Chapter 2 Study Guide/ Test Bank

(some of these questions were pulled directly from the test)

Rocks

Multiple Choice

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

\_\_\_\_ 1. A type of rock that forms deep within the Earth when magma solidifies is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | sedimentary. | c. | organic. |
| b. | metamorphic. | d. | igneous. |

\_\_\_\_ 2. A type of rock that forms under high temperature and pressure but is not exposed to enough heat to melt the rock is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | sedimentary. | c. | organic. |
| b. | metamorphic. | d. | igneous. |

\_\_\_\_ 3. After they are deposited, sediments, such as sand, are turned into sedimentary rock when they are compacted and

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cemented. | c. | melted. |
| b. | metamorphosed. | d. | weathered. |

\_\_\_\_ 4. An igneous rock with a coarse-grained texture forms when

|  |  |  |  |
| --- | --- | --- | --- |
| a. | magma cools very slowly. | c. | magma cools quickly, then slowly. |
| b. | magma cools very quickly. | d. | magma cools slowly, then quickly. |

\_\_\_\_ 5. The layering that occurs in sedimentary rock is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | foliation. | c. | stratification. |
| b. | ripple marks. | d. | compaction. |

\_\_\_\_ 6. An example of clastic sedimentary rock is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | obsidian. | c. | gneiss. |
| b. | sandstone. | d. | marble. |

\_\_\_\_ 7. An example of mafic igneous rock is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | granite. | c. | quartzite. |
| b. | basalt. | d. | pumice. |

\_\_\_\_ 8. Chemical sedimentary rock forms when

|  |  |
| --- | --- |
| a. | magma cools and solidifies. |
| b. | minerals are twisted into a new arrangement. |
| c. | minerals crystallize from a solution. |
| d. | sand grains are cemented together. |

\_\_\_\_ 9. Which of the following is a foliated metamorphic rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | sandstone | c. | shale |
| b. | gneiss | d. | basalt |

\_\_\_\_ 10. Which of these causes the breakdown of rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | weathering | c. | stratification |
| b. | cementing | d. | extrusion |

\_\_\_\_ 11. Metamorphic rock is most likely to form when

|  |  |
| --- | --- |
| a. | a volcano erupts explosively. |
| b. | limestone comes in contact with an igneous intrusion. |
| c. | erosion of weathered granite occurs very rapidly. |
| d. | silt particles are compacted and cemented. |

\_\_\_\_ 12. Which type of rock cooled very slowly?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | hard fossiliferous limestone | c. | loose sandstone |
| b. | coarse-grained granite | d. | fine-grained basalt |

\_\_\_\_ 13. The individual mineral grains in sandstone hold together because they have been

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cemented. | c. | chemically changed. |
| b. | melted. | d. | metamorphosed. |

\_\_\_\_ 14. Sedimentary rock is formed when grains of sediment undergo

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compaction and cementation. | c. | melting. |
| b. | metamorphism. | d. | solidification. |

\_\_\_\_ 15. Which of the following processes is NOT part of the rock cycle?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | metamorphism | c. | erosion |
| b. | solidification | d. | chiseling |

\_\_\_\_ 16. Which type of rock can weather and wear away to form sediment?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | igneous rock | c. | metamorphic rock |
| b. | sedimentary rock | d. | all of the above |

\_\_\_\_ 17. The weathering and wearing away of rock into sediment is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compaction. | c. | melting. |
| b. | metamorphism. | d. | erosion. |

\_\_\_\_ 18. Earth scientists classify the three main types of rock into smaller groups according to

|  |  |  |  |
| --- | --- | --- | --- |
| a. | composition and texture. | c. | color and luster. |
| b. | density and hardness. | d. | streak and cleavage. |

\_\_\_\_ 19. A piece of granite rock that you are studying is made of 30 percent quartz, 55 percent feldspar, and the rest biotite mica. What percentage of the rock is biotite mica?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 5 percent | c. | 25 percent |
| b. | 15 percent | d. | 85 percent |

\_\_\_\_ 20. The sizes, shapes, and positions of the grains of a rock determine the rock's

|  |  |  |  |
| --- | --- | --- | --- |
| a. | texture. | c. | cleavage. |
| b. | luster. | d. | streak. |

\_\_\_\_ 21. Fine-grained, medium-grained, and coarse-grained are descriptions of a rock's

|  |  |  |  |
| --- | --- | --- | --- |
| a. | composition. | c. | luster. |
| b. | texture. | d. | streak. |

\_\_\_\_ 22. When magma or lava cools down enough, it solidifies to form

|  |  |  |  |
| --- | --- | --- | --- |
| a. | sedimentary rock. | c. | igneous rock. |
| b. | metamorphic rock. | d. | all of the above |

\_\_\_\_ 23. Magma can form when

|  |  |  |  |
| --- | --- | --- | --- |
| a. | rock is heated. | c. | rock changes composition. |
| b. | pressure is released. | d. | all of the above |

\_\_\_\_ 24. Light-colored igneous rock that contain feldspar and silica generally has a \_\_\_\_ composition.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | felsic | c. | nonfoliated |
| b. | foliated | d. | mafic |

\_\_\_\_ 25. Dark-colored igneous rock that contains magnesium and iron generally has a \_\_\_\_ composition.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | felsic | c. | nonfoliated |
| b. | foliated | d. | mafic |

\_\_\_\_ 26. Granite is coarse-grained and generally contains light-colored minerals. It is an example of

|  |  |  |  |
| --- | --- | --- | --- |
| a. | felsic igneous rock. | c. | metamorphic rock. |
| b. | mafic igneous rock. | d. | sedimentary rock. |

\_\_\_\_ 27. Fast-cooling lava will most likely form \_\_\_\_ igneous rock.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | fine-grained | c. | nonfoliated |
| b. | foliated | d. | coarse-grained |

\_\_\_\_ 28. Most volcanic rock is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | nonfoliated. | c. | extrusive. |
| b. | intrusive. | d. | foliated. |

\_\_\_\_ 29. Which of the following is NOT an example of an extrusive igneous rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | granite | c. | obsidian |
| b. | pumice | d. | basalt |

\_\_\_\_ 30. Which type of rock forms on or near the Earth's surface without the influence of intense heat and pressure?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | igneous rock | c. | metamorphic rock |
| b. | sedimentary rock | d. | all of the above |

\_\_\_\_ 31. Millions of years of erosion by the Colorado River have revealed the sedimentary rock \_\_\_\_ in the walls of the Grand Canyon.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | dikes | c. | strata |
| b. | sills | d. | batholiths |

\_\_\_\_ 32. Which of the following is the correct order of steps in a sedimentary rock cycle?

|  |  |
| --- | --- |
| a. | weathering, erosion, deposition, compaction and cementation |
| b. | deposition, erosion, weathering, compaction and cementation |
| c. | compaction and cementation, deposition, erosion |
| d. | none of the above |

\_\_\_\_ 33. Which of the following is NOT an example of a clastic sedimentary rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | shale | c. | sandstone |
| b. | slate | d. | breccia |

\_\_\_\_ 33. Which of the following clastic sedimentary rocks is the most fine-grained?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | breccia | c. | siltstone |
| b. | sandstone | d. | shale |

\_\_\_\_ 34. Which of the following clastic sedimentary rocks are the most coarse-grained?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | conglomerate | c. | siltstone |
| b. | sandstone | d. | shale |

\_\_\_\_ 35. \_\_\_\_ is formed when calcium and carbonate become so concentrated in sea water that calcite crystallizes out.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Marble | c. | Fossiliferous limestone |
| b. | Chemical limestone | d. | Shale |

\_\_\_\_ 36. Chemical limestone forms

|  |  |  |  |
| --- | --- | --- | --- |
| a. | on the ocean floor. | c. | on lava plateaus. |
| b. | in a magma chamber. | d. | in fissures. |

\_\_\_\_ 37. As coral die, their skeletons accumulate on the ocean floor and are compacted and cemented into

|  |  |  |  |
| --- | --- | --- | --- |
| a. | chemical limestone. | c. | fossiliferous limestone. |
| b. | shale. | d. | marble. |

\_\_\_\_ 38. Fossils are the remains or traces of plants and animals that have been preserved in \_\_\_\_ rock.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | granite | c. | sedimentary |
| b. | igneous | d. | metamorphic |

\_\_\_\_ 39. Most fossils come from animals that lived

|  |  |  |  |
| --- | --- | --- | --- |
| a. | in the oceans. | c. | in tropical rain forests. |
| b. | on mountain tops. | d. | in deserts. |

\_\_\_\_ 40. The word *metamorphic* comes from *meta-* and *morphos-* meaning

|  |  |  |  |
| --- | --- | --- | --- |
| a. | "cooked rock." | c. | "cooled magma." |
| b. | "changed shape." | d. | "pressurized sediment." |

\_\_\_\_ 41. When rock undergoes metamorphism, the \_\_\_\_ of the rock changes.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | structure | c. | composition |
| b. | texture | d. | All of the above |

\_\_\_\_ 42. Which type of rock can change into metamorphic rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | igneous rock | c. | metamorphic rock |
| b. | sedimentary rock | d. | all of the above |

\_\_\_\_ 43. At depths greater than 16 km below the Earth's surface, the pressure can be more than 4,000 times the pressure of the atmosphere. This can cause

|  |  |  |  |
| --- | --- | --- | --- |
| a. | metamorphism. | c. | weathering. |
| b. | erosion. | d. | deposition. |

\_\_\_\_ 44. An example of a metamorphic rock is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | granite. | c. | fossiliferous limestone. |
| b. | garnet schist. | d. | basalt. |

\_\_\_\_ 45. Contact metamorphism occurs

|  |  |
| --- | --- |
| a. | near flowing water. |
| b. | underneath continental rock formations. |
| c. | next to magma below the Earth’s surface. |
| d. | at the Earth's crust. |

\_\_\_\_ 46. Regional metamorphism usually occurs due to

|  |  |
| --- | --- |
| a. | Contact with magma below the earth surface |
| b. | Build up of heat and pressure due to movement of the Earth’s crust |
| c. | Compaction and cementation of sediments |
| d. | Both (a) and (b) |

\_\_\_\_ 47. The \_\_\_\_ of metamorphic rock can be foliated or nonfoliated.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cleavage | c. | texture |
| b. | streak | d. | luster |

\_\_\_\_ 48. What type of rock is shale?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | fine-grained, mafic igneous | c. | clastic sedimentary |
| b. | fine-grained, foliated metamorphic | d. | nonfoliated metamorphic |

\_\_\_\_ 49. What type of rock is slate?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | intrusive igneous | c. | clastic sedimentary |
| b. | fine-grained, foliated metamorphic | d. | nonfoliated metamorphic |

\_\_\_\_ 50. Which of the following is used to classify metamorphic rock?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | clastic or chemical | c. | intrusive or extrusive |
| b. | foliated or nonfoliated | d. | felsic or mafic |

Completion

*Complete each sentence or statement.*

51. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ igneous rock is more likely to have coarse-grained texture than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ igneous rock. (Extrusive/intrusive or Intrusive/extrusive)

52. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metamorphic rock texture consists of parallel alignment of mineral grains. (Foliated or Nonfoliated)

53. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sedimentary rock forms when grains of sand become cemented together. (Clastic or Chemical)

54. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cools quickly on the Earth's surface. (Lava or Magma)

55. Strata are found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rock. (igneous or sedimentary)

56. Concrete is composed of rock particles bound together with cement. Thus, concrete is most like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rock. (sedimentary or metamorphic)

57. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a rock depends on the size of its crystals. (texture or composition)

58. Obsidian is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ igneous rock, which cools very rapidly on the Earth's surface. (intrusive or extrusive)

59. The cooling rate of magma affects the properties of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rock. (igneous or sedimentary)

60. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a solid mixture of crystals of one or more minerals.

61. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the process by which one rock type changes into another.

62. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the hot liquid that forms when rock partially or completely melts.

63. The minerals a rock is made of determine the rock's \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

64. When magma cools beneath the Earth's surface, the resulting rock is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ igneous rock.

65. Sometimes lava erupts from long cracks in the Earth's surface called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

66. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sedimentary rock forms when minerals crystallize out of a solution, such as sea water, to become rock.

67. If the temperature or pressure of a new environment is different from the one in which a rock is formed, the rock will undergo \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

68. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metamorphism occurs when coming into contact with magma below the Earth’s surface.

69. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metamorphism occurs when enormous pressure builds up in rock that is deeply buried under other rock formations, or when large pieces of the Earth's crust collide with each other.

70. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metamorphic rock does not appear to have any regular pattern.

Short Answer

71. List two ways rock is important to humans today.

72. What are the three major rock types, and how can they change from one type to another?

73. How is lava different from magma?

74. Explain the difference between texture and composition.

75. What two properties are used to classify igneous rock?

76. How does the cooling rate of lava or magma affect the texture of an igneous rock?

77. Describe the process by which clastic sedimentary rock forms.

78. What environmental factors cause rock to undergo metamorphism?

79. What is the difference between foliated and nonfoliated metamorphic rock?

100. Name four processes that change rock from one type to another.

101. Describe felsic and mafic rocks, and name two elements that occur in each type.

102. What's the difference between intrusive and extrusive rock?

103. How does chemical limestone form?

104. What is stratification, and why is it important to Earth scientists?

105. Explain what a regional metamorphic rock is.

106. What does the composition of a metamorphic rock tell you about the rock's origin and formation?

107. In no more than three sentences, explain the rock cycle.

108. How are sandstone and siltstone different from one another? How are they the same?

109. In one or two sentences, explain how the cooling rate of magma affects the texture of the igneous rock that forms.

110. On a separate sheet of paper, create a concept map using the following terms: *rocks, clastic, metamorphic, nonfoliated, igneous, intrusive, chemical, foliated, extrusive, organic, sedimentary.*

111. The sedimentary rock coquina is made up of pieces of seashells. Which of the three kinds of sedimentary rock could it be? Explain.

112. Suppose you are writing a book about another planet. In your book, you mention that the planet has no atmosphere or weather. Which type of rock will you not find on the planet? Explain.

113 Coal and limestone are two organic sedimentary rocks that are found around Pennsylvania. Explain how and where these types of rocks form. What can they tell us about the history of Pennsylvania?

114. Describe the basic differences between the formation of metamorphic and igneous rocks.

115. Why might sedimentary rock be more common than igneous rock and metamorphic rock on the Earth's surface?