Noble Gas Configuration Name: _____

Homework Period: _____Date: _____

Electrons in Energy Levels

1) Give the number of electrons per energy level for the following. ***Then*** draw the ***modified*** Bohr's Model for the atom.

a) $_{14}Si$ PEL: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____

b) $_{27}Co$ PEL: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____

Short Answer

2) Describe what is meant by the notation $3p^4$. _____

3) Place an X beside the incorrect sublevel designations listed below.

_____ a) 5s _____ c) 3d _____ e) 1p

_____ b) 3f _____ d) 2d _____ f) 4f

4) How many electrons are in the ***4th energy level*** of an atom of these elements?

a) sulfur _____ e^- c) strontium _____ e^-

b) arsenic _____ e^- d) iron _____ e^-

5) What is the maximum number of electrons that can go into each of the following sublevels?

a) 3s _____ c) 3p _____ e) 4d _____

b) 4f _____ d) 5s _____ f) 6p _____

Element	# e^- per energy level	Noble Gas Configuration	# e^- most likely lost or gained	# e^- left after loss or gain	Ion Charge
Na			Lose 1		
Br				36	
Al	2,8,3				

Noble Gas Configuration

Write the noble gas configuration for the following elements.

6) magnesium _____

7) iodine _____

8) zirconium _____

9) cerium _____

10) iridium _____

Ion Configuration

Write the noble gas configuration for the following ions.

11) Cl^- _____

12) S^{2-} _____

13) Ca^{2+} _____

An atom has two electrons in the first energy level, and five electrons in the second energy level. Identify the element and write its noble gas configuration. How many empty orbitals and unpaired electrons does this element have?

Identify these elements.

Name the following elements.

16) _____ $[Rn]7s^25f^{14}6d^5$

17) _____ $[Rn]7s^26d^15f^2$

18) _____ $[Ar]4s^23d^{10}4p^1$

19) _____ $[Ar]4s^23d^{10}4p^6$

20) _____ $[Rn]7s^25f^{14}6d^8$

Element Identity

Find osmium on the periodic table and complete the information below for osmium.

orbital notation:

electron configuration:

noble gas configuration:

electrons per energy level:

1 ____ 2 ____. 3 ____ 4 ____ 5 ____ 6 ____ 7 ____

modified Bohr's Model