Do Not Write on me!!

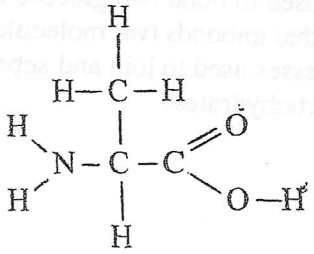
Name _____ Pd. _____ Date _____

MOLECULAR MODEL ORGANIC CHEMISTRY LAB

PROTEINS

Procedure:

1. Build an amino acid (teacher check)



2. Cooperate with another lab group and remove an OH from the carboxyl group of one amino acid and a H from the amino group of the other amino acid, and join the ends together. Combine the H and the OH that were removed. (teacher check)

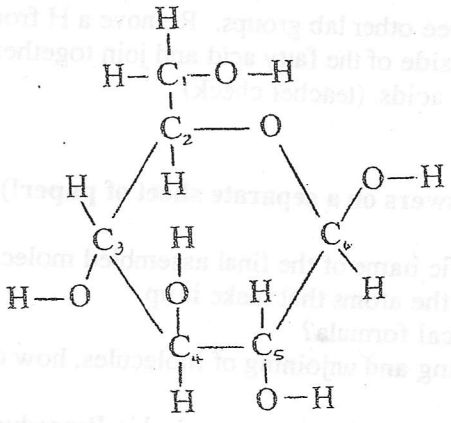
Questions: (write all answers on a separate sheet of paper!)

1. What kinds of atoms (write the names) and how many of each are present in your first amino acid?
2. What's the total number of atoms in your first amino acid?
3. How many atoms are in your combined molecule after doing Procedure 2?
4. Why isn't the number doubled since you are working with two amino acids?
5. What is the name of the molecule formed when two amino acids are joined together?
6. What is the name of the bond that joins the two amino acids together?
7. What is the name of the process used to join two amino acids together?
8. How many water molecules were produced when you joined the two amino acids together?
9. What is the name of the process used to unjoin two amino acids?
10. What are the monomers of all proteins?

CARBOHYDRATES

Procedure:

1. Build a glucose (teacher check)



2. Cooperate with another lab group and remove a H from the 1st carbon of one molecule and an OH from the 4th carbon on the other molecule and join together. Combine the H and the OH that were removed. (teacher check)

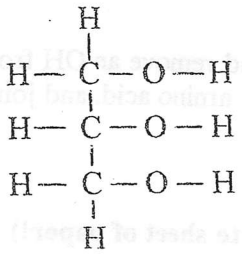
Questions: (write all answers on a separate sheet of paper!)

1. When the two glucose molecules are bonded together, what is removed? Name the molecule.
2. List the names of the atoms that are present in one glucose molecule and how many of each there are.
3. What is the chemical formula of glucose?
4. What is the name of the molecule that is formed when two glucose molecules bond together?
5. What is the name of the process used to bond two glucose molecules together?
6. What is the name of the process that unbonds two molecules?
7. How does it compare to the processes used to join and separate amino acids?
8. What are the monomers of all carbohydrates?

LIPIDS

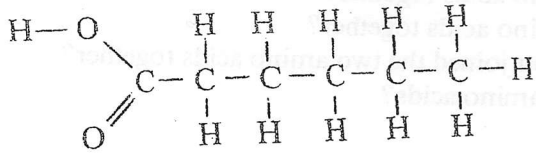
Procedure:

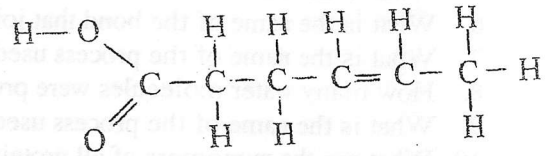
1. Build a glycerol molecule
(teacher check)



OR

Build a fatty acid
(teacher check)





2. Cooperate with three other lab groups. Remove a H from the hydroxide side of the glycerol and an OH from the carboxyl side of the fatty acid and join together. Combine the H and the OH. Do the same for the other two fatty acids. (teacher check)

Questions: (write all answers on a separate sheet of paper!)

1. What is the specific name of the final assembled molecule?
2. List the names of the atoms that make it up.
3. What is its chemical formula?
4. As far as the joining and unjoining of molecules, how do they differ from the processes in carbohydrates and proteins?
5. How many water molecules were removed in Procedure 2?
6. Structurally, what is the difference in the two fatty acids shown above?
7. What physical difference might there be if you had a container of each type at room temperature?
8. What are the monomers of all lipids? (names and amounts of each)