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## THE CHEMISTRY OF LIFE

## Chapter Quiz

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

- \_\_\_\_\_ 1. Eukaryotic cells are smaller than prokaryotic cells and lack a nucleus and membrane-bound organelles. 24.1
- \_\_\_\_\_ 2. Cell membranes consist of a bilayer of phospholipids with embedded proteins. 24.4
- \_\_\_\_\_ 3. Photosynthesis is the process by which glucose is broken down to yield oxygen and energy. 24.1
- \_\_\_\_\_ 4. Sucrose is a disaccharide composed of glucose and fructose. 24.2
- \_\_\_\_\_ 5. ATP is produced by metabolic reactions in the cell. 24.6

Choose the best answer and write its letter on the line.

- \_\_\_\_\_ 6. The essential structural difference between starch and cellulose is due to 24.2
- a. the presence of one extra carbon in each of the monomers that make up starch.
  - b. the absence of hydroxy groups in cellulose.
  - c. the fact that cellulose is more highly branched.
  - d. the orientation of the bond between the glucose units.
- \_\_\_\_\_ 7. A lipid is a biological molecule that 24.4
- a. reacts with acids and bases to produce an aldehyde.
  - b. is soluble in nonpolar solvents but relatively insoluble in aqueous solvents.
  - c. is soluble in most polar solvents.
  - d. contains only carbon and hydrogen.
- \_\_\_\_\_ 8. How many peptide bonds are formed when the amino acids glutamine, tryptophan, and glycine are joined to form a tripeptide? 24.3
- a. one
  - b. two
  - c. three
  - d. four
- \_\_\_\_\_ 9. Which of the following statements about the 20 common amino acids is *false*? 24.3
- a. Some amino acids exist as stereoisomers.
  - b. The side-chain groups of some amino acids are nonpolar.
  - c. Nearly all the amino acids found in nature are of the left-handed, or L form.
  - d. none of the above