

Problem Set 9
(Atoms and Molecules)

1. One of the reasons we have to construct anti-symmetric wavefunctions is that some electrons are *indistinguishable*. Why is it impossible to distinguish between the two electrons in a helium atom, but not the two electrons in isolated Hydrogen atoms? Are the two electrons in an H_2 molecule indistinguishable? Explain your reasoning.
2. Do problem 8-19 in McQuarrie and Simon
3. Do problem 8-23 in McQuarrie and Simon
4. Do problem 9-3 in McQuarrie and Simon
5. Do problem 9-6 in McQuarrie and Simon