Chemistry 141 Name  **\_\_\_\_\_\_\_\_\_\_\_\_\_**

Martin Larter Quiz 2 September 1, 2015

1. (5 points) Two different compounds are formed by the elements carbon and oxygen. The first compound contains 42.9% by mass carbon and 57.1% by mass oxygen. The second compound contains 27.3% by mass carbon and 72.7% by mass oxygen. Show that the data are consistent with the Law of Multiple Proportions.
2. (10 points) Suppose that a new temperature scale has been devised on which the melting point of ethanol is (-117oC) and the boiling point of ethanol is (78.3oC) are taken as 0oM and 100oM, respectively, where M is the symbol for the new temperature scale (Martinium temperature scale).
3. Derive an equation relating a reading on this Martinium scale to a reading on the Celsius scale.
4. What would this thermometer read in the Martinium scale at 45oC?
5. (5 points) Explain how the results of the gold foil experiment led Rutherford to dismiss the plum pudding model of the atom and create his own model based on a nucleus surrounded by electrons