

AP Biology

Name: _____ Score: _____

1. Why is a water molecule **polar**?

- ☐ It contains two hydrogen atoms
- ☐ Oxygen pulls the shared electrons more strongly than hydrogen
- ☐ It is a very small molecule
- ☐ It is a liquid at room temperature

2. Four elements make up about **96%** of a living body. Which are they?

- ☐ Carbon, hydrogen, oxygen, nitrogen
- ☐ Iron, calcium, sodium, potassium
- ☐ Gold, silver, copper, zinc
- ☐ Helium, neon, argon, xenon

3. A **polymer** is best described as...

- ☐ a long chain built from repeating monomer units
- ☐ a single small molecule
- ☐ an atom of carbon
- ☐ a type of water

4. A **monosaccharide** is...

- ☐ a single sugar unit, like glucose
- ☐ a chain of hundreds of sugars
- ☐ a type of protein
- ☐ a fat

5. A **triglyceride** is made of one glycerol joined to...

- ☐ three fatty acids
- ☐ three sugars
- ☐ three amino acids
- ☐ three nucleotides

6. A single hydrogen bond is stronger than the bond holding an O and H together inside a water molecule.

- ☐ True ☐ False

7. How many covalent bonds can one carbon atom form?

8. A **condensation reaction** releases a molecule of water each time it joins two monomers.

☐ True ☐ False

9. Table sugar, sucrose, is a disaccharide made of glucose and _____.

10. The bond that joins two amino acids is a _____ bond.

AP Biology

1. Oxygen pulls the shared electrons more strongly than hydrogen

Oxygen has a higher **electronegativity**, so the electrons sit closer to it — giving oxygen a partial negative and the hydrogens a partial positive charge.

2. Carbon, hydrogen, oxygen, nitrogen

Carbon, hydrogen, oxygen and nitrogen (CHON) make up about 96% of living matter.

3. a long chain built from repeating monomer units

A **polymer** is a large molecule made by linking many small **monomer** subunits into a chain.

4. a single sugar unit, like glucose

A **monosaccharide** ("one sugar") is a single sugar unit — glucose and fructose are examples.

5. three fatty acids

A triglyceride is a glycerol backbone with **three fatty acid** tails attached.

6. False

A single hydrogen bond is **weak**. Water is powerful because it has an enormous *number* of them.

7. 4

Carbon has **four** outer electrons, so it forms four bonds — letting it build long chains, branches and rings.

8. True

Condensation joins monomers and removes one water molecule per bond formed.

9. fructose

Sucrose = glucose + **fructose**, joined by a condensation reaction.

10. peptide

A **peptide bond** links amino acids into a chain called a polypeptide.