3. The circuit in Fig.3:

(a) Find the resistances looking into node 1, R_1; node 2, R_2; node 3, R_3.(6%)

(b) Find the currents I_1, I_2, I_3, in term of the input current I.(6%)

(c) Find the voltages at nodes 1, 2, and 3, that is, V_1, V_2, and V_3 in term of IR.(6%)

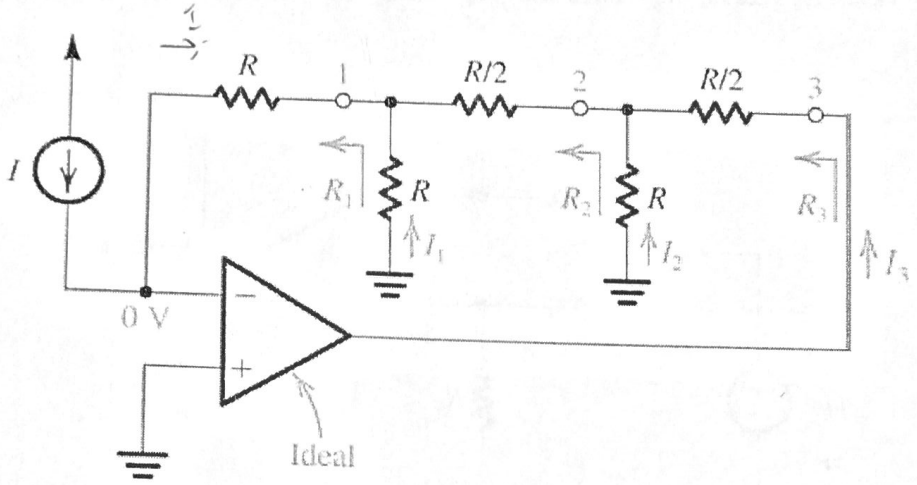

Fig.3

4. For the circuit in Fig.4, find the transfer function $T(s) = V_i(s)/V_s(s)$, and arrange it in the appropriate standard form from the frequency response of STC networks.

(a) What is its DC gain? (4%)

(b) What is the corner frequency ω_o? (4%)

(c) Is this a high-pass or a low-pass network? (4%)

(d) For the case of R_s=10 kΩ, R_i= 40 kΩ, and C_i = 5 pF, find f_o. (5%)

(e) What is the value of $|T(j\omega_0)|$ = ? (5%)

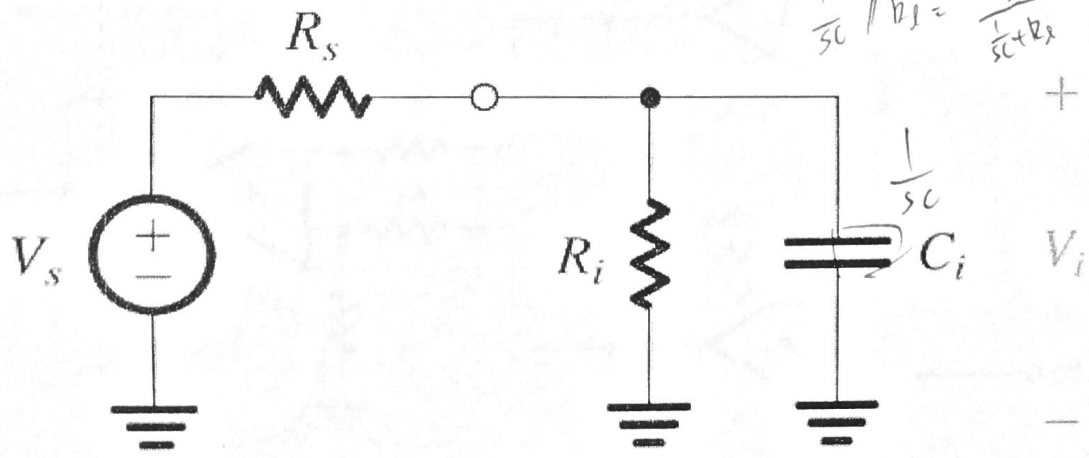

Fig.4

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