**Unit 2 Test Corrections: The Atom** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_
Test Grade: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Also need Retest? Y / N

1) History Questions: Use Thomson, Dalton, Bohr, or Rutherford

1. Who bombarded gold foil with alpha particles?

1. Who devised the first atomic theory?
2. Who developed the planetary model of the atom?
3. Who discovered the first subatomic particle?

1. Who discovered the nucleus?
2. Who devised the plum pudding (chocolate chip cookie) model?
3. Who was the first to suggest electrons had a fixed energy?
4. Who said that all atoms of an element are identical in size, mass and other properties?
5. Who determined that the mass of an atom was concentrated in the center?
6. Who showed cathode rays are composed of negative particles?
7. Who discovered the atom is made up of mostly empty space?
8. Who had the idea of a basic indivisible particle?
9. Who concluded that all elements contain electrons?
10. Who conducted an experiment using Cathode Ray Tubes?
11. Who said atoms are neither created, nor destroyed—just rearranged?
12. Complete the following table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Isotope name**  | **mass #** | **atomic #** | **# of protons** | **# of neutrons** | **# electrons** |
| oxygen-16 |  |  |  |  |  |
| oxygen-17 |  |  |  |  |  |
| oxygen-18 |  |  |  |  |  |
| oxygen-19 |  |  |  |  |  |
| $$$$ |  |  |  |  |  |
| $$$$ |  |  |  |  |  |

1. The most abundant isotopes of sulfur are oxygen-16, oxygen-17, oxygen-18, and oxygen-19.
	1. Which of the three isotopes of oxygen is the most common (abundant) in nature? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. How do you know?
2. Chlorine has two, stable, naturally occurring isotopes. These are chlorine-35 and chlorine-37. The relative abundance of each is 75.77%, and 24.23% respectively. What is the average atomic mass of chlorine?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Isotope | Percent | Decimal | Mass | Product |
|  |   |  |   |  |
|   |  |  |   | +\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Total: amu |
|  |  |

1. Magnesium has three stable isotopes. 78.70% of Mg-24 has a mass of 23.985. 10.13% of Mg-25 has a mass of 24.986, and 11.17% of Mg-26 has a mass of 25.983. Calculate the average atomic mass.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Isotope | Percent | Decimal | Mass | Product |
|   |   |   |   |  |
|   |   |   |   | +\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Total: amu |

sodium (mass of 23) \_\_\_\_ p+  \_\_\_\_n
 \_\_\_\_e-

boron (mass of 11) \_\_\_\_ p+  \_\_\_\_n
 \_\_\_\_e-