**Quiz 6A**

# 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 (2 points)?
	1. If bubbles are observed that proves that a reaction took place. \_\_false\_\_\_
	2. The Double Displacement reactions experiment is a wet lab. \_\_\_true\_\_
2. What is a weak acid (2 points)?

A weak acid is a substance that does not dissociate 100% in aqueous solution. It is a slightly ionizable substance and thus conducts an electrical current weakly. It is mostly molecules in solution and very few ions.

1. A sample containing 1.245 g Ni and 5.381 g I was decomposed (8 points).
	1. Calculate the empirical formula.

$$1.245 g Ni×\frac{1 mol Ni}{58.693 g Ni}=0.02121207 mol Ni$$

$$5.381 g I×\frac{1 mol I}{126.905 g I}=0.042401797 mol I$$

$$Ni\_{\frac{0.02121207}{0.02121207}}I\_{\frac{0.042401797}{0.02121207}}=Ni\_{1}I\_{1.998946667}≈NiI\_{2}$$

* 1. What is the name of the compound? \_\_\_\_\_\_nickel(II) iodide\_\_\_\_\_\_
1. Table sugar is a disaccharide, meaning that it has two sugar units. If a sugar crystal contains approximately 1.8 × 1017 sucrose, C12H22O11, molecules (8 points).
2. what is the molar mass of sucrose?

$$12\left(12.011\frac{g}{mol}\right)+22\left(1.008\frac{g}{mol}\right)+11\left(15.999\frac{g}{mol}\right)=$$

$$144.132\frac{g}{mol}+22.176\frac{g}{mol}+175.989\frac{g}{mol}=342.297\frac{g}{mol}$$

1. what is its mass in milligrams?

$$1.8×10^{17} molecules C\_{12}H\_{22}O\_{11}×\frac{1 mol C\_{12}H\_{22}O\_{11} }{6.022×10^{23} molecules C\_{12}H\_{22}O\_{11}}×\frac{342.297 g C\_{12}H\_{22}O\_{11}}{1 mol C\_{12}H\_{22}O\_{11}}×\frac{1000 mg}{1 g}=$$

$$0.102313949 mg C\_{12}H\_{22}O\_{11}≈0.10 mg C\_{12}H\_{22}O\_{11}$$

**Quiz 6B**

# 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. Glucose is a monosaccharide, meaning that it has one sugar unit. If a glucose crystal contains approximately 5.8 × 1017 sucrose, C6H12O6, molecules (8 points).
	1. what is the molar mass of sucrose?

$$6\left(12.011\frac{g}{mol}\right)+12\left(1.008\frac{g}{mol}\right)+6\left(15.999\frac{g}{mol}\right)=$$

$$72.066\frac{g}{mol}+12.096\frac{g}{mol}+95.994\frac{g}{mol}=180.156\frac{g}{mol}$$

* 1. what is its mass in milligrams?

$5.8×10^{17} molecules C\_{6}H\_{12}O\_{6}×\frac{1 mol C\_{6}H\_{12}O\_{6} }{6.022×10^{23} molecules C\_{6}H\_{12}O\_{6}}×\frac{180.156 g C\_{6}H\_{12}O\_{6}}{1 mol C\_{6}H\_{12}O\_{6}}×\frac{1000 mg}{1 g}=$

$$0.17351458 mg C\_{6}H\_{12}O\_{6}≈0.17 mg C\_{6}H\_{12}O\_{6}$$

1. A sample containing 1.443 g Se and 5.841 g Br was decomposed (8 points).
	1. Calculate the empirical formula.

$$1.443 g Se×\frac{1 mol Se}{78.960 g Se}=0.018275076 mol Se$$

$$5.841 g Br×\frac{1 mol Br}{79.904 g Br}=0.07310022 mol Br$$

$$Se\_{\frac{0.018275076}{0.018275076}}I\_{\frac{0.07310022 }{0.018275076}}=Se\_{1}Br\_{3.999995418}≈SeBr\_{4}$$

* 1. What is the name of the compound? \_\_\_\_\_\_selenium tetrabromide\_\_\_\_\_\_
1. What is a strong acid (2 points)?

A strong acid is a substance that dissociates ~100% in aqueous solution. It conducts an electrical current strongly. It is mostly ions in solution.

1. Are the following statements true or false (2 points)?
	1. If a white precipitate is formed that is an indication that a reaction took place. \_\_\_true\_\_\_
	2. The Double Displacement reactions experiment does not use the hood. \_\_\_false\_\_