

Biochemistry Chapter Questions

Ch3: Water

1. What is a polar molecule and how does it create hydrogen bonding between water molecules?
2. List the 4 emergent properties of water and give one example how each is used on Earth.
3. What is the difference between cohesion and adhesion?
4. What is surface tension?
5. What is specific heat?
6. What is the difference between hydrophobic and hydrophilic substances?
7. List the differences between acids and bases?
8. What is a buffer?

Ch4: Carbon

1. Explain the Miller-Urey experiment.
2. Why can so many molecules bind with Carbon?
3. What are hydrocarbons and what is their role in the human body?
4. What is an isomer? List examples
5. Draw the structure of each of the functional groups. List their functions.
6. What is the structure of adenosine triphosphate?

Ch5: Macromolecules

1. Explain the difference between a dehydration reaction (condensation reaction) and hydrolysis.
2. Carbohydrates
 - a. Function?
 - b. Type of linkage?
 - c. Examples?
 - d. Storage sugar in animals? In plants?
 - e. Difference between starch and cellulose?
 - f. What organism has chitin in its cell walls?
3. Lipids
 - a. Function?
 - b. Type of linkage?
 - c. Examples?
 - d. Difference between saturated and unsaturated?
 - e. Structure of phospholipid?
 - f. What is cholesterol? Where is it used in the cell?

4. Protein

- a. Function?
- b. Structure of amino acid (functional groups)?
- c. Enzymes?
- d. Total # of amino acids used to build a protein?
- e. Levels?
- f. Name of primary structure bonds?
- g. Explain denaturation.
- h. What is a chaperonin?

5. Nucleic acids

- a. Functions?
- b. What is a gene?
- c. Examples?
- d. Structure of a nucleotide?
- e. 2 families of nitrogen bases and which bases do each contain?
- f. Describe the structure of DNA and RNA