Name: _____ Period: _____ Date: _____

Chemical Weathering Assignment – Student Edition

I. Encircle the correct word to complete each sentence in the passage below.

Chemical Weathering of Rocks

The process of weathering **(builds, breaks)** rock into smaller pieces. Some of these tiny pieces combine with once-living material to form **(sub-soil, topsoil)**. Other small pieces of rock collect as **(sediments, decomposers)**. One basic type of weathering is chemical weathering.

Chemical weathering breaks down rocks by **(retaining, changing)** the minerals they contain. Rain is a powerful chemical weathering force. As rain falls, it mixes with the gas **(nitrogen, carbon dioxide)** in the air. The result is acid rain. Acid rain is strong enough to **(create, dissolve)** some minerals in rocks. Once dissolved, the minerals easily wash away, **(strengthening, weakening)** the rock. Acid rain very slowly carves some rocks into different shapes. It gradually erases the lettering on old gravestones, and blurs the faces of stone statues. It eats away at the outside of ancient and even modern buildings. Where rain seeps into the ground, **(acetic acid, carbonic acid)** causes weathering of buried rocks as well. Over long periods of time, this often unobserved weathering creates **(mountains, caves)** deep underground.

Another gas in the air—**(oxygen, hydrogen)—**causes chemical weathering in rocks. With a little help from water, oxygen reacts with **(iron-, phosphorus-)** containing minerals. The reaction changes the minerals, making the rocks brittle and crumbly, and turning them a rusty **(red, blue)** color.

II. On the blank, write true if the statement is true. Otherwise, write false.

_____ 1. Weathering describes the breaking down or dissolving of rocks and minerals on the surface of the Earth.

_____ 2. Chemical weathering occurs when rocks undergo chemical reactions to form new minerals.

_____ 3. Chemical weathering involves the weakening and subsequent disintegration of rock by chemical reactions.

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_____ 4. Carbonation is the reaction of rock minerals with oxygen, which results in the changing of the mineral composition of the rock.

_____ 5. When minerals in rock oxidize, they become more resistant to weathering.

_____ 6. Hydrolysis in rocks occurs when water dissolves minerals in a rock, producing new compounds.

_____ 7. Formation of stalagmites and stalactites is caves happens mainly due to oxidation in rocks.

_____ 8. In addition to changing the shapes of rocks, chemical weathering from water changes in the composition of water.

_____ 9. The process of rock minerals reacting with carbonic acid is known as carbonation.

_____ 10. Carbonation is an important process in the formation of many caves and sinkholes.

III. Analyze the given examples of weathering. Identify if it is chemical weathering or not. Put a check (✓) or cross (✗) on the blank to show your answer.

_____ 1. Limestone dissolved by carbonic acid.

_____ 2. The wedging of tree roots along natural joints in granite outcrops.

_____ 3. The formation of rust in iron-rich rocks.

_____ 4. Animal burrows dug in rock that let in water and air.

_____ 5. Repeated freezing and thawing of water that cracks rock.

_____ 6. Rocks that have been carried by stream have become smaller and more rounded.

_____ 7. Formation of potholes in streets during severe winters.

_____ 8. A large rock falling from a cliff and then breaking.

_____ 9. Feldspar mixed with water, producing clay minerals.

_____ 10. Formation of caves and sinkholes due to carbonation.