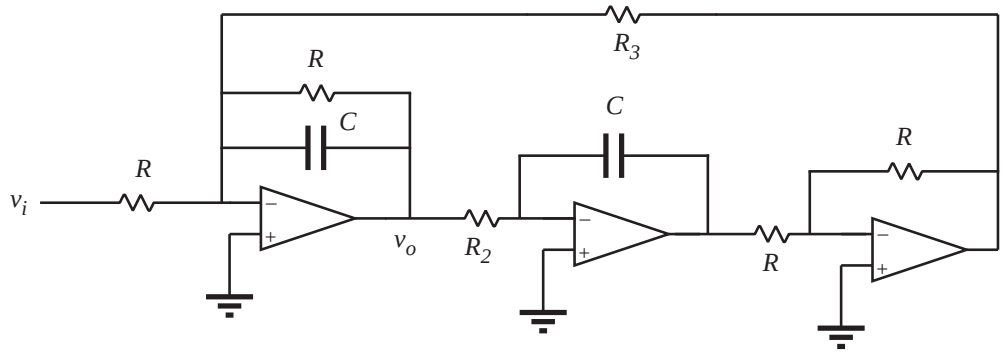
Figure below shows a 2^{nd}-order continuous-time bandpass filter. You can assume that all op-amps have ideal characteristics.



(a) Find the transfer function $H(s) = v_o/v_i$ of the filter and put it in the following form:

$$H(s) = A_o \frac{\frac{1}{Q}\frac{s}{w_o}}{1 + \frac{1}{Q}\frac{s}{w_o} + \left(\frac{s}{w_o}\right)^2} \tag{1}$$

This is the 2^{nd}-order transfer function of a band-pass filter. Find A_o, f_o and Q in terms of the circuit parameters R, R_2, R_3 and C.

(b) Starting with the continuous-time filter shown above, construct a 2^{nd}-order switched-capacitor band-pass filter using only parasitic-insensitive SC circuits. The best SC realization is the one with the minimum number of op-amps and the minimum number of switches. Assuming that the signal frequencies are much lower than the clock frequency f_s, find the filter parameters A_o, f_o and Q in terms of the capacitance values in the SC filter.