

Name: Key

Block: _____

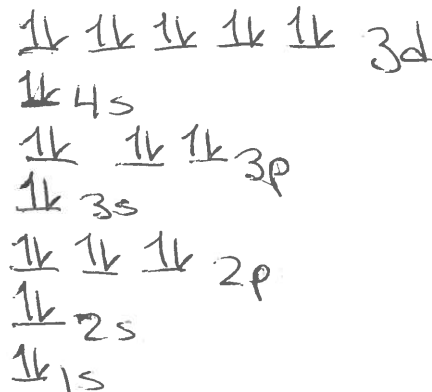
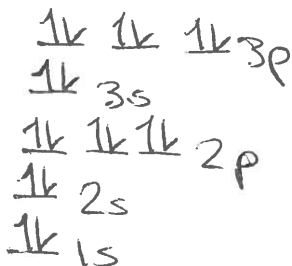
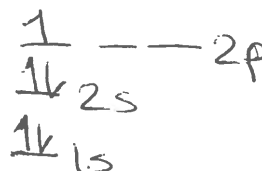
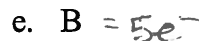
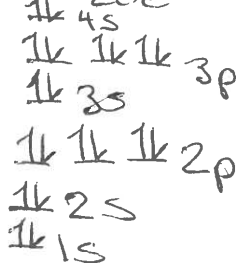
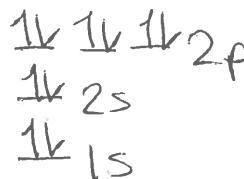
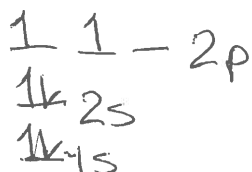
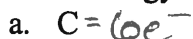
Date: _____

Chemistry 11H

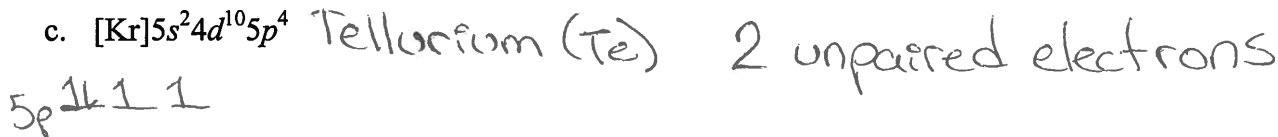
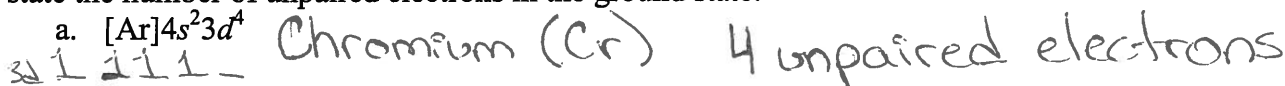
Electron Configuration Worksheet

Assignment

1) Draw the energy level diagrams for the following atoms/ions.



2) Given the following electronic configuration of neutral atoms, identify the element and state the number of unpaired electrons in the ground state:



d. $[\text{Ar}]4s^1 3d^{10}$ Copper (Cu) 1 unpaired electron

e. $[\text{He}]2s^2 2p^3$ Nitrogen (N) 3 unpaired electrons
 $2p \uparrow \uparrow \uparrow$

3) Write the electron configurations for the following atoms/ions.

a. P $1s^2 2s^2 2p^6 3s^2 3p^3$

b. Cu^+ $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10}$ (exception)

c. Sn^{2+} $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10}$

d. Fe $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$

e. Osmium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^6$

f. Iodide ion $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6$

g. Na^+ $1s^2 2s^2 2p^6$

h. Nd $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^4$

i. Sr $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2$

j. Fluoride ion $1s^2 2s^2 2p^6$

k. Beryllium $1s^2 2s^2$

l. Si $1s^2 2s^2 2p^6 3s^2 3p^2$

4) Using core notation, write the electron configurations for the following atoms and ions.

a. K $[\text{Ar}] 4s^1$

b. O^{2-} $[\text{He}] 2s^2 2p^6$

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

d. V $[\text{Ar}] 4s^2 3d^3$

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

f. Xe $[\text{Kr}] 5s^2 4d^{10} 5p^6$

g. Cl^- $[\text{Ne}] 3s^2 3p^6$

h. Zn^{2+} $[\text{Ar}] 3d^{10}$

5) How many valence electrons are in each of the atoms/ions from #4?

a. K 1

b. O^{2-} 0

c. Cr 6

d. V 5

e. Tellurium 6

f. Xe 0

g. Cl^- 0

h. Zn^{2+} 0