Chemistry 115 Name key

Dr. Cary Willard

Quiz 3a (20 points) February 16, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) A piece of a titanium alloy was weighed and found to have a mass of 69.342g. It was then dropped into a graduated cylinder containing 25.0 mL of water. The level of the water rose to 43.2 mL. What is the density of the alloy?

$$volume titanium alloy=43.2 mL-25.0 mL=18.2 mL$$

$$density alloy=\frac{mass Ti alloy}{vol Ti alloy}=\frac{69.342 g Ti alloy}{18.2 mL}=$$

1. (5 points) A new element was discovered at Grossmont College. It is named grossmontonium and has the elemental symbol Gr. If there are two isotopes of Gr with the masses and abundances given in the table below, calculate the weighted average mass of grossmontonium.

|  |  |  |
| --- | --- | --- |
| Grossmont-444 | 443.99 amu | 15.33% |
| Grossmont-447 | 446.99 amu | 84.67% |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mass 1 atoms | # atoms in 100 atom sample | Mass in a 100 atom sample |
| Gr-444 | 443.99 amu | 15.33 | 6806 amu |
| Gr-447 | 446.99 amu | 84.67 | 37850 amu |
| Total  |  |  | 44650 amu |
|  |  |  |  |
| Average mass 1 atom |  |  | 446.5 amu |

1. (3 points) Fill in the chart below

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number protons | Number neutrons | Number electrons | Atomic number | Mass number | isotopic notation $\left(\right)$ |
| 48 | 57 | 48 | 48 | 105 | $$$$ |
| 34 | 40 | 36 | 34 | 74 | $$$$ |

1. (3 points) John Dalton developed his Atomic Theory in the 1800’s. Write one of the tenets of his theory.

Matter is composed of atoms

1. (4 points) Describe the experiment done to demonstrate the existence and charge of electrons.

Particles in a cathode ray tube have a negative charge.

Chemistry 115 Name key

Dr. Cary Willard

Quiz 3b (20 points) February 16, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) A piece of a titanium alloy was weighed and found to have a mass of 73.342g. It was then dropped into a graduated cylinder containing 25.0 mL of water. The level of the water rose to 43.2 mL. What is the density of the alloy?

$$volume titanium alloy=43.2 mL-25.0 mL=18.2 mL$$

$$density alloy=\frac{mass Ti alloy}{vol Ti alloy}=\frac{73.342 g Ti alloy}{18.2 mL}=$$

1. (5 points) A new element was discovered at Grossmont College. It is named grossmontonium and has the elemental symbol Gr. If there are two isotopes of Gr with the masses and abundances given in the table below, calculate the weighted average mass of grossmontonium.

|  |  |  |
| --- | --- | --- |
| Grossmont-444 | 443.99 amu | 65.33% |
| Grossmont-447 | 446.99 amu | 34.67% |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mass 1 atoms | # atoms in 100 atom sample | Mass in a 100 atom sample |
| Gr-444 | 443.99 amu | 65.33 | 29010 amu |
| Gr-447 | 446.99 amu | 34.67 | 15500 amu |
| Total  |  |  | 44510 amu |
|  |  |  |  |
| Average mass 1 atom |  |  | 445.1 amu |

1. (3 points) Fill in the chart below

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number protons | Number neutrons | Number electrons | Atomic number | Mass number | isotopic notation $\left(\right)$ |
| 71 | 85 | 71 | 71 | 156 | $$$$ |
| 52 | 73 | 54 | 52 | 125 | $$$$ |

1. (3 points) John Dalton developed his Atomic Theory in the 1800’s. Write one of the tenets of his theory.

Elements composed of atoms

1. (4 points) Describe the experiment done to demonstrate the existence and charge of electrons.

Cathode ray tube has a stream of something with a negative charge.