Student name:\_\_\_\_\_\_\_\_\_\_

**1)** Erosion is a result of Earth’s external heat engine, powered by (choose all that apply)

 A) the Sun
 B) gravity
 C) heat flowing from Earth’s interior outward

**2)** The Earth's system that includes the oceans, rivers, lakes, and glaciers of the world is called the \_\_\_\_\_\_\_.

 A) biosphere
 B) hydrosphere
 C) atmosphere
 D) geosphere
 E) solid Earth

**3)** The \_\_\_\_\_ and the Alpine Fault of New Zealand are examples of transform plate boundaries.

 A) New Madrid Fault of Arkansas
 B) Choctaw Fault of Oklahoma
 C) San Andreas Fault of California
 D) East African Rift
 E) Rio Grande Rift

**4)** A \_\_\_\_\_\_ is a huge ocean wave usually caused by a displacement of the sea floor and commonly associated with massive earthquakes.

 A) S-wave
 B) tidal wave
 C) tsunami
 D) seiche
 E) breaker

**5)** A \_\_\_ is a hot, turbulent mixture of expanding gases and volcanic ash that flows rapidly down the side of a volcano.

 A) pyroclastic cloud
 B) mud flow
 C) lava flow
 D) pyroclastic flow
 E) hyaloclastic flow

**6)** Eruptive activity at the summit of the Nevado del Ruiz volcano in Colombia in 1985 caused snow and ice to melt, generating a \_\_\_ that killed 23,000 people in the village of Armero.

 A) gas cloud
 B) mud flow
 C) lava flow
 D) pyroclastic flow
 E) hyaloclastic flow

**7)** To understand geology one must understand how the solid Earth interacts with water, air, and living organisms. For this reason, it is useful to think of Earth as being part of a \_\_\_\_.

 A) hydrosphere
 B) system
 C) trend
 D) group
 E) formation

**8)** Among other things, geologists are employed as \_\_.

 A) petroleum geologists
 B) environmental geologists
 C) marine geologists
 D) hydrogeologists
 E) All of the answers are correct.

**9)** Rock deep within the Earth is \_\_\_\_\_ and \_\_\_\_\_\_.

 A) hot; heat flows inward toward Earth's center.
 B) cool; heat flows in toward Earth's center
 C) hot; heat flows out toward Earth's surface
 D) the same temperature throughout the earth; heat flow is not an important consideration
 E) unknown; we can only guess about conditions there

**10)** Earth's external heat engine is driven by \_\_.

 A) solar energy
 B) residual cosmic radiation from the Big Bang
 C) the decay of radioactive isotopes
 D) tides
 E) meteor impacts

**11)** \_\_\_ refer(s) to the scientific study of Earth.

 A) Hydrology
 B) Geology
 C) Spheres

**12)** The Earth's interior heat engine works because hot buoyant material deep within the Earth \_\_\_\_\_\_\_ while cold denser material \_\_\_\_\_\_\_.

 A) moves upward; moves downward
 B) contracts and sinks; expands and rises
 C) contracts and rises; expands and sinks
 D) expand and sinks; contract and rises

**13)** The \_\_\_\_\_\_\_ is the most voluminous of the Earth's three major concentric zones.

 A) core
 B) mantle
 C) lithosphere
 D) asthenosphere
 E) crust

**14)** Listed from Earth's center outward, the three concentric zones of Earth are the \_\_.

 A) crust, mantle, core
 B) mantle, crust, core
 C) core, crust, mantle
 D) mantle, core, crust
 E) core, mantle, crust

**15)** A \_\_\_\_\_ is a scientific concept that has been tested and is in all likelihood true.

 A) concept
 B) hypothesis
 C) theory
 D) scenario
 E) belief

**16)** \_\_\_\_\_\_\_ are geological forces generated inside the Earth.

 A) Surficial forces
 B) Electrochemical forces
 C) Tectonic forces
 D) Inertial
 E) Celestial

**17)** Earthquakes, volcanic eruptions, landslides, floods, and tsunamis are all examples of:

 A) earth-altering processes.
 B) earth hazards.
 C) geologic resources.
 D) geospheric processes.
 E) geologic hazards

**18)** The \_\_\_\_\_\_\_ collectively make up the lithosphere.

 A) the crust and the whole mantle
 B) the crust and the uppermost part of the mantle
 C) the crust and asthenosphere
 D) the upper and lower mantle
 E) the asthenosphere and the upper mantle

**19)** The \_\_\_\_ is soft and therefore flows more readily than the underlying mantle.

 A) crust
 B) asthenosphere
 C) lithosphere
 D) core
 E) plate

**20)** A hypothesis that passes repeated tests ultimately becomes \_\_.

 A) a guess
 B) an observation of a phenomenon
 C) a first, tentative idea to explain a phenomenon
 D) a theory
 E) a proven law of nature

**21)** After data have been analyzed, tentative explanations or solutions called \_\_\_\_\_ may be proposed.

 A) a guess
 B) an observation of a phenomenon
 C) hypotheses
 D) a concept that has been tested reproducibly and is likely to be true
 E) a proven law of nature

**22)** Plate tectonics is a unifying idea that helps explain where and why there are \_\_\_ on Earth.

 A) earthquakes
 B) volcanoes
 C) mountain belts
 D) oceanic ridges and trenches
 E) All of the answers are correct.

**23)** The two major types of crust are oceanic crust and \_\_.

 A) continental crust
 B) lithosphere
 C) convergent crust
 D) thin crust

**24)** Earth can be visualized as a giant machine driven by which of the following engines?

 A) solar andinternal
 B) regional andlocal
 C) expanding andcondensing
 D) surficial andheat
 E) buried and exposed

**25)** The concept of plate tectonics regards the Earth's \_\_\_ as broken into a number of \_\_\_ that are in motion relative to each other.

 A) crust; plates
 B) mantle; plates
 C) asthenosphere; plates
 D) lithosphere; plates
 E) plates; lithosphere

**26)** A \_\_\_\_\_, by scientists’ definition, is something that has been overwhelmingly verified.

 A) hypothesis
 B) guess
 C) prediction
 D) theory

**27)** Plates are known to be moving away from each other \_\_.

 A) across mountain ranges like the Himalayan Mountains
 B) across subduction zones
 C) across mid-ocean ridges
 D) across the stable interior of continents
 E) along transform faults

**28)** A \_\_\_\_\_\_\_ boundary occurs where plates move towards one another.

 A) convergent
 B) concurrent
 C) rift
 D) abutting
 E) transform

**29)** The \_\_\_\_\_ of old seafloor takes place at convergent boundaries.

 A) destruction
 B) creation
 C) production
 D) erosion
 E) extinction

**30)** The North American plate is moving \_\_\_\_.

 A) north
 B) south
 C) west
 D) east
 E) nowhere, it's fixed

**31)** Where a subducting plate slides beneath the lithosphere, melting takes place and a(n) \_\_\_\_ is created.

 A) plate
 B) ocean trench
 C) seamount
 D) sedimentary rock
 E) coral reef

**32)** Rocks may be transformed by heat and pressure into \_\_\_\_\_\_\_ rock.

 A) soil
 B) igneous
 C) granite
 D) metamorphic
 E) All of the answers are correct.

**33)** The product of the breakdown of surface rocks by weathering and erosion is \_\_.

 A) lava
 B) magma
 C) sediment
 D) quartz
 E) ash

**34)** With the cementation of loose particles sediment becomes \_\_\_\_\_\_.

 A) molten
 B) metamorphic
 C) lithified
 D) igneous
 E) basalt

**35)** \_\_\_\_\_\_\_ takes place where moving water, ice, and wind loosen and remove material on the continents.

 A) Burial
 B) Metamorphism
 C) Melting
 D) Subsidence
 E) Erosion

**36)** Disintegration of rock at Earth's surface may be facilitated by water \_\_.

 A) flowing on the surface in streams and as runoff
 B) frozen in a glacier that is flowing over the surface
 C) moving through near-surface pores and fractures
 D) present as vapor in the atmosphere
 E) A and B are correct.

**37)** A(n) \_\_\_ may eventually be formed as layers of sediment are buried by subsequent layers of sediment.

 A) igneous rock
 B) metamorphic rock
 C) sedentary rock
 D) sedimentary rock
 E) foliated rock

**38)** The best geologic data currently available indicates that Earth is approximately \_\_\_ years old.

 A) 4,550
 B) 4,550,000
 C) 4,550,000,000
 D) 4,550,000,000,000
 E) 4,550,000,000,000,000

**39)** Which of the following lifeforms appeared first in the geologic record?

 A) dinosaurs
 B) mammals
 C) plants
 D) fishes
 E) reptiles

**40)** Fossil evidence indicates that complex life forms have existed in abundance on Earth since approximately \_\_\_ years ago.

 A) 5,410
 B) 541 thousand
 C) 541 million
 D) 5,410,000,000
 E) 541,000,000,000

**41)** Fossil evidence indicates that dinosaurs became extinct approximately \_\_\_ years ago.

 A) 66 thousand
 B) 660 thousand
 C) 6,600,000
 D) 66 million
 E) 660,000,000

**42)** What is the correct order of the geologic eras listed, from oldest to youngest?

 A) Cenozoic, Mesozoic, Paleozoic
 B) Mesozoic, Paleozoic, Cenozoic
 C) Paleozoic, Mesozoic, Cenozoic
 D) Cenozoic, Paleozoic, Mesozoic

**43)** Motion at a transform plate boundary is \_\_\_\_\_\_.

 A) horizontal
 B) vertical
 C) oblique

**44)** What type of plate boundary is associated with a rift?

 A) convergent
 B) divergent
 C) transform
 D) new
 E) old

**45)** What country experienced a 9.0 earthquake and associated tsunami off its coast in March 2011 yet faired relatively well from such a disaster because of their preparedness?

 A) Japan
 B) Peru
 C) United States
 D) New Zealand
 E) Haiti

**46)** A portion of the continental crust may move upward after a period of significant erosion to maintain balance through the process of \_\_\_\_\_\_.

 A) volcanism
 B) sedimentation
 C) metamorphism
 D) isostatic adjustment
 E) lithification

**47)** Rock that forms from solidified magma is \_\_\_\_\_\_ rock.

 A) igneous
 B) metamorphic
 C) sedimentary

**48)** Oceanic crust is created at \_\_\_\_\_\_ and destroyed at \_\_\_\_\_\_.

 A) subduction zones; oceanic ridges
 B) oceanic-ridges; subduction zones
 C) subduction zones; transform boundaries
 D) transform boundaries; subduction zones
 E) trenches; rifts

**49)** Which of the following layers of Earth is a liquid?

 A) crust
 B) mantle
 C) outer core
 D) inner core

**50)** Plate tectonics emerged as a science in the 1960s, and was based on the earlier hypothesis of \_\_\_\_\_\_.

 A) evolution
 B) planetesimals
 C) electromagnetism
 D) continental drift
 E) nebular formation

**51)** Plate tectonics is a result of Earth’s internal heat engine, powered by

 A) the Sun
 B) gravity
 C) heat flowing from Earth’s interior outward

**52)** A typical rate of plate motion is \_\_\_\_\_\_\_.

 A) 3–4 meters per year
 B) 1 kilometer per year
 C) 1–18 centimeters per year
 D) 1,000 kilometers per year

**53)** Volcanic island arcs like the islands of Japan are associated with

 A) transform boundaries
 B) divergent boundaries
 C) ocean-continent convergence
 D) ocean-ocean convergence

**54)** The division of geology concerned with Earth materials, changes in the surface and interior of the Earth, and the dynamic forces that cause those changes, is

 A) physical geology
 B) historical geology
 C) geophysics
 D) paleontology

**55)** Which is a geologic hazard?

 A) earthquake
 B) volcano
 C) mudflows
 D) floods
 E) wave erosion at coastlines
 F) landslides
 G) all of these choices are correct

**56)** The largest zone of Earth’s interior, by thickness, is the

 A) crust
 B) mantle
 C) outer core
 D) inner core

**57)** Oceanic and continental crust differ in

 A) composition
 B) density
 C) thickness
 D) all of these choices are correct

**58)** The forces generated inside Earth that cause deformation of rock as well as vertical and horizontal movement of portions of Earth’s crust are called

 A) erosional forces
 B) gravitational forces
 C) tectonic forces
 D) all of the preceding

**59)** Plate tectonics is a

 A) conjecture
 B) opinion
 C) hypothesis
 D) theory

**60)** Which is a type of a plate boundary?

 A) divergent
 B) transform
 C) convergent
 D) all of these choices are correct

**61)** Western economies rely on which of the following?

 A) petroleum
 B) metals
 C) coal
 D) uranium
 E) natural gas
 F) All of these choices are correct

**62)** An analogy of the materials of Earth’s interior is

 A) an egg (thin shell, white, yolk)
 B) a balloon (thin stretchable shell and air)
 C) bowling ball (rigid shell and air)
 D) baseball (soft shell and compressible core)

**63)** We depend on the Earth for the energy resources and raw materials we need for survival.

 ⊚ true
 ⊚ false

**64)** Most deaths associated with volcanic eruptions are due to burns of lava flows.

 ⊚ true
 ⊚ false

**65)** A tsunami has a small wave height, travels rapidly, and is not noticed by people in boats.

 ⊚ true
 ⊚ false

**66)** While the reserves of petroleum hydrocarbons within the United States are limited, other geologic resources (iron, aluminum, copper, and tin) are available in great abundance.

 ⊚ true
 ⊚ false

**67)** Geology uses the scientific method to explain natural aspects of the Earth.

 ⊚ true
 ⊚ false

**68)** Deeply buried rock that is hot and under pressure can deform like taffy or putty.

 ⊚ true
 ⊚ false

**69)** Ocean - ocean plate convergence formed major mountain belts such as the Andes and Cascades.

 ⊚ true
 ⊚ false

**70)** The mantle is the most voluminous of Earth's three major concentric zones.

 ⊚ true
 ⊚ false

**71)** Earth's lithosphere is made up of the crust and uppermost part of the mantle.

 ⊚ true
 ⊚ false

**72)** Understanding geology can help us lessen or prevent damage to the environment.

 ⊚ true
 ⊚ false

**73)** Most convergent plate boundaries coincide with the crests of submarine mountain ranges called mid-oceanic ridges.

 ⊚ true
 ⊚ false

**74)** Plate tectonics regards the lithosphere as divided into segments (plates) that are in horizontal motion.

 ⊚ true
 ⊚ false

**75)** A transform plate boundary occurs where two plates converge.

 ⊚ true
 ⊚ false

**76)** Convergent boundaries, due to their geometry, are the sites of the largest earthquakes on Earth.

 ⊚ true
 ⊚ false

**77)** After the opening of the North Slope in Alaska the U.S. stopped importing petroleum.

 ⊚ true
 ⊚ false

**78)** North America is all on one plate.

 ⊚ true
 ⊚ false

**79)** Rocks formed at high temperatures and under high pressure deep within the Earth and pushed upward by tectonic force are stable in their new environment.

 ⊚ true
 ⊚ false

**80)** Rocks brought to the earth's surface by internal processes are worn down, and eroded by surficial processes.

 ⊚ true
 ⊚ false

**81)** The Earth is about 4.6 billion years old.

 ⊚ true
 ⊚ false

**82)** The Earth can be considered as interrelated systems or spheres.

 ⊚ true
 ⊚ false

**Answer Key**Test name: chapter 1

1) [A, B]

2) B

3) C

4) C

5) D

6) B

7) B

8) E

9) C

10) A

11) B

12) A

13) B

14) E

15) C

16) C

17) E

18) B

19) B

20) D

21) C

22) E

23) A

24) A

25) D

26) D

27) C

28) A

29) A

30) C

31) B

32) D

33) C

34) C

35) E

36) E

37) D

38) C

39) D

40) C

41) D

42) C

43) A

44) B

45) A

46) D

47) A

48) B

49) C

50) D

51) C

52) C

53) D

54) A

55) G

56) B

57) D

58) C

59) D

60) D

61) F

62) A

63) TRUE

64) FALSE

65) TRUE

66) FALSE

67) TRUE

68) TRUE

69) FALSE

70) TRUE

71) TRUE

72) TRUE

73) FALSE

74) TRUE

75) FALSE

76) TRUE

77) FALSE

78) TRUE

79) FALSE

80) TRUE

81) TRUE

82) TRUE