

DEHYDRATION SYNTHESIS AND HYDROLYSIS
VOCABULARY

Name Key Period _____

DIRECTIONS: FIRST read page 36 (section 3-3) in your text. Then read each of the numbered statements below and fill in the term, prefix, or suffix in the blank space next to its meaning. You may also want to use a dictionary.

1. To split or break apart; to release
Lysis

DEHYDRATE

2. To make something: Synthesis

HYDRO-

SYNTHESIS

3. Many monomers hooked together make a:
Polymer

-LYSIS

DEHYDRATION SYNTHESIS

4. Means to lose or remove water;
to take water away:
Dehydrate

HYDROLYSIS

5. A process where two molecules lose the
'parts' of water and join (bond) together
Dehydration Synthesis

MONOMER

POLYMER

6. A process where a molecule splits into
two (or more) smaller molecules and gains
the 'parts' of water on the broken ends:
Hydrolysis

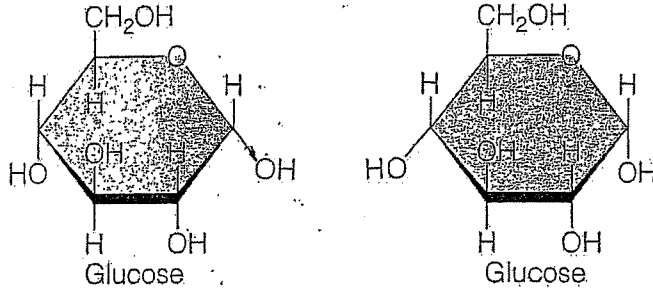
7. Means water (as in gaining water):
Hydro

8. Building block or single unit of a polymer is a:
Monomer

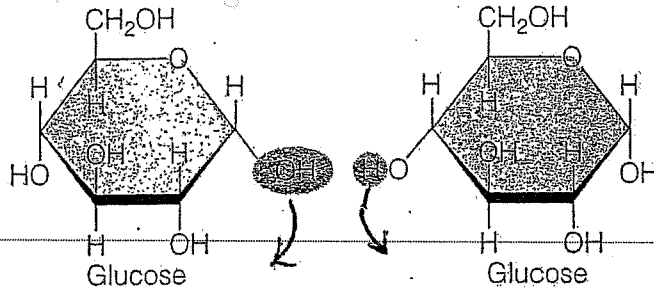
Dehydration Synthesis and Hydrolysis

DIRECTIONS: Below the diagrams are three statements that describe the action shown in the diagram, but they are scrambled up. **Rewrite** the statement that fits the action on the line under the appropriate diagram. Refer to figure 3.5 on page 38

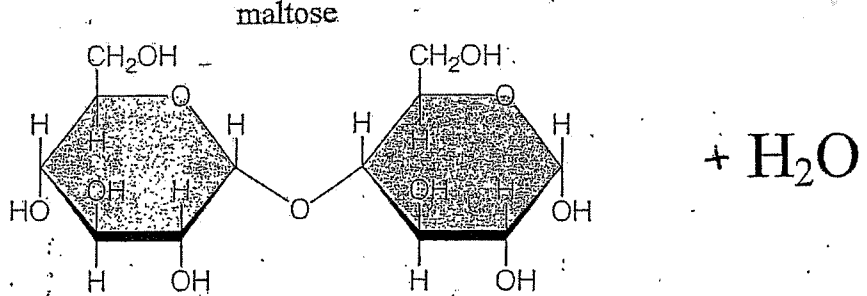
THE FOLLOWING DIAGRAMS SHOW THE PROCESS OF Dehydration Synthesis



BEFORE: Two complete organic molecules are separate from each other.



STEP 1: The parts of water are lost from the bonding ends.



STEP 2: Two molecules bond together forming one larger molecule.

Statements to be written on the correct diagram above:

- The 'parts' of water are lost from the bonding ends of the two molecules.
- Two complete, organic molecules---separate from each other.
- Two molecules bond together forming one larger molecule.

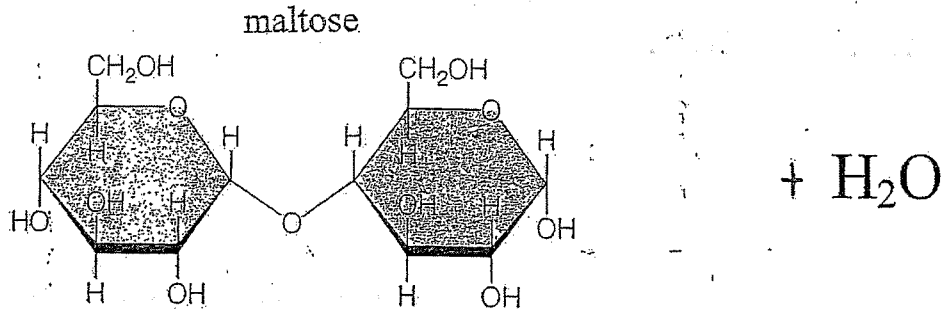
Questions:

What figure in this chapter shows this process for the formation of a fat? Different Textbook

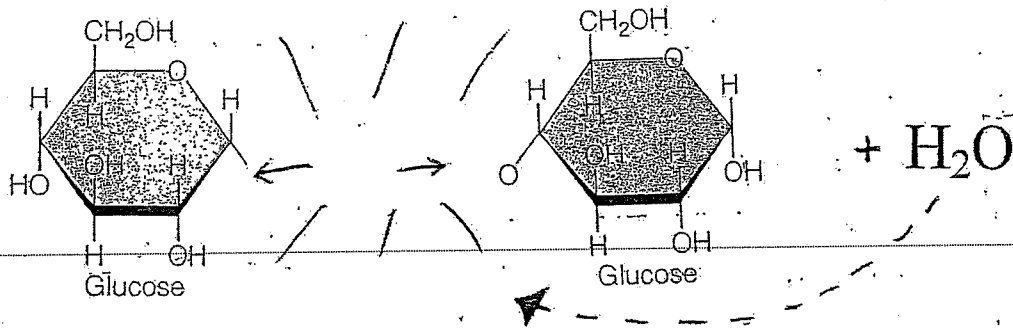
What figure in this chapter shows this process for the formation of a protein? _____

DEHYDRATION SYNTHESIS AND HYDROLYSIS

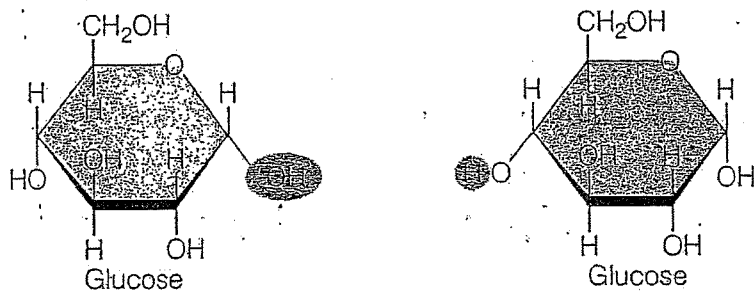
THE DIAGRAMS BELOW SHOW THE PROCESS OF: Hydrolysis
(Enzymes allow this process to happen in both process on pp. 2 and 3)



BEFORE: One molecule of maltose is made of 2 smaller sugar molecules.



STEP 1: The disaccharide breaks apart (with help of enzyme)



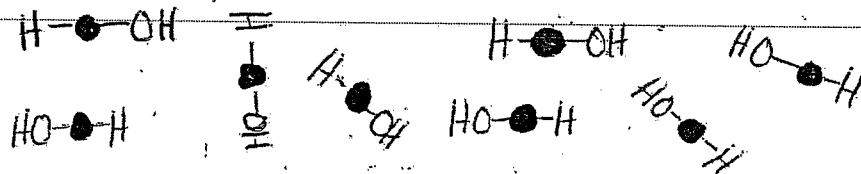
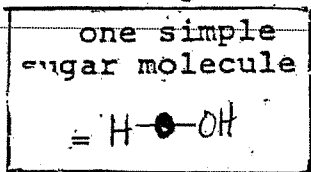
STEP 2: Each sugar molec. gains a part of water to its broken end.

Statements to match & REWRITE on the correct line above (use figure 3.3B for reference):

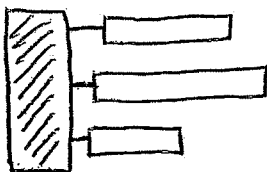
- Each sugar molecule gains a 'part' of water to its broken end and is now complete.
- One molecule of maltose is made out of two smaller sugar molecules bonded together.
- The disaccharide molecule breaks apart (with the help of enzymes).

SUMMARY QUESTIONS:

- The losing of water from two organic molecules, then the JOINING of those molecules is termed dehydration synthesis.
- The SPLITTING apart of two organic molecules followed by the addition of the 'parts' of water to the broken ends of each molecule is called hydrolysis.
- Organic molecules make up an important source of building block molecules needed to repair or to make new cells for our bodies AND they serve as a source of energy for us. Organic compounds (or molecules) are commonly called (think about what you ate today) biological molecules: Molecules of Life.
- In what ORGAN of your body would the splitting apart or hydrolysis of organic compounds be occurring right now (probably at a high rate)? (This answer is based on #3 answer above) small intestine.
- According to the process shown on page 2, how many water molecule(s) are formed when ONE BOND is made between two organic molecules? 1.
- If the following simple sugars are bonded (joined) together end to end (in a straight chain) to form one long starch molecule, how many water molecules would be given off (lost) as they join together? 7.



- According to the process shown on page 3 of this study guide, how many water molecule(s) are needed when ONE BOND holding two sugars (or any organic molecules) breaks? 1.
- If one fat molecule (made out of 4 smaller molecules as indicated in the diagram to the left) goes through the process of hydrolysis, how many whole water molecules would be needed to complete the process? 3 (also see figures 3.8 B and 3.8 C)



- Dehydration synthesis is a process which is exactly the opposite of hydrolysis.
- One bond between two organic molecules forms 1 water molecules.
- Ten bonds between eleven organic molecules forms 10 water molecules.
- List the four groups of organic compounds: Carbs, Lipids, Proteins, Nucleic Acids
- List the four groups of inorganic compounds: Water, Salts, Acids, Bases