

Name: _____

Teacher: Mr. Leigh-Manuell

1. Which common mineral fizzes when dilute hydrochloric acid (HCl) is placed on it?
 1. calcite
 2. feldspar
 3. quartz
 4. talc
2. Which of the following minerals has metallic luster, silver color, black streak, and contains iron?
 1. Graphite
 2. Galena
 3. Magnetite
 4. Pyrite
3. Which of the minerals listed below has non-metallic luster and can have the shape of little cubes?
 1. Pyrite
 2. Halite
 3. Galena
 4. Calcite
4. Which of the following minerals is the most resistant to being scratched?
 1. Hematite
 2. Calcite
 3. Orthoclase
 4. Garnet
5. Which of the following statements is *not* true about the mineral hematite?
 1. Hematite can appear metallic or earthy.
 2. Hematite has a composition that contains iron and sulfur.
 3. Hematite has a red-brown streak.
 4. Hematite is an ore of iron.
6. Base your answer to the question on the *Properties of Common Minerals* chart in the **Earth Science Reference Tables**. Which mineral leaves a green-black powder when rubbed against an unglazed porcelain plate?
 1. galena
 2. graphite
 3. hematite
 4. pyrite
7. Base your answer to the question on the *Properties of Common Minerals* chart in the **Earth Science Reference Tables**. Which mineral scratches dolomite and is scratched by olivine?
 1. galena
 2. quartz
 3. potassium feldspar
 4. muscovite mica
8. Base your answer to the question on the *Properties of Common Minerals* chart in the **Earth Science Reference Tables**. Which statement about the minerals plagioclase feldspar, gypsum, biotite mica, and talc can best be inferred from the chart?
 1. These minerals have the same chemical and physical properties.
 2. These minerals have different chemical properties, but they have similar physical properties.
 3. These minerals have different physical and chemical properties, but they have identical uses.
 4. The physical and chemical properties of these minerals determine how humans use them.
9. An unidentified mineral that is softer than calcite exhibits a metallic luster and cubic cleavage. This mineral most likely is
 1. galena
 2. pyrite
 3. halite
 4. pyroxene
10. Which mineral will scratch glass (hardness = 5.5), but not pyrite?
 1. gypsum
 2. fluorite
 3. orthoclase
 4. quartz
11. According to the reference diagram of the *Electromagnetic Spectrum*, which form of electromagnetic energy has the *longest* wavelength?
 1. radio waves
 2. infrared
 3. red light
 4. gamma rays
12. Which abbreviation indicates a warm air mass that contains large amounts of water vapor?
 1. cP
 2. cT
 3. mT
 4. mP
13. What is the approximate dewpoint temperature when the dry-bulb temperature is 24°C and the wet-bulb temperature is 18°C?
 1. 6°C
 2. 12°C
 3. 14°C
 4. 17°C

14. When the dry-bulb temperature is 22°C and the wet-bulb temperature is 13°C, the relative humidity is
1. 10%
 2. 33%
 3. 41%
 4. 59%
15. A barometric pressure of 1021.0 millibars is equal to how many inches of mercury?
1. 29.88
 2. 30.15
 3. 30.25
 4. 30.50
16. What is the dewpoint temperature when the dry-bulb temperature is 12°C and the wet-bulb temperature is 4°C?
1. -9°C
 2. 19°C
 3. 8°C
 4. 4°C
17. In Earth's interior, which zone has a temperature higher than its melting point?
1. crust
 2. stiffer mantle
 3. inner core
 4. outer core
18. Theories about the composition of Earth's core are supported by meteorites that are composed primarily of
1. oxygen and silicon
 2. aluminum and iron
 3. aluminum and oxygen
 4. iron and nickel
19. The actual temperature at the boundary between the stiffer mantle and the outer core is estimated to be approximately
1. 1.5 °C
 2. 250 °C
 3. 3000 °C
 4. 5000°C
20. At which depth below Earth's surface is the density most likely 9.5 grams per cubic centimeter?
1. 1,500 km
 2. 2,000 km
 3. 3,500 km
 4. 6,000 km
21. At a depth of 2,000 kilometers, the temperature of the stiffer mantle is inferred to be
1. 6,500°C
 2. 4,200°C
 3. 3,500°C
 4. 1,500°C
22. How far from an earthquake epicenter is a city where the difference between the *P*-wave and the *S*-wave arrival times is 6 minutes and 20 seconds?
1. 1.7×10^3 km
 2. 9.9×10^3 km
 3. 3.5×10^3 km
 4. 4.7×10^3 km
23. A seismograph records the arrival of a *P*-wave at 11:13 a.m. If the earthquake occurred 4,000 kilometers from the recording station, when did the earthquake occur?
1. 11:06a.m.
 2. 11:11 a.m.
 3. 11:13 a.m.
 4. 11:20 a.m.
24. A seismic station receives a *P*-wave at 12:07 a.m. and an *S*-wave at 12:12 a.m. The station's distance from the epicenter is approximately
1. 2,600 km
 2. 3,400 km
 3. 4,000 km
 4. 8,800 km
25. Geologists have subdivided geologic time into periods that are based on
1. carbon dating
 2. rock types
 3. fossil evidence
 4. landscape regions
26. Trilobite fossils from different time periods show small changes in appearance. These observations suggest that the changes may be the result of
1. evolutionary development
 2. a variety of geologic processes
 3. periods of destruction of the geologic record
 4. ripple marks found in sandy sediment
27. Near the end of which era did the dinosaurs become extinct?
1. Precambrian
 2. Paleozoic
 3. Mesozoic
 4. Cenozoic

28. Which era covers the shortest length of geologic time?
1. Cenozoic
 2. Mesozoic
 3. Paleozoic
 4. Precambrian
29. During which geologic time interval did the mammoth live?
1. Precambrian
 2. Paleozoic
 3. Mesozoic
 4. Cenozoic
30. Why are fossils rarely found in Precambrian rock layers?
1. Few Precambrian rock layers have been discovered.
 2. Nearly all fossils from this era have been destroyed by glaciers.
 3. Few rock layers were formed during the Precambrian Era
 4. Life that would produce fossils was not abundant during the Precambrian Era.
31. Which inference can be made about the fossil record?
1. Very few life forms have become extinct.
 2. Fossils were extremely rare for most of the geologic past.
 3. A great variety of plants and animals existed during the Precambrian Era
 4. Primitive humans have existed through most of the geologic past.
32. Which event occurred earliest in geologic history?
1. appearance of the earliest grasses
 2. appearance of the earliest birds
 3. the Grenville Orogeny
 4. the intrusion of the Palisades Sill
33. Bedrock of which four consecutive geologic periods is best preserved in New York State?
1. Cambrian, Ordovician, Silurian, Devonian
 2. Devonian, Carboniferous, Permian, Triassic
 3. Permian, Triassic, Jurassic, Cretaceous
 4. Jurassic, Cretaceous, Tertiary, Quaternary
34. The recrystallization of unmelted material under high temperature and pressure results in
1. metamorphic rock
 2. sedimentary rock
 3. igneous rock
 4. volcanic rock
35. A fine-grained igneous rock contains 11% plagioclase, 72% pyroxene, 15% olivine, and 2% amphibole. This rock would be classified as
1. granite
 2. rhyolite
 3. gabbro
 4. basalt
36. Rhyolite is an example of a
1. monomineralic igneous rock
 2. polymineralic igneous rock
 3. monomineralic sedimentary rock
 4. polymineralic sedimentary rock
37. The best evidence for determining the cooling rate of an igneous rock during its solidification is provided by
1. index fossils
 2. faults in the rock
 3. the crystal size of its minerals
 4. the disintegration of radioactive substances
38. Which rock most likely formed as a result of biologic processes?
1. granite
 2. basalt
 3. sandstone
 4. limestone
39. Large crystal grains in an igneous rock are an indication that the crystals formed
1. over a long period of time
 2. under low pressure
 3. near the surface of the Earth
 4. at a low temperature
40. According to the *Scheme for Sedimentary Rock Identification*, which sedimentary rock formed from the compaction of fragments of the skeletons and shells of sea organisms?
1. shale
 2. gypsum
 3. limestone
 4. conglomerate

41. When granite melts and then solidifies, it becomes
1. a sedimentary rock
 2. an igneous rock
 3. a metamorphic rock
 4. sediments
42. According to the graph of the *Relationship of the Particle Size to Water Velocity* in the reference information, what is the minimum stream velocity needed to maintain transport of a pebble that is 1 centimeter in diameter?
1. 23 cm/sec
 2. 50 cm/sec
 3. 75 cm/sec
 4. 100 cm/sec
43. The Florida and Gulf Stream currents along the east coast of North America are both
1. warm currents that flow northeastward
 2. warm currents that flow southwestward
 3. cool currents that flow northeastward
 4. cool currents that flow southwestward
44. Most of the Gulf Stream Ocean Current is
1. warm water that flows southwestward
 2. warm water that flows northeastward
 3. cool water that flows southwestward
 4. cool water that flows northeastward
45. What is the approximate location of the Canary Islands Hot Spot?
1. 32° S 18° W
 2. 32° S 18° E
 3. 32° N 18° W
 4. 32° N 18° E
46. What is the direction of crustal movement of the Indian-Australian plate?
1. northward
 2. southward
 3. northwestward
 4. southeastward
47. Which sequence shows the order in which landscape regions are crossed as an airplane flies in a straight course from Albany, New York, to Massena, New York?
1. plateau → plain → mountain
 2. plateau → mountain → plain
 3. plain → mountain → plain
 4. mountain → plain → plateau
48. New York State's Catskills are classified as which type of landscape region?
1. mountain
 2. plateau
 3. lowland
 4. plain
49. At which latitude and longitude in New York State would a salt mine in Silurian-age bedrock most likely be located?
1. 41° N 72° W
 2. 43° N 77° W
 3. 44° N 74° W
 4. 44° N 76° W
50. Which New York State river flows generally southward?
1. St. Lawrence River
 2. Niagara River
 3. Genesee River
 4. Hudson River
51. At which New York State location will an observer most likely measure the altitude of *Polaris* as approximately 42°?
1. Jamestown
 2. Plattsburgh
 3. Oswego
 4. New York City
52. The approximate latitude of Utica, New York, is
1. 43°05' N
 2. 43°05' S
 3. 75°15' E
 4. 75°15' W
53. Which two New York State landscape regions are formed mostly of surface bedrock that is approximately the same geologic age?
1. Manhattan Prong and Atlantic Coastal Plain
 2. Erie-Ontario Lowlands and Adirondack Mountains
 3. Adirondack Mountains and Allegheny Plateau
 4. Tug Hill Plateau and St. Lawrence Lowlands
54. Large garnet mineral crystals are found in the metamorphic surface bedrock in which New York State landscape region?
1. Catskills
 2. Adirondacks
 3. Erie-Ontario Lowlands
 4. Tug Hill Plateau

55. Buffalo, New York, and Plattsburgh, New York, are both located in landscape regions called
1. mountains
 2. highlands
 3. plateaus
 4. lowlands
56. Which radioactive element has a half-life of 4.5 billion years?
1. carbon-14
 2. rubidium-87
 3. uranium-238
 4. potassium-40
57. The half-life of carbon-14 is 5,700 years. After 11,400 years how much carbon-14 would remain?
1. 75%
 2. 50%
 3. 33.3 %
 4. 25%
58. Which process requires the addition of energy to water?
1. freezing of water
 2. cooling of water
 3. vaporization of water
 4. condensation of water
59. Pieces of lead, copper, iron, and granite, each having a mass of 1 kilogram and a temperature of 100°C, were removed from a container of boiling water and allowed to cool under identical conditions. Which piece most likely cooled to room temperature first?
1. copper
 2. lead
 3. iron
 4. granite
60. The two elements that make up the largest percentage by mass of Earth's crust are oxygen and
1. silicon
 2. potassium
 3. hydrogen
 4. nitrogen
61. Oxygen is the most abundant element by volume in Earth's
1. inner core
 2. troposphere
 3. hydrosphere
 4. crust
62. An ancient bone was analyzed and found to contain carbon-14 that had decayed for nearly two half-lives. Approximately how old is the bone?
1. 1,400 years
 2. 2,800 years
 3. 5,600 years
 4. 11,000 years
63. An unconformity between two sedimentary layers is most likely produced by
1. the deposition of gravel followed by the deposition of sand and silt
 2. continuous sedimentation in a deep basin over a long period of time
 3. uplift followed by extensive erosion, submergence, and deposition
 4. a period of extrusive vulcanism followed by another period of extrusive vulcanism
64. Which life-form appeared first?
1. trilobite
 2. human
 3. coelophysis
 4. mastodont
65. Uranium-238 that crystallized at the same time Earth formed has undergone approximately how many half-lives of radioactive decay?
1. one half-life
 2. two half-lives
 3. three half-lives
 4. four half-lives
66. In which type of climate does chemical weathering usually occur most rapidly?
1. hot and dry
 2. hot and wet
 3. cold and dry
 4. cold and wet
67. Which activity demonstrates chemical weathering?
1. freezing of water in the cracks of a sandstone sidewalk
 2. abrasion of a streambed by tumbling rocks
 3. grinding of talc into a powder
 4. dissolving of limestone by acid rain
68. As a particle of sediment in the soil breaks into several smaller pieces, the rate of weathering of the sediment will
1. decrease due to a decrease in surface area
 2. decrease due to an increase in surface area
 3. increase due to a decrease in surface area
 4. increase due to an increase in surface area

69. Which change in the climate of a location would most likely cause the greatest increase in chemical weathering of local bedrock?
1. lower temperature in winter
 2. lower humidity in winter
 3. higher atmospheric pressure in summer
 4. greater precipitation in summer
70. On earth, the predominate agent of erosion is
1. wave action
 2. moving ice
 3. running water
 4. moving air
71. Which statement best describes the properties of basalt?
1. fine-grained and mafic
 2. fine-grained and felsic
 3. coarse-grained and mafic
 4. coarse-grained and felsic
72. Which minerals are found in the igneous rocks gabbro and basalt?
1. olivine and quartz
 2. olivine and pyroxene
 3. pyroxine and orthoclase
 4. orthoclase and quartz
73. If a metamorphic rock bubbles when a drop of acid is placed on its surface, the rock is most likely
1. schist
 2. slate
 3. marble
 4. quartzite
74. What is the name of the largest sediment that can be transported by a stream moving at a velocity of 100 centimeters per second (cm/s)?
1. silt
 2. sand
 3. pebbles
 4. cobbles
75. The Genesee River flows across both the Allegheny Plateau and the Erie-Ontario Lowlands in New York State. This river flows
1. northward, in the same general direction as the Hudson River
 2. northward, in the same general direction as the Niagara River
 3. southward, in the same general direction as the Hudson River
 4. southward, in the same general direction as the Niagara River
76. Earth's interior at a depth of 3500 kilometers is believed to be
1. liquid at a temperature of approximately 4900°C
 2. solid at a temperature of approximately 4900°C
 3. liquid at a temperature of approximately 5400°C
 4. solid at a temperature of approximately 5400°C
77. During which geologic period did plants and animals first appear in land environments?
1. Cambrian
 2. Ordovician
 3. Silurian
 4. Devonian
78. Most of the oceanic oxygen that began to enter Earth's atmosphere in the early Proterozoic Era was probably produced by
1. formation of silicate rocks
 2. photosynthesis by cyanobacteria
 3. impact events on Earth's surface
 4. outgassing from volcanoes
79. Which natural event periodically weakens western surface ocean currents in the equatorial Pacific Ocean, resulting in a change in air temperature and precipitation patterns in the United States?
1. El Niño
 2. transpiration
 3. ocean tides
 4. volcanic eruptions
80. Most clouds form in the atmosphere when moist air
1. rises, expands, and cools to the dewpoint
 2. rises, expands, and warms to the dewpoint
 3. sinks, compresses, and cools to the dewpoint
 4. sinks, compresses, and warms to the dewpoint
81. What is the relative humidity of the air when the dry-bulb temperature is 4°C and the dewpoint is -4°C?
1. 42%
 2. 46%
 3. 51%
 4. 56%

82. In which temperature zone of Earth's atmosphere is the polar jet stream located?
1. lower thermosphere
 2. lower mesosphere
 3. upper stratosphere
 4. upper troposphere
83. Which process of the water cycle occurs when water absorbs 2260 Joules of heat energy per gram?
1. melting of ice
 2. condensation of water vapor
 3. evaporation of water
 4. freezing of water
84. Planets that are closest to the Sun are identified as
1. low-density Jovian
 2. low-density terrestrial
 3. high-density Jovian
 4. high-density terrestrial
85. The universe is approximately 13.8 billion years old. Compared to the age of the solar system, the age of the universe is approximately
1. the same age as the solar system
 2. two times older than the solar system
 3. three times older than the solar system
 4. four times older than the solar system
86. The deflection of Earth's planetary winds is an example of
1. the Coriolis effect
 2. the Doppler effect
 3. convection
 4. gravitational pull
87. Which agent of erosion causes the sandblasting of bedrock?
1. glaciers
 2. wind
 3. running water
 4. wave action
88. Which characteristics identify mountain landscape regions?
1. steep slopes with deformed bedrock
 2. steep slopes with horizontal bedrock
 3. gentle slopes with deformed bedrock
 4. gentle slopes with horizontal bedrock
89. The Hawaiian Islands were formed as a result of
1. lava flowing over Earth's surface where two tectonic plates move apart
 2. an oceanic plate moving over a mantle hot spot
 3. two oceanic plates colliding to form an island arc
 4. tectonic plates sliding past each other
90. Compared to the average density and composition of oceanic crust, continental crust is
1. less dense and more felsic
 2. less dense and more mafic
 3. more dense and more felsic
 4. more dense and more mafic
91. In which portion of the electromagnetic spectrum is the maximum intensity of Earth's outgoing radiation?
1. visible light
 2. gamma rays
 3. infrared
 4. ultraviolet
92. Mount Kilimanjaro is located in eastern Africa at 3° S. Which climate factor best explains the presence of permanent snow on its peak?
1. latitude
 2. elevation
 3. prevailing winds
 4. ocean currents

93. Which type of air mass would most likely form over the Pacific Ocean north of the Aleutian Trench?
1. mP
 2. mT
 3. cP
 4. cT
94. Which New York State location is most often affected by lake-effect snow storms caused by winds blowing over Lake Ontario?
1. Jamestown
 2. Plattsburgh
 3. Oswego
 4. Riverhead
95. Urbanization affects the amount of vegetation and runoff in an area by
1. decreasing vegetation and decreasing runoff
 2. decreasing vegetation and increasing runoff
 3. increasing vegetation and decreasing runoff
 4. increasing vegetation and increasing runoff
96. Which sphere of Earth covers approximately 70% of Earth's surface?
1. atmosphere
 2. lithosphere
 3. hydrosphere
 4. asthenosphere
97. The best evidence of Earth's rotation is provided by the
1. Foucault pendulum and global warming
 2. Foucault pendulum and Coriolis effect
 3. Moon phases and global warming
 4. Moon phases and Coriolis effect
98. The red shift of light from distant galaxies provides evidence that these galaxies are
1. decreasing in size
 2. increasing in size
 3. decreasing in distance from Earth
 4. increasing in distance from Earth
99. Radioactive dating of fossils and rocks is possible because radioactive isotopes
1. are found in all fossils and rocks
 2. are easily collected and measured
 3. disintegrate into organic substances
 4. disintegrate at a predictable rate
100. What is the approximate percentage of geologic time that humans have existed on Earth since its origin?
1. less than 1%
 2. 1.8%
 3. 11.8%
 4. more than 25%