \frac{sCG_2}{sC+G} \right) = V_i \left[\frac{2GG_2}{(sC+G)} + sC - \frac{sCG + G(G_1+G_2)}{(sC+G)} \right]$$

$$V_0 \left(\frac{s^2C^2 + sCG_1 + sCG_2 + \cancel{sCG_2} + GG_2 - \cancel{sCG_2}}{(sC+G)} \right) = V_i \frac{2GG_2 + s^2C^2 + sCG - \cancel{sCG} - G(G_1+G_2)}{(sC+G)}$$

$$\frac{V_0}{V_i} = \frac{s^2C^2 + \cancel{(GG_2 - GG_1) - GG_2}}{s^2C^2 + sCG_1 + sCG_2 + GG_2}$$

$$\frac{V_o}{V_i} = \frac{s^2 + \left(\frac{GG_2}{C^2} - \frac{GG_1}{C^2}\right)}{s^2 + s\left(\frac{G_1}{C} + \frac{G_2}{C}\right) + \frac{GG_2}{C^2}}$$

$$\frac{V_o}{V_i} = \frac{s^2 + \left(\frac{1}{RR_2C^2} - \frac{1}{RR_1C^2}\right)}{s^2 + s\left(\frac{1}{R_1C} + \frac{1}{R_2C}\right) + \frac{1}{RR_2C^2}}$$

$$\omega_o^2 = \frac{1}{RR_2C^2} \qquad \frac{\omega_o}{Q} = \left(\frac{1}{R_1C} + \frac{1}{R_2C}\right)$$

$$\omega_N = \frac{1}{RR_2C^2} - \frac{1}{RR_1C^2}$$

$$\left(\omega_N = \omega_o^2 - \frac{1}{RR_1C^2}\right)$$

$$\omega_N = \omega_o^2\left(1 - \frac{1}{RR_1C^2}\right).$$