1. A certain atom has six electrons in the 3d level. (a) What is the maximum possible total m_l for the six electrons, and what is the total m_s in that configuration? (b) What is the maximum possible total m_s for the six electrons, and what would be the largest possible total m_l in that configuration?

2. The ground state of helium has the configuration $1s^2$. Use the electron screening model to predict the energies of the following excited states of helium: (a) $1s^1 2s^1$ (measured value -4.0 eV); (b) $1s^1 2p^1$ (-3.4 eV); (c) $1s^1 3d^1$ (-1.5 eV).