**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Earth & Space Science Spring Final Review**

Directions: Use your notebook, notes, textbook, Google to research the answers to these questions/prompts. Up to 100 of these 150 questions/prompts with multiple choice answers be used to make the final exam. You may use the front and back of one 8.5” by 11” blank sheet of paper to write whatever notes you want to bring into the exam. You may **NOT** bring this sheet of questions/prompt into the exam.

**Weathering**

1. Which one of the following statements best describes erosion?
2. What is the term for the general process by which rocks are broken down at the Earth's surface?
3. One important relationship between chemical and mechanical weathering is \_\_\_\_\_\_\_\_.
4. Soil is composed of \_\_\_\_\_\_\_\_\_\_\_\_
5. All of the following are factors that affect rates of weathering except for \_\_\_\_\_\_\_\_.
6. Tropical soils are typically:
7. Important metals cannot be concentrated into ore deposits by weathering.
8. Mechanical weathering \_\_\_\_\_\_\_ the amount of surface area available for chemical weathering.
9. The physical and chemical weathering of a granite will produce \_\_\_\_\_\_\_\_.
10. Which of the following factors would increase the rate of weathering?
11. In the atmosphere, carbonic acid forms from the reaction of carbon dioxide and \_\_\_\_\_\_..
12. Which of the following minerals found in a granite is not altered by chemical weathering?
13. Exfoliation domes like *Enchanted Rock* in Texas and the *Half Dome* in the Sierra Nevada Mountains of California form from:
14. All rocks weather at the same rate.
15. Which of the following is not a form of chemical weathering?
16. The rate of weathering increases in areas with high pollution.
17. During an earthquake, water-saturated sand can behave like a liquid, a process called \_\_\_\_ .
18. Physical disintegration of rocks into smaller pieces is called\_\_\_\_\_\_.
19. The decomposition of rock from exposure to water and atmospheric gases is known as\_\_\_\_\_\_.
20. Where do sediments come from?
21. What is the weathered, unconsolidated parent material of all soils?
22. Clay is a product of\_\_\_\_\_\_.
23. Oxidation occurs when\_\_\_\_\_\_.
24. Which of the following is not at type of mechanical weathering?
25. The most common end product of the chemical weathering of quartz is\_\_\_\_\_\_.
26. The soil horizon rich in organic matter is the\_\_\_\_\_\_.
27. The single most effective agent of chemical weathering at the Earth's surface is\_\_\_\_\_\_.
28. What is the slowest type of mass wasting process?
29. A descending mass moving downslope as a viscous fluid is referred to as\_\_\_\_\_\_.
30. An apron of fallen rock fragments that accumulates at the base of a cliff is called\_\_\_\_\_\_.
31. Slopes that have been stable for many years sometimes fail catastrophically. What is a trigger for these failures?
32. Mass wasting processes are classified according to:
33. Mass wasting events may be triggered by\_\_\_\_\_\_.

**Streams**

1. The largest reservoir of freshwater that is available to humans is\_\_\_\_\_\_.
2. The single most important agent sculpturing Earth’s land surface is\_\_\_\_\_\_.
3. Lowering a stream’s base level will cause the stream to\_\_\_\_\_\_.
4. Along a stream meander, the maximum \velocity of water occurs \_\_\_\_\_\_.
5. Typical stream profiles exhibit a constantly \_\_\_\_\_\_\_\_ gradient from the head to the mouth.
6. The flat portion of a valley floor adjacent to a stream channel is called a \_\_\_\_\_\_.
7. Base level is\_\_\_\_\_\_.
8. Ice sheets and glaciers represent approximately \_\_\_\_\_\_\_\_\_ percent of the total volume of freshwater.
9. The function of artificial levees built along a river is to control \_\_\_\_\_\_.
10. Plants release water into the atmosphere through process called\_\_\_\_\_\_.
11. During periods when rain does not fall, rivers are sustained by \_\_\_\_\_\_,
12. The compaction of loose sediments and rocks as groundwater is removed from pore spaces is called \_\_\_\_\_\_\_.
13. The area above the water table where soil is not saturated is called the zone of \_\_\_\_\_\_\_.
14. Most streams carry the largest part of their load \_\_\_\_\_\_\_.
15. Intermittent movement of sand and gravel resembling skips and jumps is characteristic of \_\_\_\_\_\_\_.
16. When a river cuts through to follow a shorter, straighter channel it leaves an abandoned bend called a/an \_\_\_\_\_\_\_.
17. As a river overflows its banks during flood, it drops much of its coarser-grained load immediately, forming landforms called \_\_\_\_\_\_\_.
18. A river flows into a quiet lake and begins to form a \_\_\_\_\_\_\_.
19. The volume of water flowing past a point in a given time is called the \_\_\_\_\_\_\_\_\_\_.
20. In urban areas, floods often become more frequent because\_\_\_\_\_\_\_.
21. Base level is\_\_\_\_\_\_\_.
22. Point bars are deposited \_\_\_\_\_\_\_.
23. If a dam is built, sediment will \_\_\_\_\_\_\_\_ on the upstream side of the dam and sediment will \_\_\_\_\_\_\_\_ on the downstream side of the dam.
24. A delta is made up of sediments \_\_\_\_\_\_\_.
25. The shape of the longitudinal profile of all streams is \_\_\_\_\_\_\_.
26. An engineering flood control “solution” that consists of straightening, deepening, widening, clearing, or lining existing stream channels is called \_\_\_\_\_\_\_.
27. How does urbanization (paving, etc.) affect runoff and infiltration in a small, previously forested, drainage basin?
28. \_\_\_\_\_\_\_\_ describes the total sediment load transported by a stream
29. \_\_\_\_\_\_\_\_ are characteristics of downcutting streams and a youthful stage of valley evolution.
30. A stream begins at an elevation of 200 meters and flows a distance of 400 kilometers to the ocean? What is the average gradient?
31. Which of the following features characterize wide streams and valleys?
32. Silt is normally transported in river flows\_\_\_\_\_\_\_.
33. In the United States, the standard unit of discharge used by the United States Geological Survey

**Groundwater**

1. Whenever the water table intersects the ground surface, a natural flow of water, called a(n) \_\_\_\_\_\_\_\_\_, results.
2. Permeable rock strata or sediment that can store and transmit groundwater freely are called\_\_\_\_\_\_\_.
3. The percentage of the total volume of rock or sediment that consists of voids or spaces is the \_\_\_\_\_\_\_.
4. The compaction of loose sediments and rocks as groundwater is removed from pore spaces is called\_\_\_\_\_\_\_.
5. Limestone dissolves easily in pure water.
6. Depositional features found in caverns form\_\_\_\_\_\_\_.
7. Karst topography can include a serious geologic hazard called a\_\_\_\_\_\_\_.
8. Depositional formations found on the floor of caverns extending upward are called\_\_\_\_\_\_\_.
9. \_\_\_\_\_\_\_ are intermittent hot springs and fountains in which columns of water are ejected with great force at various intervals.
10. Permeability is \_\_\_\_\_\_\_.
11. The boundary between the saturated zone and the unsaturated zone is called the\_\_\_\_\_\_
12. Which of the following materials has the lowest porosity?
13. In what type of rock do most caves form?
14. Which of the following can contaminate an aquifer?
15. \_\_\_\_\_\_\_\_ are specific features of karst topography.
16. Geysers and hot springs:
17. Caves and cavern systems are formed by:
18. Why does the water in artesian wells flow freely without being pumped?
19. Saltwater intrusion into groundwater occurs most often when\_\_\_\_\_\_\_.
20. Stalactites \_\_\_\_\_\_\_.
21. Groundwater contaminants \_\_\_\_\_\_\_.
22. Because sand grains are larger than mud grains, sand has greater porosity. A) True B) False
23. Which of the following could **NOT** be a potential groundwater contaminant?
24. Groundwater\_\_\_\_\_\_\_.
25. The unsaturated zone is \_\_\_\_\_\_\_.
26. Which rock would most likely form an aquifer?
27. Why wouldn't the rocks above make a good aquifer?
28. Gaining streams are those where water \_\_\_\_\_\_\_.
29. Which rock type below is likely to possess the highest permeability?
30. Which of the following determines how quickly groundwater flows?
31. The decline in the level of the water table around a pumping well is known as
32. The water table in a swamp\_\_\_\_\_\_\_.
33. Excessive pumping of well water can\_\_\_\_\_\_\_.
34. Sinkholes and solution collapse features commonly form in any of the following rock types except\_\_\_\_\_\_\_.
35. Which of the following has the highest porosity?
36. The primary force which is responsible for the downward migration of groundwater is\_\_\_\_\_\_\_.
37. Which one of the following logically explains why parts of some cavern systems are aerated?

**Plate Tectonics**

1. Which of the following is not considered a mechanism for plate motion?
2. Based on the latest technology, the relative plate motions show North America is moving away from Europe at a rate of approximately
3. Most of Earth's seismic activity, volcanism, and mountain building occur along
4. Open Hint for Question 4 in a new window.
5. Paleomagnetism of rocks that exhibit a pattern or orientation different than the modern-day magnetic field is labeled
6. The Aleutian, Mariana, and Tonga Islands are examples of
7. The deep-layer model of convection is an attractive and a reasonable hypothesis because the model
8. The seafloor spreading hypothesis is supported by
9. Which of the following is not evidence Wegener presented in the early 1900s?
10. In North America, the Cascade Range is part of a continental volcanic arc associated with the subduction of oceanic lithosphere.
11. The type of plate boundary where plates move together, causing one of the slabs of lithosphere to be consumed into the mantle as it descends beneath an overriding plate, is called a \_\_\_\_\_\_\_\_\_\_\_\_ boundary.
12. The oldest and thickest seafloor sediments are
13. Current models for mantle convection indicate convection may occur
14. During subduction, when a slab sinks into the asthenosphere, the trailing plate follows along because of
15. Ridge push is most important
16. The East African Rift Valley is an example of continental rifting.
17. The existence of coal beds in Antarctica indicates that the continent once had \_\_\_\_.
18. \_\_\_\_ is a fossil fern that helped support Wegener’s hypothesis of continental drift
19. The youngest part of the ocean floor is found \_\_\_\_.
20. At an oceanic-oceanic convergent boundary, \_\_\_\_.
21. Many early mapmakers thought Earth’s continents had moved based on
22. Continental drift was not widely accepted when it was first proposed because
23. Compared to ocean crust near deep-sea trenches, crust near ocean ridges is
24. The driving forces of tectonic plates are related to convection currents in Earth’s \_\_\_\_.
25. A vast, underwater mountain chain is called a(n) \_\_\_\_\_\_\_\_\_.
26. A narrow, elongated depression in the seafloor is called a(n) \_\_\_\_\_\_\_\_\_.
27. Which of the following was the biggest problem with Wegener's Theory of Continental Drift?
28. What evidence found on Africa and South America supports the hypothesis of continental drift?
29. The asthenosphere is a fluid-like solid, also term\_\_\_\_\_\_\_\_.

**Volcanism**

1. Which of the following does not affect the viscosity of magma?
2. Unusually large volcanic summit depressions that exceed one kilometer in diameter are known as\_\_\_\_\_\_\_\_.
3. Volcanic eruptions can affect climate because\_\_\_\_\_\_\_\_.
4. Subduction of oceanic lithosphere produces \_\_\_\_\_\_\_\_ magma.
5. Mantle plumes are associated with\_\_\_\_\_\_\_\_.
6. The most common type of volcano in the "Ring of Fire" is\_\_\_\_\_\_\_\_.
7. Magma extruded at high temperatures tends to be\_\_\_\_\_\_\_\_.
8. Magma with a high silica content tends to be\_\_\_\_\_\_\_\_.
9. Granitic (a.k.a Felsic, Silaic or Ryolitic) magma is typically generated at\_\_\_\_\_\_\_\_.
10. Magma with a large amount of dissolved gases tends to be\_\_\_\_\_\_\_\_.
11. A type of mudflow associated with violent eruptions is know as a(n). \_\_\_\_\_\_\_\_.
12. Which of these is NOT a common gas in magma?
13. A typical example of a shield volcano is\_\_\_\_\_\_\_\_.
14. Crater Lake in Oregon is an example of\_\_\_\_\_\_\_\_
15. \_\_\_\_\_\_\_\_magma is the most abundant type of erupted at oceanic divergent plate boundaries.
16. The Columbia Plateau in the northwestern United States is an excellent example of\_\_\_\_\_\_\_\_.
17. The 1991 Pinatubo eruption in the Philippines caused brilliantly colored sunrises and sunsets to be seen for the next few years. What caused this phenomenon?
18. Locations of supervolcanoes.