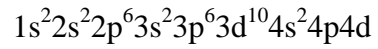


**Problem Set #7 C474b 2007**

**Due: March 29, 2007**

1.) Consider a multi-electron atom whose configuration is:



a) To what element does this configuration correspond? Is it the ground state or an excited state? Explain.

b) Derive the spectral terms corresponding to the configuration in part a).

2.) a) Derive the spectral terms for a  $(nd)^2$  configuration.

b) What are the spectral terms associated with an  $(nd)^2 np$  configuration?

3) Derive the terms for a  $(np)^3$  configuration.