# 1

| Element | Calculated/Nominal Values | Measure Values | Percent Differences |
|---|---|---|---|
| $R_1$ | $1.5K\Omega$ | $1.475K\Omega$ | -1.6666% |
| $R_2$ | $3.3K\Omega$ | $3.345K\Omega$ | 1.3636% |
| $R_3$ | $4.7K\Omega$ | $4.538K\Omega$ | -3.4468% |
| $R_4$ | $2.2K\Omega$ | $2.165K\Omega$ | -1.5909% |
| $R_5$ | $1.0K\Omega$ | $0.980K\Omega$ | -2.0000% |
| $R_eq1$ | $3.2K\Omega$ | $3.148K\Omega$ | -1.625 % |
| $R_eq2$ | $1.2073K\Omega$ | $1.194K\Omega$ | -1.1016 % |
| $R_eq$ | $2.7073K\Omega$ | $2.695K\Omega$ | -0.4543% |
| $V_S$ | 8 [V] | 8.035 [V] | -0.4375% |
| $V_1$ | 4.432 [V] | 4.408 [V] | -0.5415% |
| $V_2$ | 3.555 [V] | 3.606 [V] | 1.4346% |
| $V_3$ | 3.553 [V] | 3.575 [V] | 0.6192% |
| $V_4$ | 2.444 [V] | 2.433 [V] | -0.4501% |
| $V_5$ | 1.111 [V] | 1.111 [V] | 0% |
| $V_A$ | 8 [V] | 8.032 [V] | 0.4000% |
| $V_B$ | 3.567 [V] | 3.612 [V] | 1.2615% |
| $V_C$ | 1.123 [V] | 1.140 [V] | 1.5138% |
| $I_1$ | 2.954 [mA] | 2.973 [mA] | 0.6432% |
| $I_2$ | 1.0774 [mA] | 1.085 [mA] | 0.7054% |
| $I_3$ | 0.756 [mA] | 0.770 [mA] | 1.8519% |
| $I_4$ | 1.111 [mA] | 1.111 [mA] | 0% |

# 2

$$V_1 = I_1 * R_1 = 2.973[mA] * 1.475[K\Omega] = 4.3851[V]$$
$$V_2 = I_2 * R_2 = 1.0774[mA] * 3.345[K\Omega] = 3.6039[V]$$
$$V_3 = I_3 * R_3 = 0.770[mA] * 4.538[K\Omega] = 3.4942[V]$$
$$V_4 = I_4 * R_4 = 1.111[mA] * 2.165[K\Omega] = 2.4053[V]$$
$$V_5 = I_4 * R_5 = 1.111[mA] * 0.980[K\Omega] = 1.0888[V]$$

# 3

All of the measurements were with in the error rang of $\pm 10\%$. The greatest resistor error was resistor number three which had a error of $-3.4468\%$. The greatest voltage error was the voltage at node C with and error of 1.5138%. The most likely reason is that it is the farthest from the voltage supply, so the error in the resistor would combine resulting in a greater error. Current number three was the greatest off, however it was a minute value being measured. A reason for resistor degradation is overheating and crystalline break down. Resistors are also susceptible to temperature drift.