***Volcanoes Study Guide***

**CIRCLE THE CORRECT ANSWER FOR EACH QUESTION. WRITE THE PAGE NUMBER FOR THE PAGE YOU FOUND THE CORRECT ANSWER ON THE LINE BESIDE THE QUESTION.**

\_\_\_\_ 1. Which of the following would you expect to see during a nonexplosive eruption?

|  |  |
| --- | --- |
| a. | hot debris, ash, and gas shooting into the air |
| b. | molten rock blowing into the air |
| c. | calm lava flows |
| d. | violent explosions |

\_\_\_\_ 2. Pillow lava

|  |  |
| --- | --- |
| a. | forms a brittle crust that would be painful to walk on. |
| b. | has a glassy surface with rounded wrinkles. |
| c. | usually oozes from a volcano. |
| d. | forms when lava erupts under water. |

\_\_\_\_ 3. Large blobs of magma that harden in the air are called

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| --- | --- | --- | --- |
| a. | volcanic ash. | c. | volcanic blocks. |
| b. | volcanic bombs. | d. | lapilli. |

\_\_\_\_ 4. Which of the following would you expect after an explosive eruption?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | warmer temperatures | c. | calm lava flows |
| b. | darkened skies | d. | clear skies |

\_\_\_\_ 5. A shield volcano

|  |  |  |  |
| --- | --- | --- | --- |
| a. | is sometimes called a stratovolcano. | c. | has gently sloping sides. |
| b. | has a jagged surface. | d. | forms when lava erupts underwater. |

\_\_\_\_ 6. A cinder cone volcano

|  |  |
| --- | --- |
| a. | has gently sloping sides. |
| b. | is formed by explosive and nonexplosive eruptions. |
| c. | erodes over thousands of years. |
| d. | has steep slopes. |

\_\_\_\_ 7. A combination of explosive and nonexplosive eruptions will create a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | shield volcano. | c. | cinder cone volcano. |
| b. | composite volcano. | d. | plateau volcano. |

\_\_\_\_ 8. A large depression that forms when the magma chamber partially empties is a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | crater. | c. | caldera. |
| b. | rift. | d. | cinder cone. |

\_\_\_\_ 9. Which of the following best describes subduction?

|  |  |
| --- | --- |
| a. | movement of tectonic plates away from each other |
| b. | movement of one tectonic plate against another |
| c. | movement of one tectonic plate under another |
| d. | side-by-side movement of two tectonic plates |

\_\_\_\_ 10. A dormant volcano

|  |  |  |  |
| --- | --- | --- | --- |
| a. | is currently explosive. | c. | usually erupts once each year. |
| b. | might erupt again. | d. | has never erupted. |

\_\_\_\_ 11. An extinct volcano

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| --- | --- |
| a. | will probably erupt in the near future. |
| b. | will probably erupt in the distant future. |
| c. | will probably never erupt again. |
| d. | has probably never erupted. |

\_\_\_\_ 12. An active volcano

|  |  |
| --- | --- |
| a. | has never erupted. |
| b. | will blow smoke but never erupt. |
| c. | is currently erupting or will erupt very soon. |
| d. | will erupt in 100 years. |

\_\_\_\_ 13. The landforms that we call volcanoes are created by

|  |  |
| --- | --- |
| a. | tectonic plates colliding. |
| b. | cracks in the Earth’s crust. |
| c. | repeated eruptions of lava. |
| d. | collections of ash and other pyroclastic materials. |

\_\_\_\_ 14. Where are volcanoes most likely to form?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | near the center of continents | c. | along plate boundaries |
| b. | along bodies of water | d. | in mountainous areas |

\_\_\_\_ 15. Which of these would you expect to see during a nonexplosive eruption?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | giant fountains of lava and rock | c. | a mountainside caving in |
| b. | clouds of ash darkening the sky | d. | huge lava flows |

\_\_\_\_ 16. Molten rock deep underground often gathers in a

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| --- | --- | --- | --- |
| a. | vent. | c. | landslide. |
| b. | magma chamber. | d. | caldera. |

\_\_\_\_ 17. Lava that is very runny probably

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| --- | --- | --- | --- |
| a. | has a low silica content. | c. | has been cooled below the surface. |
| b. | is hotter than most lava. | d. | comes from explosive volcanoes. |

\_\_\_\_ 18. If the water content of magma is high,

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| --- | --- | --- | --- |
| a. | a nonexplosive eruption is most likely. | c. | an explosive eruption is more likely. |
| b. | probably no eruption will occur. | d. | then the temperature at its center is low. |

\_\_\_\_ 19. When you talk about the viscosity of lava, you are talking about

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| --- | --- | --- | --- |
| a. | the lava’s temperature. | c. | how the lava looks. |
| b. | how the lava flows. | d. | the lava’s weight. |

\_\_\_\_ 20. Which type of pyroclastic material gets its name from a word that means “little stones”?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | blocky lava | c. | pahoehoe lava |
| b. | volcanic bombs | d. | lapilli |

\_\_\_\_ 21. The pyroclastic material that can reach the upper atmosphere and circle the Earth for years is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | pahoehoe lava. | c. | lapilli. |
| b. | aa lava. | d. | volcanic ash. |

\_\_\_\_ 22. Pyroclastic material forms when

|  |  |
| --- | --- |
| a. | lava flows calmly from a crack in the Earth’s crust. |
| b. | magma remains underground too long. |
| c. | magma explodes into the air and hardens. |
| d. | lava flows underwater. |

\_\_\_\_ 23. Which of these describes a possible climate change caused by a volcanic eruption?

|  |  |
| --- | --- |
| a. | Temperatures rise because of the heat coming from lava. |
| b. | Scorched land creates drought conditions. |
| c. | Ash blocks sunlight, causing temperatures to drop. |
| d. | Volcanic eruptions rarely affect climate. |

\_\_\_\_ 24. The three main types of volcanoes are

|  |  |  |  |
| --- | --- | --- | --- |
| a. | shield, pahoehoe, and vented. | c. | cinder cone, lapilli, and caldera. |
| b. | cinder, cone, and composite. | d. | shield, composite, and cinder cone. |

\_\_\_\_ 25. The depression created when the roof of a magma chamber collapses is called a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | caldera. | c. | lava plateau. |
| b. | crater. | d. | lapilli. |

\_\_\_\_ 26. Most active volcanoes form

|  |  |
| --- | --- |
| a. | far from bodies of water. |
| b. | where tectonic plates collide. |
| c. | where tectonic plates separate. |
| d. | where tectonic plates move back and forth. |

\_\_\_\_ 27. When an oceanic plate collides with a continental plate, the oceanic plate is usually subducted because

|  |  |
| --- | --- |
| a. | continental plates move more quickly than oceanic plates. |
| b. | oceanic crust is denser and thinner than continental crust. |
| c. | oceanic crust is denser and thicker than continental crust. |
| d. | continental crust is denser and thinner than oceanic crust. |

\_\_\_\_ 28. The volcanoes of Hawaii and other places far from tectonic plate boundaries are known as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | calderas. | c. | hot spots. |
| b. | mid-ocean ridges. | d. | viscous volcanoes. |

\_\_\_\_ 29. Which category of volcano is most likely to erupt in the near future?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | an active volcano | c. | a dormant volcano |
| b. | an extinct volcano | d. | a viscous volcano |

\_\_\_\_ 30. A tiltmeter is an instrument that measures

|  |  |  |  |
| --- | --- | --- | --- |
| a. | gas ratios in a volcano. | c. | the intensity of earthquakes. |
| b. | changes in a volcano’s slope. | d. | the temperature inside a volcano. |

\_\_\_\_ 31. Volcanoes are most likely to form

|  |  |  |  |
| --- | --- | --- | --- |
| a. | near the center of continents. | c. | along plate boundaries. |
| b. | in deep canyons. | d. | in mountainous areas. |

\_\_\_\_ 32. Volcanic activity is common along the Mid-Atlantic Ridge. This activity occurs at a

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| --- | --- | --- | --- |
| a. | mantle plume. | c. | divergent boundary. |
| b. | subducted plane. | d. | break in the continental crust. |

\_\_\_\_ 33. How are volcanoes created?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | by tectonic plates colliding | c. | by many eruptions of lava |
| b. | by cracks in the Earth’s crust | d. | by collections of ash and rock |

\_\_\_\_ 34. Which of these would you expect to see during a nonexplosive eruption?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | giant fountains of lava and rock | c. | a mountainside caving in |
| b. | clouds of ash darkening the sky | d. | huge lava flows |

\_\_\_\_ 35. What is most likely to happen if the water content of magma is high?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | A nonexplosive eruption will occur. | c. | An explosive eruption is likely. |
| b. | No eruption will occur. | d. | Pressure will decrease. |

\_\_\_\_ 36. What is pyroclastic material?

|  |  |
| --- | --- |
| a. | magma that blasts into the air and hardens |
| b. | magma that remains underground too long |
| c. | molten rock |
| d. | lava that flows underwater |

\_\_\_\_ 37. What is a rift?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a closed vent | c. | an instrument that predicts eruptions |
| b. | a crack in the Earth’s crust | d. | a hot spot |

\_\_\_\_ 38. Which kind of volcano will probably never erupt again?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | an active volcano | c. | a dormant volcano |
| b. | an extinct volcano | d. | a chamber volcano |

\_\_\_\_ 39. Which kind of volcanic eruption is most destructive?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | atmospheric | c. | pahoehoe |
| b. | explosive | d. | nonexplosive |

\_\_\_\_ 40. Mount Rainier and Mount St. Helens are

|  |  |  |  |
| --- | --- | --- | --- |
| a. | shield volcanoes. | c. | composite volcanoes. |
| b. | cinder cone volcanoes. | d. | calderas. |

\_\_\_\_ 41. Mauna Kea is a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | crater. | c. | cinder cone volcano. |
| b. | shield volcano. | d. | composite volcano. |

\_\_\_\_ 42. Magma forms in deep in the Earth’s crust and in the mantle where

|  |  |
| --- | --- |
| a. | temperature and pressure are low. |
| b. | temperature is high and pressure is low. |
| c. | temperature and pressure are high. |
| d. | temperature is low and pressure is high. |

\_\_\_\_ 43. When infrared images show that an area is getting hotter, what is probably happening there?

|  |  |
| --- | --- |
| a. | Magma is probably sinking deeper into the Earth’s crust. |
| b. | Magma is rising in an active volcano. |
| c. | Lava inside a caldera is being warmed by the sun. |
| d. | Pyroclastic material is filling a magma chamber. |

**Short Answer**

\_\_\_\_\_ 45. How are silica and water related to a volcano’s explosiveness?

\_\_\_\_\_ 46. What makes a pyroclastic flow particularly dangerous?

\_\_\_\_\_ 47. What causes new crust to form at mid-ocean ridges?

\_\_\_\_\_ 48. Why would studying a volcano’s slope help predict an eruption?

\_\_\_\_\_ 49. Describe the lava flow from a nonexplosive eruption.

\_\_\_\_\_ 50. Describe an explosive eruption.

\_\_\_\_\_ 51. Describe the shapes of shield, cinder cone, and composite volcanoes.

\_\_\_\_\_ 52. What causes a caldera?

\_\_\_\_\_ 53. Define a rift zone.

\_\_\_\_\_ 54. Describe the difference between lava and pyroclastic material.

\_\_\_\_\_ 55. What is the difference between divergent and convergent boundaries?

**Earthquakes Study Guide**

**Answer Section**

**MULTIPLE CHOICE**

1. ANS: C DIF: 1 REF: 1 OBJ: 1

2. ANS: D DIF: 1 REF: 1 OBJ: 4

3. ANS: B DIF: 1 REF: 1 OBJ: 3

4. ANS: B DIF: 1 REF: 2 OBJ: 1

5. ANS: C DIF: 1 REF: 2 OBJ: 2

6. ANS: D DIF: 1 REF: 2 OBJ: 2

7. ANS: B DIF: 1 REF: 2 OBJ: 2

8. ANS: C DIF: 1 REF: 2 OBJ: 3

9. ANS: C DIF: 1 REF: 3 OBJ: 2

10. ANS: B DIF: 1 REF: 3 OBJ: 3

11. ANS: C DIF: 1 REF: 3 OBJ: 3

12. ANS: C DIF: 1 REF: 3 OBJ: 3

13. ANS: C DIF: 1 REF: 1 OBJ: 1

14. ANS: C DIF: 1 REF: 3 OBJ: 2

15. ANS: D DIF: 1 REF: 1 OBJ: 1

16. ANS: B DIF: 1 REF: 1 OBJ: 2

17. ANS: A DIF: 1 REF: 1 OBJ: 4

18. ANS: C DIF: 1 REF: 1 OBJ: 3

19. ANS: B DIF: 1 REF: 1 OBJ: 4

20. ANS: D DIF: 1 REF: 1 OBJ: 4

21. ANS: D DIF: 1 REF: 1 OBJ: 4

22. ANS: C DIF: 1 REF: 1 OBJ: 4

23. ANS: C DIF: 1 REF: 2 OBJ: 1

24. ANS: D DIF: 1 REF: 2 OBJ: 2

25. ANS: A DIF: 1 REF: 2 OBJ: 3

26. ANS: B DIF: 1 REF: 3 OBJ: 2

27. ANS: B DIF: 1 REF: 3 OBJ: 2

28. ANS: C DIF: 1 REF: 3 OBJ: 2

29. ANS: A DIF: 1 REF: 3 OBJ: 3

30. ANS: B DIF: 1 REF: 3 OBJ: 3

31. ANS: C DIF: 1 REF: 3 OBJ: 2

32. ANS: C DIF: 1 REF: 3 OBJ: 2

33. ANS: C DIF: 1 REF: 1 OBJ: 1

34. ANS: D DIF: 1 REF: 1 OBJ: 1

35. ANS: C DIF: 1 REF: 1 OBJ: 3

36. ANS: A DIF: 1 REF: 1 OBJ: 4

37. ANS: B DIF: 1 REF: 2 OBJ: 1

38. ANS: A DIF: 1 REF: 3 OBJ: 3

39. ANS: B DIF: 1 REF: 1 OBJ: 1

40. ANS: C DIF: 1 REF: 2 OBJ: 2

41. ANS: B DIF: 1 REF: 2 OBJ: 2

42. ANS: C DIF: 1 REF: 3 OBJ: 1

43. ANS: B DIF: 1 REF: 3 OBJ: 3

**COMPLETION**

44. ANS: blocky lava

DIF: 1 REF: 1 OBJ: 1

**SHORT ANSWER**

45. ANS:

The amount of silica and water in magma determines a volcano’s explosiveness. A volcano is more likely to explosive if its magma contains high amounts of silica and water.

DIF: 2 REF: 1 OBJ: 1

46. ANS:

A pyroclastic flow is particularly dangerous because it moves so incredibly fast. A cloud of pyroclastic material can race downhill at speeds faster than 200#km/h. Without warning, it would be impossible to outrun.

DIF: 2 REF: 1 OBJ: 4

47. ANS:

At a divergent boundary, tectonic plates move away from each other. As tectonic plates separate, a set of deep cracks called a rift zone forms between the plates. Mantle rock then rises to fill in the gap. When mantle rock gets closer to the surface, the pressure decreases. The pressure decrease causes the mantle rock to melt and form magma. Because magma is less dense than the surrounding rock, it rises through the rifts. When the magma reaches the surface, it spills out and hardens, creating new crust.

DIF: 2 REF: 3 OBJ: 3

48. ANS:

As magma moves upward, it may cause the side of a volcano to bulge. By studying the slope, scientists would know when such a bulge occurred and be able to predict an eruption.

DIF: 2 REF: 3 OBJ: 3

49. ANS:

a calm stream of magma that flows out of a vent on Earth’s surface

DIF: 1 REF: 1 OBJ: 1

50. ANS:

Ash, hot debris, gases, and chunks of rock spew from a volcano.

DIF: 1 REF: 1 OBJ: 1

51. ANS:

shield volcano: broad area with gentle, shallow slopes; cinder cone volcano: generally smaller, steeper, more angled sides; composite volcano: high, covers less area than shield volcanoes, has sides that become steeper as they near the peak

DIF: 2 REF: 2 OBJ: 2

52. ANS:

A volcano’s magma chamber partially empties, which causes the ground above the magma chamber to collapse.

DIF: 2 REF: 2 OBJ: 3

53. ANS:

a series of deep cracks that form at a divergent boundary

DIF: 2 REF: 3 OBJ: 2

54. ANS:

Lava is liquid magma that flows from a volcano. Pyroclastic material is magma that has been blasted into the air and hardened.

DIF: 2 REF: 1 OBJ: 4

55. ANS:

At a divergent boundary, tectonic plates separate. At a convergent boundary, the plates come together or collide.

DIF: 2 REF: 3 OBJ: 2