**Homework #1: Chemistry 1013 Fall 2017**

**Due Friday 8 September in class 25 pts**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1) Fill in the answer: 9 pts total/1 pt per correct answer

1. Individual elements are distinguished by their count of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Individual isotopes of a given element are distinguished by their count of \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Atomic number is the same as the count of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a given element

37**X**

17

**17**

7X

**17**

1. The isotope X: has \_\_\_\_\_\_\_\_\_\_neutrons and the element symbol\_\_\_\_\_\_\_\_\_\_\_
2. Name the three major kinds of elements in the Periodic Table:

1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f) Both neutron and proton have ~ the same mass. Electrons weigh:

(much more) (same) (much less) than either. [circle answer]

2) Fill in the table with the correct count of neutrons (no), protons (p+) and electrons (e-):

(6 pts total/ 2 pts per line)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Atomic # | Mass # | symbol | #p | #n | #e | Atom charge |
|  |  |  | 37 | 49 |  | 0 |
|  | 108 | Ag |  |  | 47 |  |
| 26 |  |  |  | 29 |  | +3 |

3) Put an `X’ beneath each Periodic trait assignable to the elements listed:

(4 pts total/ 1 pt for each entirely correct line)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Symbol | Main group element | Transition element | Metal | Metalloid | Alkali metal | Alkaline earth metal | Halogen | Noble Gas |
| At |  |  |  |  |  |  |  |  |
| Sr |  |  |  |  |  |  |  |  |
| Co |  |  |  |  |  |  |  |  |
| S |  |  |  |  |  |  |  |  |

4) A new post-lanthanide element, Mu, has three isotopes with the masses and % abundances below: (2 pts)

Mu Isotope mass (amu) % abundance

1 345 10

2 350 50 345\*10 + 350\*50 + 355\*40 = average atomic mass of Mu

3 355 40 100

Compute the average atomic mass of Mu to the nearest 0.1 amu:

Average Atomic mass of Mu= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amu