5.1 Properties of Solutions /39

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

List some properties that could be used to construct diagnostic tests to identify the type of solute that is in each of the following solutions. **(4 marks)**

1. An aqueous solution of a molecular substance
2. An aqueous solution of a neutral ionic compound
3. An aqueous solution of an acid
4. An aqueous solution of a base
5. Identify, by name, the solute and solvent in each of the following solutions. **(4 marks)**

(a) NaOH(aq)

(b) CO2(aq)

(c) Br2(al)

(d) Mg(HCO3)2(aq)

1. **Lab Exercise 5.A: Identifying Solutions (Page 195)**

**Purpose:** The purpose of this investigation is to use diagnostic tests to identify some solutions. **Problem:** Which of the solutions labelled 1, 2, 3, and 4 is hydrobromic acid, sodium nitrate, lithium hydroxide, and methanol?

**Answer: (4 marks)**

1. **Problem:** Which of the solutions labelled A, B, C, and D contain HCl(aq), NaClO4(aq), NH2OH(aq), and NaOH(aq)? How would you figure this out? Write an experimental design to answer the question. **(4 marks)**
2. Classify the following mixtures as heterogeneous or homogeneous. Justify your answers.

**(6 marks)**

* 1. fresh-squeezed orange juice
  2. white vinegar
  3. an old lead water pipe
  4. humid air
  5. a cloud
  6. a dirty puddle

1. Which of the following substances are solutions? **(6 marks)**
   1. milk
   2. pop
   3. pure water
   4. smoke-filled air
   5. silt-filled water
   6. rainwater
2. State at least three ways of classifying solutions. **(3 marks)**
3. Describe an aqueous solution. Give at least five examples of aqueous solutions that you can find at home. **(2 marks)**
4. What types of solutes are electrolytes? Write a definition of an electrolyte. **(2 marks)**
5. Classify each compound as an electrolyte or a nonelectrolyte: **(4 marks)**
   1. sodium fluoride (in toothpaste)
   2. sucrose (table sugar)
   3. calcium chloride (a road salt)
   4. ethanol (in wine)