

1. A map of eastern North America, showing the pH of rainfall in the various states, indicates that the pH of rain in New York State varies from 4.22 to 4.40. According to these figures, the most acidic rainfall in New York State has a pH of
 - a. 4.22.
 - b. 4.30.
 - c. 4.35.
 - d. 4.40.
2. A substance with a pH of 6 is called
 - a. an acid.
 - b. a base.
 - c. both an acid and a base.
 - d. neither an acid nor a base.
3. Amino acid is to protein as
 - a. fat is to lipid.
 - b. DNA is to RNA.
 - c. sugar is to fat.
 - d. simple sugar is to starch.
4. A monosaccharide is a
 - a. carbohydrate.
 - b. lipid.
 - c. nucleic acid.
 - d. protein.
5. Which of the following organic compounds is the main source of energy for living things?
 - a. carbohydrates
 - b. lipids
 - c. nucleic acids
 - d. proteins
6. Which of the following is NOT a function of proteins?
 - a. store and transmit heredity
 - b. help to fight disease
 - c. control the rate of reactions and regulate cell processes
 - d. build tissues such as bone and muscle
7. Which statement is true?
 - a. Simple sugars are made of polysaccharides.
 - b. Glycerol is made of fatty acids.
 - c. RNA molecules are made of nucleotides.
 - d. Amino acids are made of proteins.
8. In chemical reactions, atoms are
 - a. created.
 - b. destroyed.
 - c. rearranged.
 - d. neutralized.
9. What is the term used to describe the energy needed to get a reaction started?
 - a. adhesion energy
 - b. activation energy
 - c. cohesion energy
 - d. chemical energy
10. Which of the following statements is true about catalysts?
 - a. Catalysts slow down the rate of chemical reactions.
 - b. All catalysts are enzymes.
 - c. Catalysts are used up during a chemical reaction.
 - d. Catalysts lower the activation energy of a chemical reaction.
11. A substance that accelerates the rate of a chemical reaction is called a(an)
 - a. catalyst.
 - b. lipid.
 - c. molecule.
 - d. element.
12. Enzymes affect the reactions in living cells by changing the
 - a. products of the reaction.
 - b. speed of the reaction.
 - c. temperature of the reaction.
 - d. pH of the reaction.

13. Which of the following structures serves as the cell's boundary from its environment?
 - a. mitochondrion
 - b. cell membrane
 - c. chloroplast
 - d. channel proteins
14. Diffusion is the movement of molecules from
 - a. an area of low concentration to an area of high concentration.
 - b. an area of high concentration to an area of low concentration.
 - c. an area of equilibrium to an area of high concentration.
 - d. all of the above
15. Diffusion occurs because
 - a. molecules constantly move and collide with each other.
 - b. the concentration of a solution is never the same throughout a solution.
 - c. the concentration of a solution is always the same throughout a solution.
 - d. molecules never move or collide with each other.
16. When the concentration of molecules on both sides of a membrane is the same, the molecules will
 - a. move across the membrane to the outside of the cell.
 - b. stop moving across the membrane.
 - c. move across the membrane in both directions.
 - d. move across the membrane to the inside of the cell.
17. Which means of particle transport requires input of energy from the cell?
 - a. diffusion
 - b. osmosis
 - c. facilitated diffusion
 - d. active transport
18. The diffusion of water across a selectively permeable membrane is called
 - a. osmotic pressure.
 - b. osmosis.
 - c. facilitated diffusion.
 - d. active transport.
19. An animal cell that is surrounded by fresh water will burst because the osmotic pressure causes
 - a. water to move into the cell.
 - b. water to move out of the cell.
 - c. solutes to move into the cell.
 - d. solutes to move out of the cell.
20. Based on their names, you know that the baboons *Papio annubis* and *Papio cynocephalus* do NOT belong to the same
 - a. class.
 - b. family.
 - c. genus.
 - d. species.
21. A genus is composed of a number of related
 - a. kingdoms.
 - b. phyla.
 - c. orders.
 - d. species.
22. Several different classes make up a
 - a. kingdom.
 - b. phylum.
 - c. family.
 - d. genus.
23. The most general and largest category in Linnaeus's system is
 - a. the phylum.
 - b. the kingdom.
 - c. the genus.
 - d. the domain.