**Quiz 6**

# 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. Are the following statements true or false (5 points)?
	1. The balance is used during lab this week. \_\_\_\_\_false\_\_\_
	2. Graphs are made using data this week in lab. \_\_\_\_true\_\_\_\_
	3. Safety glasses are not required this week in lab. \_\_\_\_\_false\_\_\_
	4. It is acceptable lab technique to place lids on the bench top. \_\_\_\_\_false\_\_\_
	5. The safety shower is required for large chemical spills on the body. \_\_\_\_\_true\_\_\_
2. A neon light emits radiation of λ = 616 nm (12 points).
	1. What is the color of the light? \_\_\_\_\_\_\_\_orange\_\_\_\_
	2. What is the frequency of this radiation?

$$ν=\frac{c}{λ}=\frac{3.00 ×10^{8}\frac{m}{s}}{616×10^{-9} m}=4.87×10^{14}\frac{1}{s}$$

* 1. What is the energy of this radiation?

$$E=\frac{hc}{λ}=\frac{\left(6.626×10^{-34}J s\right)\left(3.00 ×10^{8}\frac{m}{s}\right)}{616×10^{-9} m}=3.23×10^{-19} J$$

1. What is a diffraction pattern (3 points)?

A diffraction pattern is the result of waves of light passing through two adjacent slits and interfering with each other. The waves will interact in constructive and destructive fashions creating bright regions and dark regions.