

## **Electronic Structure Problem Set**

1. Write the electron configurations for the following atoms, using the appropriate noble-gas inner core abbreviations:

a) Rb:

b) Se:

c) Zn:

d) V:

e) Pb:

f) Yb:

2. Write the complete electron configurations for the following atoms:

a) Ca:

b) Ge:

c) F:

d) Co:

e) Pm:

3. Draw the orbital diagrams for the valence electrons for each of the following elements:

a) As:

b) Te:

c) Sb:

d) Ag:

e) Hf:

4. Identify the specific element that corresponds to each of the following electron configurations:

a)  $1s^2 2s^2 2p^6 3s^2$

b)  $[\text{Ne}] 3s^2 3p^5$

c)  $[\text{Ar}] 4s^1 3d^5$

d)  $[\text{Kr}] 5s^2 4d^{10} 5p^2$

5. Meitnerium, Mt, element 109, named after Lise Meitner, is a transition metal expected to have the same outer-electron configuration as iridium. By using this observation, write the electron configuration of meitnerium. Use [Rn] to represent the first 86 electrons of the electron configuration.