Name Class Date

CHAPTER 7 STUDY GUIDE

Weathering, Erosion, and Soil

SECTION 7.1 *Weathering*

In your textbook, read about weathering.
In the space at the left, write *true* if the statement is true; if the statement is false, change the italicized word or phrase to make it true.

_____ **1.** *Weathering* is the process by which rocks on or near Earth's surface break down and change.

_____ **2.** *Mechanical weathering* changes the chemical composition of rocks.

_____ **3.** Weathering rate depends on *temperature*.

_____ **4.** Acid precipitation has a pH value *above* 5.6.

_____ **5.** The repeated thawing and freezing of water in the cracks of rocks is called *frost wedging*.

_____ **6.** Water, oxygen, carbon dioxide, and acids are significant agents of *mechanical* weathering.

_____ **7.** Oxidation occurs in the decomposition of *iron ore*.

_____ **8.** The chemical reaction of *carbon dioxide* with other substances is called oxidation.

Circle the letter of the choice that best completes the statement or answers the question.

9. The reaction below is an example of which of the following processes?

$$2FeO_4 + \tfrac{1}{2}O_2 \rightarrow 3Fe_2O_3$$

a. oxidation **b.** exfoliation **c.** freezing **d.** mechanical weathering

10. The pH scale is used to measurement which of the following?
a. oxidation **b.** exfoliation **c.** acidity **d.** precipitation

11. The process by which outer layers of rock are stripped away is called
a. chemical weathering. **b.** oxidation. **c.** exfoliation. **d.** frost wedging.

12. In which of the following climates would physical weathering most readily occur?
a. wet and warm **b.** dry and warm **c.** wet and hot **d.** dry and cool

13. Large amounts of carbonic acid are found in
a. the soil. **b.** acid precipitation. **c.** limestone. **d.** automobile exhaust.

14. Buildings and monuments that are made of limestone are greatly damaged by
a. freezing. **b.** acid precipitation. **c.** oxidation. **d.** frost wedging.

15. Which of the following factors does NOT exert pressure on rocks that leads to physical weathering?
a. plant roots **b.** overlying rocks **c.** freezing water **d.** carbonic acid

SECTION 7.1 *Weathering, continued*

In your textbook, read about weathering and what affects the rate at which weathering occurs.
Use the terms below just once to complete the passage.

water	**acid precipitation**	**carbonic acid**	**carbon dioxide**
temperature	**mechanical**	**composition**	**pressure**

The process by which rocks and minerals break down into smaller pieces is **(16)** _____ weathering, also called physical weathering. Two factors that play a significant role in this type of weathering are **(17)** _____ and **(18)** _____. To some extent, the **(19)** _____ of rocks determines the effects that chemical weathering will have on them. **(20)** _____ is an important agent in chemical weathering because it can dissolve many kinds of minerals. An atmospheric gas that contributes to the chemical weathering process is **(21)** _____, which is produced by living organisms. When this gas combines with water, it produces a weak acid called **(22)** _____. Another agent of chemical weathering is **(23)** _____, which is caused mainly by emissions of sulfur dioxide and nitrogen oxides.

Answer the following questions.

24. What climate conditions promote chemical weathering?

_____

25. What rock type is most easily weathered? Why?

_____

_____

26. How is surface area related to weathering?

_____

_____

27. How does slope affect the rate of weathering?

_____

_____

_____