

- ___ 8. The most abundant compound in most living things is
 a. carbon dioxide. c. sodium chloride.
 b. water. d. sugar.
- ___ 9. When salt is dissolved in water, water is the
 a. reactant. c. solute.
 b. solution. d. solvent.
- ___ 10. A substance with a pH of 6 is called
 a. an acid. c. both an acid and a base.
 b. a base. d. neither an acid nor a base.
- ___ 11. A monosaccharide is a
 a. carbohydrate. c. nucleic acid.
 b. lipid. d. protein.
- ___ 12. 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.
- ___ 13. When hydrogen and oxygen combine to form water, water would be
 a. a product. c. both a product and a reactant.
 b. a reactant. d. neither a product nor a reactant.
- ___ 14. If a reaction in one direction releases energy, the reaction in the opposite direction
 a. also releases energy. c. destroys energy.
 b. absorbs energy. d. cannot occur.
- ___ 15. 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.

Completion

Complete each statement on the line provided.

16. If an atom contains 15 protons, it must contain 15 _____ .
17. Due to _____ forces, the design of a gecko's feet enables it to climb up vertical surfaces.
18. The stomach produces a(an) _____ to help digest food.
19. The pH scale is a measurement system that indicates the concentration of _____ in solution.
20. Chemical reactions that _____ energy will not occur without a source of energy.

Short Answer

In complete sentences, write the answers to the questions on the lines provided.

21. What is mass number?

22. What accounts for water's properties of adhesion and cohesion?

23. Use the terms *solvent* and *solute* in describing how to prepare a salt solution.

24. Distinguish between RNA and DNA.

25. Name two essential roles that enzymes play in cells.

Using Science Skills

Use the table below to answer the following questions on the lines provided.

pH Values of Some Common Substances

Substance	pH
hydrochloric acid	1.0
sulfuric acid	1.2
tomatoes	4.2
rainwater	6.2
pure water	7.0
sea water	8.5
ammonium chloride	11.1
sodium hydroxide	13.0

Figure 2-1

26. **Applying Concepts** What is the strongest acid listed in Figure 2-1?

27. **Applying Concepts** What is the pH of the weakest acid listed in Figure 2-1?

28. **Applying Concepts** What is the pH of the strongest base listed in Figure 2-1?

29. **Applying Concepts** According to the pH values of Figure 2-1, does a solution with a hydrogen ion concentration less than that of pure water have a pH greater or less than 7?

30. **Calculating** A change of one unit on the pH scale represents a tenfold increase in the concentration of hydrogen ions. According to the pH values listed in Figure 2-1, how much greater is the hydrogen ion concentration in tomatoes than in rainwater?

Essay

Write the answer to each question in the space provided.

31. Compare protons, electrons, and neutrons with respect to location within atoms, electric charge, and mass.

32. What relationship exists between the mass number of an element and the isotopes of that element?

33. Explain the difference between ionic compounds and covalently bonded compounds.

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34. Compare and contrast adhesion and cohesion, using capillary action as an example.

35. Compare enzyme activity to a lock and key.