

CH353 – Physical Chemistry I
Spring 2013, Unique 52575

Quiz 6, 12 April 2013

The ground electronic state of the O_2 molecule has 7 states that are either completely or partially filled with electrons. The two lowest states are singly degenerate and separated by energy ϵ . The third state, which is also singly degenerate, is above the second by energy 3ϵ . The fourth state is doubly degenerate, and is $1/2\epsilon$ above the third. The fifth state is also doubly degenerate, and is ϵ higher in energy above the fourth state.

Draw an energy level diagram of the O_2 molecule with your states, and the energies separating them, clearly marked.

Based on this information:

