**Quiz 4A**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. Is this week’s experiment a wet lab or a dry lab (1 point)? \_\_\_\_dry\_\_\_\_\_
2. Is the reading for this week’s experiment short, long, or very long (1 point)? \_\_very long\_\_
3. Give the name and symbol of the first element on the periodic table with (8 points).

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Name | Symbol  |
|  | Two 2s valence electrons  | beryllium | Be |
|  | a total of one 3p electrons | aluminum | Al |
|  | six 5 p electrons | xenon | Xe |
|  | one 3s electrons and no 3p electrons | sodium | Na |

1. Answer the following questions about the electron configuration (3 points):

1s2 2s2 2p6 3s2 3p64s1

* 1. Which noble gas can be used to symbolize the core electrons? \_\_\_Ar
	2. How many valence electrons are there? \_\_\_1
	3. What is the name of the element? \_\_\_potassium, K
1. Which radiation (a) radio waves from an AM radio station broadcasting at 1090 kHz or (b) the green light (λ = 550 nm) from an LED (light emitting diode) on a stereo system (2 points)
	1. higher energy? \_\_\_(b) green light
	2. higher frequency? \_\_(b) green light\_\_\_\_
2. Calcium is added to fireworks to produce a red color at 603 nm (5 points).
	1. What is the wavelength in m?

$$603 nm×\frac{10^{-9} m}{1 nm}=6.03×10^{-7} m$$

* 1. What is the frequency (c = 3.00 × 108 m/s)?

$$λ=\frac{c}{ν}⇒ν=\frac{c}{λ}=\frac{3.00×10^{8}\frac{m}{s}}{6.03×10^{-7} m}=4.975124378×10^{14}\frac{1}{s}≈4.98×10^{14}\frac{1}{s}$$