

Name: _____

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1. The Andes Mountains and the Peru-Chile Trench must have formed when the Nazca Plate:

1. Slid past the Sandwich Plate
2. Collided with the South American Plate
3. Moved toward the Pacific Plate
4. Collided with the Eurasian Plate

2. The Yellowstone Hot Spot is located on the following plate:

1. Pacific
2. Eurasian
3. Nazca
4. North American

3. This type of a boundary can be located at around 40°N latitude and 0° longitude:

1. Convergent plate
2. Divergent plate
3. Transform plate
4. Complex and uncertain

4. The closest hot spot to the equator is the:

1. Galapagos hot spot
2. St. Helena hot spot
3. Hawaii hot spot
4. Iceland hot spot

5. Which star has a lower temperature than our sun, but is more luminous

1. Aldebaran
2. Bardnard's Star
3. Sirius
4. Rigel

6. A blue supergiant star would most likely have a temperature of

1. 25,000 K
2. 10,000 K
3. 7,000 K
4. 25,000 °C

7. Which mineral is mined for its iron content?

1. hematite
2. fluorite
3. galena
4. talc

8. Which rock is composed of the mineral halite that formed when seawater evaporated?

1. limestone
2. dolostone
3. rock gypsum
4. rock salt

9. Most of the hurricanes that affect the east coast of the United States originally form over the

1. warm waters of the Atlantic Ocean in summer
2. warm land of the southeastern United States in summer
3. cool waters of the Atlantic Ocean in spring
4. cool land of the southeastern United States in spring

10. A student using a sling psychrometer measured a wet-bulb temperature of 10°C and a dry-bulb temperature of 16°C. What was the dewpoint?

1. -10°C
2. 45°C
3. 6°C
4. 4°C

11. Compared to the terrestrial planets, the Jovian planets are

1. larger and less dense
2. smaller and more dense
3. closer to the Sun and less rocky
4. farther from the Sun and more rocky

12. The natural sandblasting (abrasion) of surface bedrock in a desert region is the result of

1. wind erosion
2. wave erosion
3. mass movement
4. chemical precipitation

13. In which atmospheric temperature zone does most precipitation occur?

1. thermosphere
2. mesosphere
3. stratosphere
4. troposphere

14. Fourteen billion years represents the approximate age of

1. Earth
2. Earth's Moon
3. our solar system
4. the universe

15. Much of the evidence for the evolution of life forms on Earth has been obtained by

1. studying the life spans of present-day animals
2. radioactive dating of metamorphic rock
3. correlating widespread igneous ash deposits
4. examining fossils preserved in the rock record

16. Near which two latitudes are most of Earth's dry climate regions found?

1. 0° and 60° N
2. 0° and 30° S
3. 30° N and 60° N
4. 30° N and 30° S

17. Which current has a cooling effect on the climate of the west coast of South America?

1. Falkland Current
2. Peru Current
3. Benguela Current
4. Brazil Current

18. The best evidence of Earth's rotation is provided by the
1. shape of Earth's orbit
 2. shape of the Milky Way galaxy
 3. changes in the total yearly duration of insolation at a location on Earth
 4. apparent changes in the direction of swing of a Foucault pendulum
19. Which color of visible light has the *shortest* wavelength?
1. violet
 2. green
 3. yellow
 4. red
20. Which evidence best supports the theory that the universe was created by an explosion called the Big Bang?
1. impact craters found on Earth
 2. cosmic background radiation
 3. the different compositions of terrestrial and Jovian planets
 4. the blue shift of light from distant galaxies
21. Which agent of erosion is most likely responsible for the deposition of sandbars along ocean shorelines?
1. glaciers
 2. mass movement
 3. wave action
 4. wind action
22. Compared to the oceanic crust, the continental crust is usually
1. thicker, with a less dense granitic composition
 2. thicker, with a more dense basaltic composition
 3. thinner, with a less dense granitic composition
 4. thinner, with a more dense basaltic composition
23. In the Northern Hemisphere, surface winds around the center of a hurricane move
1. clockwise and inward
 2. clockwise and outward
 3. counterclockwise and inward
 4. counterclockwise and outward
24. A fossil formed 11,400 years ago. Which percentage of the original amount of carbon-14 remains in the fossil?
1. 100%
 2. 50%
 3. 25%
 4. 12.5%
25. Volcanic ash deposits found in the geologic record are most useful in correlating the age of rock layers if the volcanic ash was distributed over a
1. large area during a short period of time
 2. large area during a long period of time
 3. small area during a short period of time
 4. small area during a long period of time

26. Which statement best describes Earth's approximate rates of rotation and revolution?
1. Earth's rotation rate is 15° /hour and its revolution rate is 1° /day.
 2. Earth's rotation rate is 1° /hour and its revolution rate is 15° /day.
 3. Earth's rotation rate is 24° /hour and its revolution rate is 360° /day.
 4. Earth's rotation rate is 360° /hour and its revolution rate is 24° /day.
27. Which sequence of events affecting moist air within Earth's atmosphere causes cloud formation?
1. rising \rightarrow expanding \rightarrow cooling \rightarrow condensation
 2. rising \rightarrow contracting \rightarrow warming \rightarrow evaporation
 3. sinking \rightarrow expanding \rightarrow warming \rightarrow condensation
 4. sinking \rightarrow contracting \rightarrow cooling \rightarrow evaporation
28. Sediment is deposited as a river enters a lake because the
1. velocity of the river decreases
 2. force of gravity decreases
 3. volume of water increases
 4. slope of the river increases
29. During a rainstorm, when soil becomes saturated, the amount of infiltration
1. decreases and runoff decreases
 2. decreases and runoff increases
 3. increases and runoff decreases
 4. increases and runoff increases
30. A *P*-wave takes 5 minutes to travel from the epicenter of an earthquake to a seismic station. Approximately how many minutes will it take an *S*-wave to travel that same distance?
1. 15 min
 2. 12 min
 3. 9 min
 4. 4 min
31. An air mass entering Alaska from the northern Pacific Ocean would most likely be labeled on a weather map as
1. cP
 2. cT
 3. mP
 4. mT
32. Which motion causes the Coriolis effect on Earth?
1. revolution of Earth around the Sun
 2. revolution of the Moon around Earth
 3. rotation of Earth on its axis
 4. rotation of the Moon on its axis
33. A red shift in the light from very distant galaxies suggests that the universe is
1. fixed and stationary
 2. moving randomly
 3. contracting
 4. expanding

34. What is the approximate minimum stream velocity needed to keep a 6.4-cm-diameter particle in motion?
1. 10 cm/s 3. 100 cm/s
2. 50 cm/s 4. 200 cm/s
35. Which event occurred approximately 4.6 billion years ago?
1. evolution of the earliest fish
2. evolution of stromatolites
3. formation of the oldest known Earth rocks
4. formation of Earth and our solar system
36. The narrow, sandy, barrier islands in the ocean along the south coast of Long Island were deposited by
1. wind 3. glacial ice
2. streams 4. wave action
37. Pieces of bedrock material that are broken from a cliff and deposited by a landslide at the base of the cliff are best described as
1. rounded and sorted 3. angular and sorted
2. rounded and unsorted 4. angular and unsorted
38. Which rock weathers most rapidly when exposed to acid rain?
1. quartzite 3. basalt
2. granite 4. limestone
39. A landslide is an example of
1. river deposition 3. mass movement
2. glacial scouring 4. chemical weathering
40. A 65.5-million-year-old impact crater in Mexico provides evidence for the cause of the
1. breakup of Pangaea
2. evolution of the earliest corals
3. Alleghenian orogeny
4. extinction of ammonoids
41. Which two properties are most useful in distinguishing between galena and halite?
1. cleavage and color 3. hardness and streak
2. luster and color 4. streak and cleavage
42. During which Northern Hemisphere season is Earth closest to the Sun?
1. spring 3. autumn
2. summer 4. winter

43. A nonvesicular rock is made entirely of green 2-millimeter-diameter crystals that have a hardness of 6.5 and show fracture, but *not* cleavage. The rock is most likely
1. shale 3. dunite
2. phyllite 4. schist
44. Which texture best describes an igneous rock that formed deep underground?
1. glassy 3. fine grained
2. vesicular 4. coarse grained
45. A river's current carries sediments into the ocean. Which sediment size will most likely be deposited in deeper water farthest from the shore?
1. pebble 3. silt
2. sand 4. clay
46. Which geologic event occurred in New York State at the end of the Triassic Period?
1. domelike uplift of the Adirondack region
2. formation of the Catskill delta
3. retreat of the last continental ice
4. intrusion of the Palisades sill
47. To a nighttime observer on Earth, how many degrees do the stars appear to move around *Polaris* in 3 hours?
1. 60° 3. 3°
2. 45° 4. 15°
48. What caused the interior of Earth to separate into layers?
1. a decrease in the rate of rotation of Earth
2. the gravitational pull on materials of varying densities
3. variations in heating by the Sun due to Earth's tilt
4. collisions with meteors and comets
49. Which processes of the water cycle return water vapor directly to the atmosphere?
1. evaporation and transpiration
2. infiltration and capillarity
3. freezing and precipitation
4. water retention and runoff
50. The modern heliocentric model of planetary motion states that the planets travel around
1. the Sun in slightly elliptical orbits
2. the Sun in circular orbits
3. Earth in slightly elliptical orbits
4. Earth in circular orbits

51. A ship is at a location of 40° S 77° W. Which type of surface ocean current and tectonic plate boundary are located beneath this ship?
1. warm ocean current and a transform boundary
 2. warm ocean current and a convergent boundary
 3. cool ocean current and a transform boundary
 4. cool ocean current and a convergent boundary
52. The presence of coal in Antarctica indicates that
1. forests can grow on continental glaciers
 2. coal can form in cold climates
 3. Antarctica's climate was once warmer
 4. Antarctica currently has areas of tropical climate
53. Which sediment is most easily picked up and transported by the wind?
1. cobbles
 2. pebbles
 3. sand
 4. silt
54. Which radioactive element is used to determine the absolute age of late Pleistocene animal remains?
1. rubidium-87
 2. uranium-238
 3. potassium-40
 4. carbon-14
55. Which form of electromagnetic energy has the longest wavelength?
1. ultraviolet rays
 2. visible light
 3. gamma rays
 4. radio waves
56. Which factor has the greatest influence on the number of daylight hours that a particular Earth surface location receives?
1. longitude
 2. latitude
 3. diameter of Earth
 4. distance from the Sun
57. What is the dewpoint when the air temperature is 26°C and the relative humidity is 77%?
1. 3°C
 2. 20°C
 3. 22°C
 4. 23°C
58. Most rocks that form from fragmental rock particles are classified as
1. extrusive igneous
 2. intrusive igneous
 3. clastic sedimentary
 4. chemical sedimentary
59. On which day of the year does the Sun reach the greatest altitude at solar noon in New York City?
1. June 21
 2. July 21
 3. August 21
 4. September 21

60. The inferred temperature at the interface between the stiffer mantle and the asthenosphere is closest to
1. 1000°C
 2. 2500°C
 3. 4500°C
 4. 5000°C
61. Which rock is only formed by regional metamorphism?
1. slate
 2. hornfels
 3. dunite
 4. marble
62. Sediments found in glacial moraines are best described as
1. sorted and layered
 2. sorted and not layered
 3. unsorted and layered
 4. unsorted and not layered
63. Which weather variable is measured by a barometer?
1. dewpoint
 2. wind speed
 3. air pressure
 4. visibility
64. How many degrees does the Sun appear to move across the sky in four hours?
1. 60°
 2. 45°
 3. 15°
 4. 4°
65. If an observer on Earth views *Polaris* on the horizon, the observer is located at the
1. equator (0°)
 2. North Pole (90° N)
 3. Tropic of Cancer (23.5° N)
 4. Tropic of Capricorn (23.5° S)
66. Which two types of organisms both survived the mass extinction that occurred at the end of the Permian Period?
1. trilobites and nautiloids
 2. corals and vascular plants
 3. placoderm fish and graptolites
 4. gastropods and eurypterids
67. By which process do stars convert mass into great amounts of energy?
1. nuclear fusion
 2. heat transfer
 3. gravitational pull
 4. radioactive decay
68. Which two processes lead directly to the formation of both breccia and conglomerate?
1. melting and solidification
 2. heat and pressure
 3. compaction and cementation
 4. evaporation and precipitation

69. In New York State, the risk of sunburn is greatest between 11 a.m. and 3 p.m. on summer days because

1. the air temperature is hot
2. the angle of insolation is high
3. Earth's surface reflects most of the sunlight
4. the Sun is closest to Earth

70. Compared to an area of Earth's surface with gentle slopes, an area with steeper slopes most likely has

1. less infiltration and more runoff
2. less infiltration and less runoff
3. more infiltration and more runoff
4. more infiltration and less runoff

71. From Utica, New York, *Polaris* is observed at an altitude of approximately

1. 43°
2. 47°
3. 75°
4. 90°

72. The Mariana Trench was most likely created by the:

1. convergence of the Pacific and Philippine Plates
2. divergence of the Eurasian and Philippine Plates
3. sliding of the Pacific Plate past the North American Plate
4. movement of the Pacific Plate over the Hawaii Hot Spot

73. Which mineral is the major component of drywall?

1. talc
2. calcite
3. muscovite mica
4. selenite gypsum

74. U-shaped valleys and parallel grooves in bedrock are characteristics of erosion by:

1. mass movement
2. wave action
3. running water
4. glacial ice

75. The division of Earth's geologic history into units of time called eons, eras, periods, and epochs is based on:

1. absolute dating techniques
2. fossil evidence
3. climatic changes
4. seismic data

76. How many days are required for the Moon to go from one full-Moon phase to the next full-Moon phase when viewed from Earth?

1. 24
2. 27.3
3. 29.5
4. 365

77. Earth's inner core is inferred to be solid based on the analysis of:

1. seismic waves
2. crustal rocks
3. radioactive decay rates
4. magnetic pole reversals

78. Deposition within a meandering stream usually occurs on the inside of the curves because the

1. water velocity decreases
2. stream gradient increases
3. water is deeper
4. stream is narrower

79. On a cold winter day, the air temperature is 2°C and the wet-bulb temperature is -1°C. What is the relative humidity at this location?

1. 6%
2. 37%
3. 51%
4. 83%

80. One reason *Tetragraptus* is considered a good index fossil is that *Tetragraptus*

1. existed during a large part of the Paleozoic Era
2. has no living relatives found on Earth today
3. existed over a wide geographic area
4. has been found in New York State

81. Which event is an example of chemical weathering?

1. rocks falling off the face of a steep cliff
2. feldspar in granite being crushed into clay-sized particles
3. water freezing in cracks in a roadside outcrop
4. acid rain reacting with limestone bedrock

82. During which two geologic time periods did most of the surface bedrock of the Taconic Mountains form?

1. Cambrian and Ordovician
2. Silurian and Devonian
3. Pennsylvanian and Mississippian
4. Triassic and Jurassic

83. 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

84.

Scientists believe that a large asteroid struck Earth approximately 65 million years ago. It is often theorized that this event contributed to the

1. end of the last ice age
2. breaking up of the supercontinent Pangea
3. evolution of the first birds
4. extinction of the dinosaurs

85.

What happens to the density and temperature of rock within Earth's interior as depth increases?

1. density decreases and temperature decreases
2. density decreases and temperature increases
3. density increases and temperature increases
4. density increases and temperature decreases

86. A soil sample with a large amount of space between the particles will have a
1. low permeability rate
 2. low infiltration rate
 3. high porosity
 4. high capillarity
87. A whale bone that originally contained 200 grams of radioactive carbon-14 now contains 25 grams of carbon-14. How many carbon-14 half-lives have passed since this whale was alive?
1. 1
 2. 2
 3. 3
 4. 4
88. Which statement correctly compares seismic *P*-waves with seismic *S*-waves?
1. *P*-waves travel faster than *S*-waves and pass through Earth's liquid zones.
 2. *P*-waves travel faster than *S*-waves and do not pass through Earth's liquid zones.
 3. *P*-waves travel slower than *S*-waves and pass through Earth's liquid zones.
 4. *P*-waves travel slower than *S*-waves and do not pass through Earth's liquid zones.
89. Which weather instrument is used to measure wind speed?
1. anemometer
 2. wind vane
 3. psychrometer
 4. thermometer
90. Earth's surface winds generally blow from regions of higher
1. air temperature toward regions of lower air temperature
 2. air pressure toward regions of lower air pressure
 3. latitudes toward regions of lower latitudes
 4. elevations toward regions of lower elevations
91. The approximate latitude of Utica, New York, is
1. 43°05' N
 2. 43°05' S
 3. 75°15' E
 4. 75°15' W
92. In which Earth layer are most convection currents that cause seafloor spreading thought to be located?
1. crust
 2. asthenosphere
 3. outer core
 4. inner core
93. The mineral graphite is often used as
1. a lubricant
 2. an abrasive
 3. a source of iron
 4. a cementing material
94. Which weather variable can be determined by using a psychrometer?
1. barometric pressure
 2. cloud cover
 3. relative humidity
 4. wind speed
95. Which group of organisms is inferred to have existed for the *least* amount of time in geologic history?
1. trilobites
 2. dinosaurs
 3. eurypterids
 4. placoderm fish
96. According to fossil evidence, which sequence shows the order in which these four life-forms first appeared on Earth?
1. reptiles → amphibians → insects → fish
 2. insects → fish → reptiles → amphibians
 3. amphibians → reptiles → fish → insects
 4. fish → insects → amphibians → reptiles
97. 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
98. Which object is closest to Earth?
1. the Sun
 2. Venus
 3. the Moon
 4. Mars
99. During a rainfall, surface runoff will probably be greatest in an area that has a
1. steep slope and a clay-covered surface
 2. steep slope and a gravel-covered surface
 3. gentle slope and a grass-covered surface
 4. gentle slope and a tree-covered surface
100. The surface winds in a typical Northern Hemisphere high-pressure system are generally moving
1. counterclockwise away from the high-pressure center
 2. counterclockwise toward the high-pressure center
 3. clockwise away from the high-pressure center
 4. clockwise toward the high-pressure center