

WS 7.1 Solutions

1. Identify the solute and solvent in the following solutions:

a) 10.0 g of sugar & 40.0 g of water

solute: _____

solvent: _____

b) 50 g of water & 5.0 g of NaCl

solute: _____

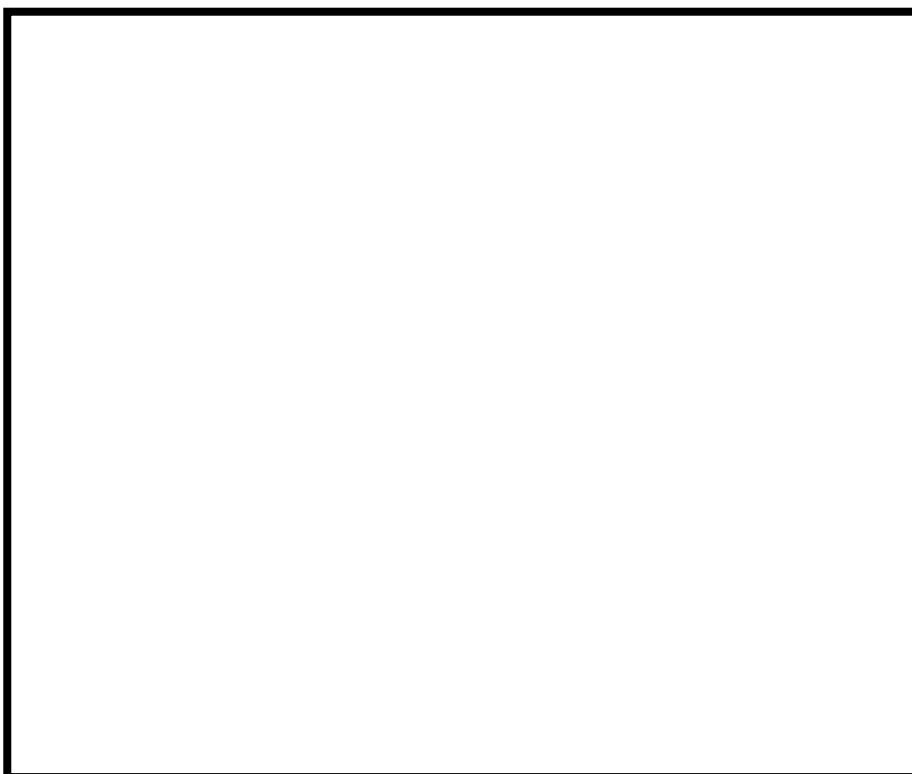
solvent: _____

c) 18.0 L of nitrogen & 12.0 L of oxygen

solute: _____

solvent: _____

2. Draw a picture of 8 water molecules (with proper shape), and the **hydrogen bonding** between them:



3. A water molecule has a _____ shape, with the hydrogen atoms carrying a partial _____ charge and the _____ atom carrying a

partial negative charge. As a result of these charges, we say water is a _____ molecule. Water molecules are attracted to each other. This attraction is called _____ bonding. This type of bonding occurs between any molecules containing a _____ bonded to a _____, _____, or _____. These 3 elements are the most _____ on the periodic _____.

If you place a paper clip on water, it will _____, even though the paper clip is more _____ than water. Upon careful observation, it may appear the surface of the water has a _____ on which the paper clip floats. This is due to the _____ tension of water. _____ tension is caused by the _____ hydrogen bonding on the surface of the liquid. Water _____ in the interior feel attractive forces all around, whereas molecules at the surface only feel the attractive forces from the side and _____. It is these unequal forces which creates the "skin" we call surface tension. Surface tension can easily be _____ if _____ is added to the water. This is because water molecules are more _____ to soap than they are to each other. This is one way soaps get things clean: they break down the surface tension of _____ so that water can "wet" things.

Cellulose is composed of a long chain of molecules with an O-H _____ on each molecule. Since the H is _____ connected to the O, cellulose can do _____ bonding. Paper is made of _____, so if the bottom of a paper towel is placed in water, the water can climb, or _____ up the towel. The water molecules are attracted to the cellulose because they can form H-bonds with each other. This is partially responsible for how water can be _____ to the tops of _____.

Ans (IAO): attracted, below, bent, bond, broken, cellulose, directly, electronegative, dense, float, fluorine, hydrogen, hydrogen, hydrogen, molecules, nitrogen, oxygen, oxygen, polar, positive, soap, skin, surface, surface, table, transported, trees, unequal, water, wick