ES - Chapter 3 Study Guide

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Write the letter that best answers the question or completes the statement on the line provided.

____ 1. Which of the following is true about rocks?

a. Rocks are composed of only one mineral.
b. Rocks do not contain any mineral matter.
c. Coal is not considered a true rock.
d. Most rocks are a mixture of minerals.

____ 2. Which of the following is NOT one of the three types of rock?

a. igneous
b. sedimentary
c. magma
d. metamorphic

____ 3. Metamorphic rock forms as a result of

a. heat and pressure.
b. the cooling of magma.
c. compaction of sediments.
d. the melting of rock.

____ 4. All of the energy that drives Earth's rock cycle comes from

a. the wind.
b. Earth's interior and the sun.
c. the breakdown of organic matter.
d. the movement of water over Earth's surface.

____ 5. The rock cycle includes all of the steps EXCEPT which of the following?

a. Magma or lava cools.
b. Sediments melt deep beneath Earth's surface.
c. Extreme heat and pressure form metamorphic rocks.
d. Rocks at Earth's surface are broken down into smaller pieces.

____ 6. A rock that forms when magma hardens beneath Earth's surface is called an

a. intrusive metamorphic rock.
b. intrusive igneous rock.
c. extrusive sedimentary rock.
d. extrusive igneous rock.

____ 7. Which of the following is an example of an extrusive igneous rock?

a. rhyolite
b. granite
c. andesite
d. coal

____ 8. Lava that cools so quickly that ions do not have time to arrange themselves into crystals will form igneous rocks with a

a. porphyritic texture.
b. coarse-grained texture.
c. glassy texture.
d. fine-grained texture.

____ 9. A certain igneous rock contains about 25 percent dark silicate minerals. The remainder of the rock is mostly plagioclase feldspar. What type of composition does this igneous rock have?

a. granitic
b. basaltic
c. andesitic
d. ultramafic

____ 10. A conglomerate is a rock that forms as a result of

a. intense heat and pressure.
b. compaction and cementation.
c. rapid cooling.
d. slow cooling.

____ 11. Which of the following represents the correct order of the processes responsible for the formation of sedimentary rocks?

a. erosion, weathering, compaction, cementation, deposition
b. compaction, cementation, deposition, weathering, erosion
c. deposition, cementation, compaction, erosion, weathering
d. weathering, erosion, deposition, compaction, cementation

____ 12. Which of the following describes breccia?

a. a clastic sedimentary rock with angular particles
b. a clastic sedimentary rock with large, rounded particles
c. a chemical sedimentary rock
d. a biochemical sedimentary rock

____ 13. Limestone is an example of

a. a clastic sedimentary rock.
b. a conglomerate.
c. a biochemical sedimentary rock.
d. breccia.

____ 14. Fossils are found only in

a. intrusive igneous rocks.
b. extrusive igneous rocks.
c. sedimentary rocks.
d. metamorphic rocks.

____ 15. Sedimentary rocks with ripple marks suggest that the rocks formed

a. along a beach or stream bed.
b. when an ancient animal swam over them.
c. from shell fragments of ancient sea-dwelling animals.
d. when wet mud dried and shrank.

____ 16. Most metamorphic processes take place

a. several hundred kilometers below Earth's surface.
b. a few kilometers below Earth's surface.
c. just below Earth's surface.
d. on Earth's surface.

____ 17. What rock-forming process occurs when hot magma forces its way into rock?

a. regional metamorphism
b. biochemical sedimentation
c. contact metamorphism
d. deposition

____ 18. Which agent of metamorphism can cause the overall composition of the rock to change?

a. hydrothermal solutions
b. heat
c. pressure
d. time

____ 19. A foliated metamorphic rock forms when crystals

a. combine but do not form bands.
b. combine and form visible bands.
c. become less compact.
d. align themselves parallel to the direction of the forces acting on them.

____ 20. A metamorphic rock can be classified according to its

a. density and texture.
b. color and composition.
c. texture and composition.
d. density and color.

Completion
Complete each statement.

21. A(n) _____is a solid mass of mineral or minerallike matter that occurs naturally.

22. Rocks are generally classified as igneous, _____, or metamorphic.

23. Because of the processes that take place within the _____, rocks can change from one type to another.

24. _____rocks form when magma or lava hardens and cools.

25. The rock cycle is driven internally by _____from Earth's interior and externally by energy from the sun.

26. Intrusive igneous rocks form when _____hardens and cools.

27. Extrusive igneous rocks form when _____hardens and cools.

28. Slow cooling produces igneous rocks with large crystals and a(n) _____texture.

29. An igneous rock that contains mostly pyroxene and olivine has a(n) _____composition.

30. Granite is an example of a(n) _____igneous rock that forms deep beneath Earth's surface.

31. Igneous rocks such as obsidian have a(n) _____texture and are formed when lava cools so rapidly that ions are randomly distributed.

32. _____composition refers to rocks with many dark silicate minerals and plagioclase feldspar.

33. During the erosion and deposition processes, sediments that are _____in size will be carried and deposited the greatest distances.

34. Because of the way they form, limestone and chert are classified as _____sedimentary rocks.

35. Large-scale folding of rock during the process of mountain building is characteristic of a(n) _____metamorphism setting.

Short Answer

36. **Comparing and Contrasting** Discuss the differences and similarities between metamorphic and sedimentary rocks.

37. What are the three agents of metamorphism, and what kinds of changes does each one cause?

Use Figure 1 to answer the following two questions.

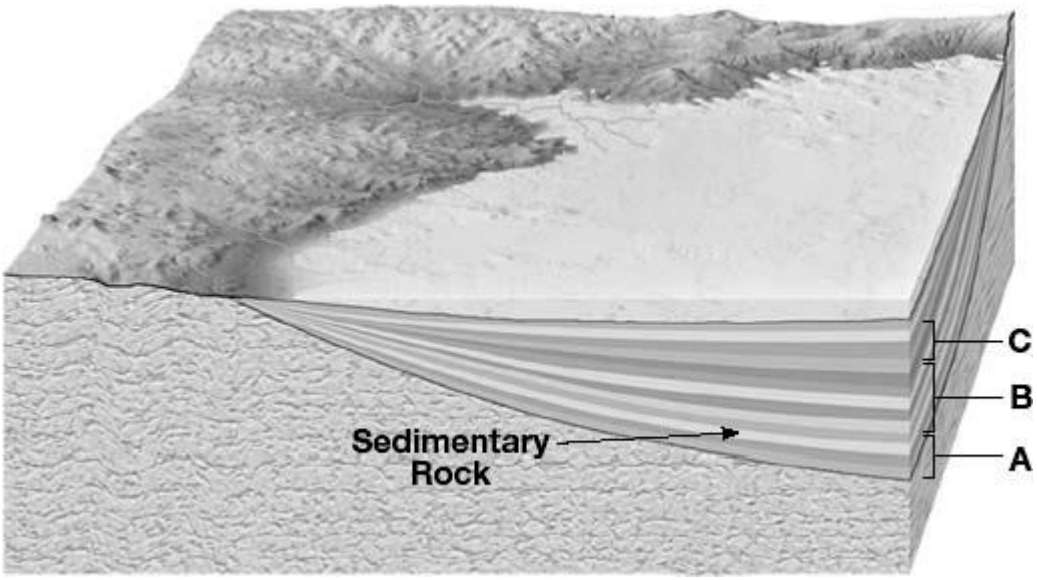

Figure 1

38. **Inferring** An area of sedimentary rock formations is shown. What can you infer about the fossils found in layer B in relation to fossils found in layer C?

39. **Inferring** What can you infer about the fossils found in layer B in relation to fossils found in layer A?

40. **Comparing and Contrasting** How do the metamorphic rocks marble and gneiss differ?

41. **Drawing Conclusions** At a temperature of 150°C to 200°C, clay recrystallizes to form the metamorphic rocks chlorite and muscovite, but silicates do not change at all. What can you conclude?

Essay

42. **Earth as a System** Explain the rock cycle by describing how an igneous rock can become a sedimentary rock, then a metamorphic rock, and then an igneous rock again.