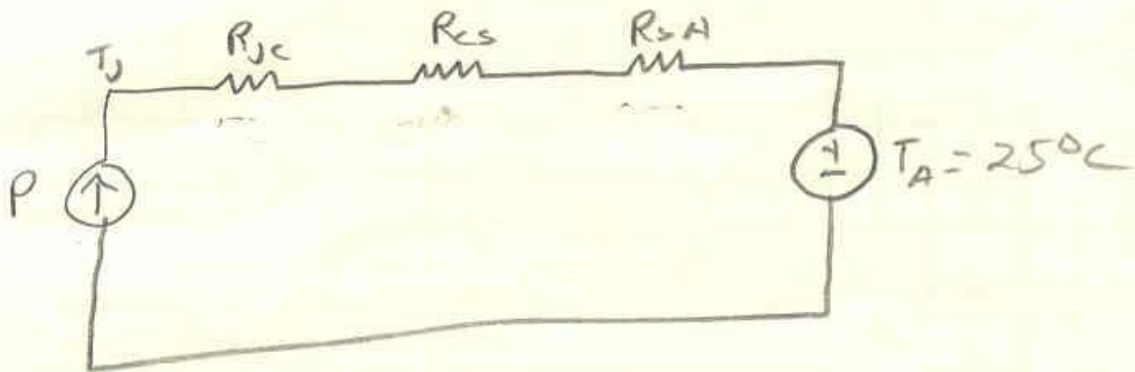


a) Draw an analogous circuit for this thermal system.



$$R_{jc} = \frac{170 \text{ C sec}}{\text{kcal}} \left| \frac{1 \text{ kcal}}{4187 \text{ watt sec}} \right| = 40.6 \times 10^{-3}$$

$$R_{cs} = \frac{340 \text{ C sec}}{\text{kcal}} \left| \frac{1 \text{ kcal}}{4187 \text{ watt sec}} \right| = 81.20 \times 10^{-3}$$

$$R_{sa} = \frac{850 \text{ C sec}}{\text{kcal}} \left| \frac{1 \text{ kcal}}{4187 \text{ watt sec}} \right| = 203 \times 10^{-3}$$

$$P = 100 \text{ W} \quad T_A = 250^\circ \text{C}$$

$$T_J = P(R_{jc} + R_{cs} + R_{sa}) + T_A$$

$$T_J = 100 (40.6 \times 10^{-3} + 81.20 \times 10^{-3} + 203 \times 10^{-3}) + 25^\circ \text{C}$$

$$T_J = 57.48^\circ \text{C} = 135.46^\circ \text{F}$$