Chemistry 141 Name

Dr. Cary Willard

Quiz 1a (20 points) February 4, 2014

1. (6 points) Let a small circle represent an atom of one type or element and a small square represent an atom of a second type or element. Make a drawing of
   1. A pure substance (a compound) composed of the two elements (in a one-to two ratio).
   2. A heterogeneous mixture composed of the two elements.
2. (6 points) Mercury is often used in thermometers. The mercury sits in a bulb on the bottom of the thermometer and rises up a thin capillary as the temperature rises. Suppose a mercury thermometer contains 4.854 g of mercury and has a capillary that is 0.200 mm in diameter. How far does the mercury rise in the capillary when the temperature changes from 0.0oC to 25.0 oC? The density of mercury at these temperatures is 13.596 g/cm3 and 13.534 g/cm3, respectively.
3. (8 points) Suppose you design a new thermometer called the X thermometer. On the GC scale the boiling point of water is 147oGC and the freezing point of water is 15oGC. At what temperature will the readings on the Celsius and GC thermometers be the same?

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Quiz 1b (20 points) February 4, 2014

1. (6 points) Let a small circle represent an atom of one type or element and a small square represent an atom of a second type or element. Make a drawing of
   1. A pure substance (a compound) composed of the two elements (in a one-to two ratio).
   2. A heterogeneous mixture composed of the two elements.
2. (6 points) Mercury is often used in thermometers. The mercury sits in a bulb on the bottom of the thermometer and rises up a thin capillary as the temperature rises. Suppose a mercury thermometer contains 5.854 g of mercury and has a capillary that is 0.200 mm in diameter. How far does the mercury rise in the capillary when the temperature changes from 0.0oC to 25.0 oC? The density of mercury at these temperatures is 13.596 g/cm3 and 13.534 g/cm3, respectively.
3. (8 points) Suppose you design a new thermometer called the X thermometer. On the GC scale the boiling point of water is 162oGC and the freezing point of water is 25oGC. At what temperature will the readings on the Celsius and GC thermometers be the same?