

Key

Chapter 22 Review

Multiple Choice

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

- D 1. The study of Earth's composition, structure, and history is called
a. seismology. c. chemistry.
b. physics. d. geology.
- D 2. Forces that shape Earth's surface can be divided into
a. constructive and physical.
b. constructive and destructive.
c. chemical and destructive.
d. chemical and physical.
- D 3. The two layers that make up the lithosphere are the
a. upper mantle and lower mantle.
b. oceanic crust and continental crust.
c. inner core and outer core.
d. crust and upper mantle.
- B 4. The three main layers of Earth's interior are the
a. crust, core, and lithosphere.
b. crust, mantle, and core.
c. mantle, inner core, and outer core.
d. crust, mantle, and asthenosphere.
- C 5. A naturally occurring, inorganic solid with a crystal structure and a characteristic chemical composition is a
a. rock. c. mineral.
b. fossil. d. piece of granite.
- B 6. What is a mineral's hardness?
a. a type of fracture in which a mineral breaks along regular, well-defined planes
b. the resistance of a mineral to scratching
c. the color of a mineral's powder
d. a type of fracture in which a mineral breaks along a curved surface
- C 7. Rocks are classified as
a. sandstone, limestone, or granite.
b. organic, intrusive, or clastic.
c. igneous, metamorphic, or sedimentary.
d. sedimentary, intrusive, or metamorphic.
- A 8. Intense heat, intense pressure, or reactions with hot water can modify a pre-existing rock to form a(an)
a. metamorphic rock. c. igneous rock.
b. sedimentary rock. d. organic rock.
- B 9. A series of processes in which rocks are continuously changed from one type to another is called
a. a volcanic eruption. c. geology.
b. the rock cycle. d. melting.
- C 10. What changes are involved when mud from a lake bottom turns into a sedimentary rock and then into a metamorphic rock?
a. compaction and cementation, and then melting
b. heat and pressure, and then weathering
c. compaction and cementation, and then heat and pressure
d. melting, and then compaction and cementation

- B 11. The hypothesis that the continents move slowly over Earth's surface and once were joined into one supercontinent is called
- plate tectonics.
 - continental drift.
 - sea-floor spreading.
 - subduction.
- C 12. Why was Wegener's hypothesis of continental drift originally rejected by geologists?
- Wegener did not have any data to support his hypothesis.
 - The continents of South America and Africa do not fit well together.
 - Wegener could not explain how the continents could move through the ocean floor.
 - Wegener's data were incorrect.
- A 13. New ocean crust is formed along
- mid-ocean ridges.
 - subduction zones.
 - mountain belts.
 - trenches.
- C 14. A subducting oceanic plate
- is less dense than the plate it moves under.
 - is pushed up and over the continental crust.
 - sinks into the mantle, forming a trench.
 - moves horizontally in the opposite direction past the other plate.
- B 15. The heat that drives mantle convection comes from the gradual cooling of Earth's interior and
- the sun.
 - the decay of radioactive isotopes.
 - sea-floor spreading.
 - trenches.
- D 16. Plates slide past each other, and crust is neither created nor destroyed, at a
- convergent boundary.
 - divergent boundary.
 - mid-ocean ridge.
 - transform boundary.
- C 17. What is a break in a rock mass along which movement occurs?
- fold
 - earthquake
 - fault
 - epicenter
- B 18. Stress in Earth's crust is caused by
- folds.
 - plate movements.
 - earthquakes.
 - faults.
- B 19. What is the name of the location within Earth where an earthquake begins?
- fold
 - focus
 - epicenter
 - core
- A 20. P waves
- cause Earth to vibrate in the direction of the wave's motion.
 - cause Earth to vibrate at right angles to the direction the wave moves.
 - travel along Earth's surface.
 - move in a rolling motion similar to ocean waves.
- A 21. The amount of energy released by an earthquake is measured on the
- Richter scale.
 - moment magnitude scale.
 - modified Mercalli scale.
 - seismic scale.
- D 22. Geologists have inferred that Earth's outer core is liquid because
- P waves cannot pass through the outer core.
 - S waves speed up in the outer core.
 - S waves are bent downward as they travel through the outer core.
 - S waves cannot pass through the outer core.
- D 23. The area where magma collects inside a volcano before an eruption is called
- a crater.
 - a vent.

- C 24. What causes the magma inside a volcano to rise toward the surface?
 a. It is a thick liquid, denser than the surrounding rock.
 b. It does not contain dissolved gases.
 c. It is less dense than the surrounding rock.
 d. It is cooler than the surrounding rock.
- C 25. What determines whether a volcano erupts quietly or explosively?
 a. the size of the volcano
 b. the age of the volcano
 c. the characteristics of the magma
 d. the magnitude of nearby earthquakes
- A 26. Volcanoes that erupt quietly have what type of magma?
 a. very hot, low-silica magma
 b. high-silica magma
 c. hot, high-silica magma
 d. low temperature magma
- B 27. Composite volcanoes are produced by
 a. quiet eruptions of lava.
 b. explosive eruptions of lava and ash.
 c. explosive eruptions of ash and cinders.
 d. quiet eruptions that alternate with explosive eruptions.
- C 28. A steep-sided volcano formed entirely of ash and cinders is a
 a. shield volcano. c. cinder cone.
 b. composite volcano. d. hot spot.
- D 29. The largest type of intrusive igneous feature is a
 a. sill. c. volcanic neck.
 b. dike. d. batholith.
- A 30. A sequence of rock layers consists of horizontal layers of sandstone, granite, and limestone. What type of intrusive igneous feature does the granite layer represent?
 a. a sill c. a batholith
 b. a dike d. a volcanic neck

Completion

Complete each sentence or statement.

31. The study of the composition, structure, and history of Earth is called Geology.
32. The crust and upper mantle together form the Lithosphere.
33. The color of the powder a mineral leaves on an unglazed porcelain tile is called the mineral's Streak.
34. The process by which oceanic plates sink into the mantle through a trench is called Subduction.

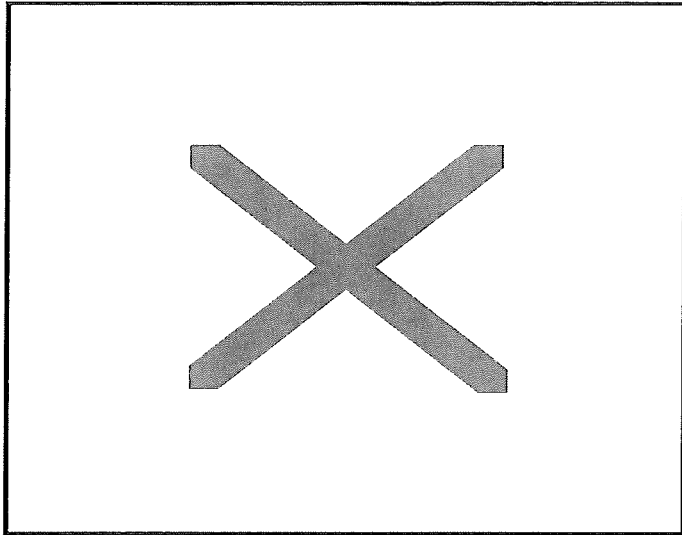


Figure 22-1

35. In Figure 22-1, the P wave will reach a seismograph located 20 kilometers from the earthquake epicenter in _____ seconds.
36. The type of sedimentary rock that forms when fragments of pre-existing rocks are cemented together is called a(an) clastic rock.
37. Magma with a(an) high viscosity results in explosive volcanic eruptions.
38. Subduction occurs at convergent plate boundaries.
39. The seismic waves that compress and expand the ground are called P waves.
40. The mineral pyrite has a metallic luster.

Short Answer

41. What theory explains how Earth's plates form and move? Tectonic plates
42. What three factors determine magma viscosity? water content, silica content, temp
43. How does an igneous dike form? ~~is~~ magma hardens in a fracture
44. What feature is formed when rocks bend under stress but do not break? a fold
45. What part of Earth's core is liquid? outer core
46. What is uniformitarianism? idea that geological processes today also were in the past
47. How do calderas form? empty magma chamber collapses
48. How is the streak of a mineral obtained? scrapping on a streak plate
49. What is the difference between how an intrusive rock and an extrusive rock forms? one cools inside the earth one cools on the surface.
50. Why did most geologists initially reject Alfred Wegener's hypothesis of continental drift?
no evidence