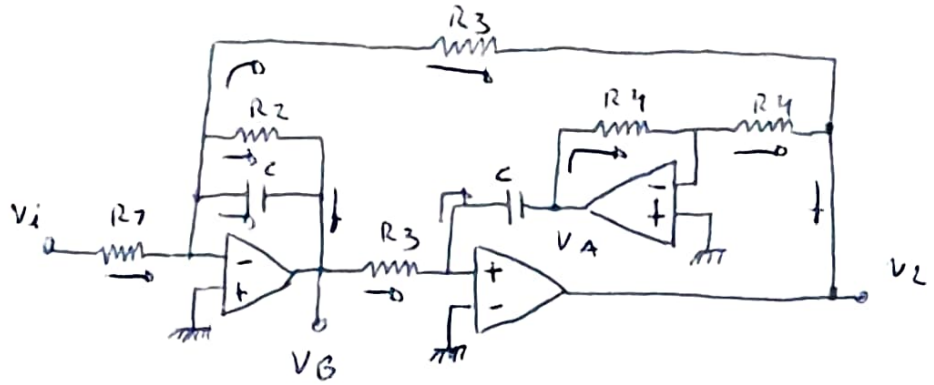

$$V_A G_4 = -V_L \cdot G_4 \rightarrow [V_A = -V_L] \quad (1)$$

$$V_B G_3 = -V_A sC \rightarrow V_B G_3 = V_L sC \rightarrow \left[V_L = V_B \cdot \frac{G_3}{sC}\right] \quad (2)$$

$$\left[V_i G_1 = -V_B sC - V_B \cdot G_2 - V_L G_3\right] \quad (3)$$

$$(2) \rightarrow (3): \quad V_i G_1 = -V_B \cdot sC - V_B \cdot G_2 - V_B \frac{G_3^2}{sC}$$

$$V_i \cdot G_1 = -V_B \left(sC + G_2 + \frac{G_3^2}{sC}\right)$$

$$V_i \cdot G_1 = -V_B \left(\frac{s^2C^2 + sC \cdot G_2 + G_3^2}{sC}\right)$$

$$\rightarrow H_B(s) = \frac{V_B}{V_i} = \frac{-sC \cdot G_1}{s^2C^2 + sC \cdot G_2 + G_3^2} = -\frac{G_1}{C^2} \cdot \frac{s}{s^2 + s\frac{G_2}{C^2} + \frac{G_3^2}{C^2}}$$

$$H_B(s) = -\frac{G_1}{C} \cdot \frac{G_2}{G_2} \cdot \frac{s}{s^2 + s\frac{G_2}{C} + \frac{G_3^2}{C^2}} = -\underbrace{\frac{G_1}{G_2}}_{K} \cdot \frac{s \cdot \underbrace{\frac{G_2}{C}}_{\frac{\omega_0}{Q}}}{s^2 + s\underbrace{\frac{G_2}{C}}_{\frac{\omega_0}{Q}} + \underbrace{\frac{G_3^2}{C^2}}_{\omega_0^2}}$$

$$\rightarrow \begin{cases} K = \dfrac{G_1}{G_2} = \dfrac{R_2}{R_1} \\ \dfrac{\omega_0}{Q} = \dfrac{G_2}{C} = \dfrac{1}{R_2 \cdot C} \\ \omega_0^2 = \dfrac{G_3^2}{C^2} = \dfrac{1}{R_3^2 \cdot C^2} \end{cases} \rightarrow \left[H_B(s) = -K \cdot \frac{s\frac{\omega_0}{Q}}{s^2 + s\frac{\omega_0}{Q} + \omega_0^2}\right]$$