Problem Set #4

1. Exercise 3.21 in IMSM.

2. Exercise 4.21 in IMSM.

3. Exercise 4.22 in IMSM.

4. Exercise 4.25 in IMSM. Hill's text provides the following data for $I_2$: vibrational frequency, $\omega = (310^\circ K)/(\hbar k_B)$; rotational temperature, $\theta_{\text{rot}} = 0.054^\circ K$; equilibrium bond distance, $R_{\text{eq}} = 2.667 \text{Å}$; dissociation energy, $D_0 = 1.54 \text{eV}$. (Do not forget to account for zero point energy.)

5. Problem 8.19 in Reif's FSTP.