1. (6 points) Consider the following list of formulas for molecules.

   \[ \text{N}_2, \; \text{NCl}_3, \; \text{H}_2\text{O}_2, \; \text{O}_3, \; \text{S}_8, \; \text{C}_6\text{H}_6 \]

   a. Which of the above formulas represents that of an element?

   b. Which of the above formulas represents that of a compound?

   c. Which of the above formulas represents that of a diatomic molecule?

2. (5 points) Identify each of the following as a chemical or physical change.

   a. Melting of an ice cream bar ______________________

   b. Rusting of an iron nail _______________________

   c. Frying of an egg ______________________

   d. Evaporation of water from a glass ______________________

   e. Burning of natural gas ______________________
3. (10 points) Classify each of the following as a pure substance or a mixture. If a pure substance, further classify as to whether it is an element or a compound. If a mixture, classify as to whether it is homogeneous or heterogeneous.

   a. a solution of salt water in which no salt is sitting on the bottom
      ________________________________

   b. a solution of salt water in which there is salt sitting on the bottom
      ________________________________

   c. an absolutely flat (no carbonation) Coca-Cola  __________________

   d. smoggy air ________________________________

   e. a wooden plank ________________________________

4. (5 points) Make the following conversions.

   a. 422.5 cm = _______ m

   b. 1.35 x 10^{-10} m = ______ mm

   c. 15.6 cg = _______ mg

   d. 8.32 mg = _______ kg

   e. 55.5 cm^3 = ______ mL