

Test Review Answers - Weathering, Erosion and Natural Disasters

1. The process of breaking down rock into small fragments is called weathering.
2. The five types of mechanical weathering are: (1) pressure release, (2) ice wedging (freeze-thaw), (3) plant growth (root wedging), (4) abrasion, and (5) animal actions (burrowing).
3. The five agents of chemical weathering are: (1) water, (2) oxygen, (3) carbon dioxide, (4) living organisms, and (5) acid rain.
4. The type of weathering that creates caves in limestone is chemical weathering (carbon dioxide).
5. The process by which natural forces move weathered rock and soil from one place to another is called: erosion.
6. The four agents of erosion are: (1) water, (2) wind, (3) ice (glaciers), and (4) gravity.
7. The strongest agent of erosion is: water.
8. The agent of erosion primarily responsible for carving the Grand Canyon is: water.
9. The agent of erosion primarily responsible for carving Yosemite Valley is: ice (glaciers).
10. The four sizes of weathered rock particles, from smallest to largest, are: (1) clay, (2) silt, (3) sand and (4) gravel.
11. Rock weathering and soil formation occur fastest in a hot and wet climate.
12. Decayed organic matter in soil is called: humus.
13. The layer of dead leaves lying on the surface of the soil is called: litter.
14. The mass of roots, grass and other small plants that hold prairie soil together and prevents erosion is called: sod.
15. An ideal mix of soil ingredients that best supports plant growth is called: loam.
16. The distinct layers found in soil are called soil horizons. The top soil layer is the A horizon, also called topsoil. The middle layer is the B horizon, also called subsoil. The lower layer is the C horizon, also called weathered rock.
17. The farming practice that leaves existing plant stalks and weeds in place after the harvest without plowing until the next crop is planted is called: conservation plowing.
18. The farming practice in which fields are plowed in a pattern prevents water from easily running downhill and causing soil erosion is called contour plowing.
19. The grinding away of rock by rock particles carried in wind or water is called: abrasion.
20. Weathered rock and soil that is moved from one location to another by natural processes is called: sediment.
21. The process by which sediment is laid down in a new location is called: deposition.
22. Landslides, mudflows, slump and creep are examples of: mass movement (or “mass wasting”).
23. The very slow movement of soil down a hill, causing trees to grow in crescent shapes and poles to lean, is called: creep.
24. The fast movement of water, soil and rock down a slope or river valley, caused either by heavy rains or a volcanic eruption, is called a: mudflow (or lahar when of volcanic origin).

25. The sudden downward slippage of large sections of soil and weathered rock, usually caused by excessive groundwater in a underlying clay layer, is called: slump.
26. A sudden fall of loose rock and soil down a steep slope is called a: landslide.
27. A river valley with a narrow, V-shape with a steep river gradient, waterfalls and rapids and no flood plain is found at the upper section of the river, also called a young river valley.
28. A river valley with a flat but narrow valley floor with a flood plain and a few meanders, with moderate slopes and terraces at the valley sides, is found at the middle section of the river, also called a mature river valley.
29. A river valley with a very wide valley floor with extensive flood plains, many meanders, oxbow lakes and natural levees, is found at the lower section of the river, also called an old river valley.
30. A river valley with a wide, U-shape, with a flat valley floor and nearly vertical sides, was carved by glaciers.
31. A fan-shaped peninsula of land that forms at the outlet of river into a ocean or large lake is called a: delta.
32. A fan shaped slope of sediment and debris that forms when a steep periodic stream empties into a wide flat desert valley is called an alluvial fan.
33. The process by which a glacier weathers and erodes the rock over which it travels is called: plucking.
34. A narrow knife-edged ridge between two glacially carved valleys is called a: arête.
35. A bowl-shaped depression carved into the side of a mountain, just below its peak and at the start of a valley, is called a: cirque.
36. A sharp, pyramid shaped peak carved by glaciers is called a horn.
37. Sediment deposited by a glacier is called: till.
38. The sediment piles deposited at the end and sides of a glacier are called: moraines.
39. The process in which the wind erodes away the surface of soil, carrying away small clay and silt particles, is called: deflation.
40. When the topsoil of much of the Great Plains blew away in the 1930s dust bowl, the dust that was deposited in the Midwest United States was called: loess.
41. Natural disasters caused by geologic forces include earthquakes, volcanic eruptions, mass movement, and tsunamis.
42. A massive debris flow down a valley caused by a volcanic eruption is called a: lahar.
43. Natural hazards or disasters that occur in thunderstorms include tornadoes, hail storms, lightning and floods.
44. The most destructive weather-related natural disasters that affects Dallas are: tornadoes.

Essay Questions:

- 1. Describe the process by which meanders and oxbow lakes form in the old, lower section of river valleys.** *Small bends in a river are usually created by harder rock or vegetation on a river bank which erodes more slowly than surrounding soil. Once the river has any bend, flowing water hits the outside of the bend more directly and erodes it more quickly than other areas; the bend thus gets wider and wider. On the inside of the bend, water moves more slowly and thus deposits sediment there, causing the inside bend to build into the river. Over time, the bend, now called a meander, becomes more and more extreme until it almost forms a complete circle by turning back on itself. At this point, all that separates the start and end of the meander is a thin “gooseneck” of land, with the direct force of the current eroding it thinner and thinner. Eventually, the river erodes through the gooseneck, and then abandons the old meander. The meander, if it stays filled with water, is called an oxbow lake.*
- 2. Describe the process by which wave-cut cliffs, headlands, sea caves, sea arches and sea stacks form on an ocean coast.** *When waves weather and erode a rock cliff coastline, there are often sections of the cliff with harder rock that weather more slowly than the rock on either side. This section of harder rock becomes a headland, a peninsula of rock extending into the ocean. Waves will attack the end and sides of the headland, especially the face of the headland facing the waves, slowly undercutting the face of the cliff and leaving a flat “bench” at water level. This is a wave-cut bench and wave-cut cliff. As the waves wear away the bottom of the cliff, it may create a cave-like alcove that is called a sea cave. Waves may continue to wear away at the back end of the sea cave until it extends all the way through the headland. This is a sea arch. As the sea arch gets bigger and bigger through weathering and erosion by the waves, it finally collapses, leaving a shorter headland and column-like sea stack.*
- 3. Describe the gradient, cross sectional valley shape and features of the upper, middle, and lower sections of river valleys.** *Long rivers often have their beginnings in mountains far from the ocean. The upper, young section of such a river has a steep gradient (slope) as it descends from the top of the mountain. It typically has many rapids and waterfalls that weather and erode a narrow, V-shaped valley with no flood plain at the bottom. When the river reaches the foot of the mountains, its gradient flattens out and the water slows down. This middle, mature section of the river has a wider valley with a narrow flood plain and some meanders at the bottom. The valley sides are less steep and may have stair-step river terraces. It may have a braided stream section of gravel bars if it flattens out suddenly, because much of the sediment load is dropped there. As the river flows further towards the ocean through the lower, old section, the flood plain becomes wider and wider, and the sides of the valley become less and less steep. The gradient of the river is now very low, and there are many meanders and oxbow lakes, with natural levees along the banks. When the river reaches the ocean, the remaining sediment load is dropped in the delta.*