BIOLOGY 11 – PRE-LAB EXERCISE

3	Name: Answer Key	5
	Lab Day & Time:	

Chemical Composition of Cells

1. What is an organic compound? A complex molecule built from a chain of carbon atoms.

2. What three classes of organic macromolecules are we analyzing in Lab 3 of your Lab Manual?
   proteins, carbohydrates, & lipids

   Name a specific example of a monosaccharide analyzed in Lab 3. glucose

   Name a specific example of a polysaccharide analyzed in Lab 3. starch

   What type of reaction converts monomers (subunits) into polymers? dehydration synthesis

   What type of reaction converts polymers into monomers? hydrolysis

   What type of protein speed up biochemical reactions? enzymes

3. Which organic compounds are detected by the Biuret reagent? peptides and proteins

   What colors indicate a positive result (presence of that compound)? pink-purple to purple

   What color indicates a negative result (absence of that compound)? blue

4. What organic compounds are detected by the Benedict's reagent? monosaccharides & disaccharides

   What colors indicate a positive result? green to yellow to orange-red

   What color indicates a negative result? blue

5. What organic compound is detected by the iodine reagent? starch

   What color indicates a positive result? blue-black

   What color indicates a negative result? yellowish-brown

Refer to Figure 3.4 to answer the following questions.

a. What do the letters in the colored boxes represent? atoms in the molecules

b. What specific letters do you find? What specifically does each type of letter represent?
   C's are carbon atoms; O's are oxygen atoms; H's are hydrogen atoms

c. What do the short lines between the letters represent?
   chemical bonds between atom in the molecule

d. One of the products shown is "$3H_2O$". What do the 3 and the 2 represent?
   3 water molecules produced; 2 hydrogen atoms per water molecule

e. Specifically, from where do the atoms of the water molecules come?
   3 O's & 3 H's come from the fatty acids; the other 3 H's come from the glycerol.

f. How many total molecules are needed to make one molecule of fat? four

g. How many atoms are in one glycerol molecule? fourteen

h. What is the difference between the fatty acid with the "C=C" and the other two fatty acids?
   C=C is unsaturated (has a double bond); others are saturated (no double bonds)