**Q3 Post Test Concept Review**

**Learning Targets - Unit 8: Factor Labeling and Moles**

1. Convert simple and derived units using factor label/dimensional analysis.

2. Display understanding of the origin and use of atomic mass units.

3. Use the periodic table to determine atomic mass; determine formula mass (amu) and molar
 mass.

4. Calculate percent composition.

5. Compare and contrast the mole with other counting units.

6. Perform calculations converting between moles, mass, and Avogadro’s number.

7. Solve empirical formula problems from percent or mass.

8. Determine empirical formula in a lab setting.

9. Calculate molecular formula from empirical formula.

**Learning Targets - Unit 9: Stoichiometry and Energy**

1. In a chemical process, recognize that there is an ideal ratio of reactants.
2. Apply ideal ratio concept to reaction coefficients in a balanced equation.
3. Solve stoichiometric problems involving moles and mass.
4. Identify limiting reactant to determine the quantity of product (s) formed.
5. Calculate percent yield based on lab data obtained.
6. Apply stoichiometry to thermochemical equations.
7. Apply Hess's Law to calculate the energy change in a series of reactions.
8. Explain the difference between temperature and heat, and the units for each.
9. Recognize the relationship between temperature change and energy change within a substance/calorimeter.
10. Display an understanding that heat transfer can be measured directly or indirectly (calorimeter).
11. Distinguish between heat capacity and specific heat capacity.
12. Solve heat problems involving changes in temperature.
13. Conduct lab experiment using calorimetry to analyze the energy content of food items.
14. Compare and contrast endothermic and exothermic processes.
15. Draw and label energy diagrams showing endothermic or exothermic processes.
16. Describe how catalysts lower the activation energy of reactions, and increase the rate of reactions.