

Accelerated General Chemistry
Problem Set 6
Due Wednesday, October 8, 2008 (at 4:00 p.m.)
Total Points on This Assignment = 55

1. (15 points) Atkins and Jones Exercise 3.50
2. (12 points) Exercise 3.52
3. (6 points) Exercise 3.56
4. (10 points) Exercise 3.62
5. (4 points) The bond dissociation energy of C_2 is (in old-fashioned units) $144 \text{ kcal mol}^{-1}$, where $1 \text{ kcal} = 4.184 \text{ kJ}$. Predict the shortest wavenumber of light (in cm^{-1}) that will complete break apart the C_2 molecule into C atoms.
6. (8 points) Exercise 3.80. Explain your reasoning in parts (a) and (c). Also, as part of your work on this problem, you must draw an orbital energy level diagram that correctly shows the relative energies of the 1s orbitals on H and He.