1. Which two features are commonly found at divergent plate boundaries?

A) mid-ocean ridges and rift valleys  
B) wide valleys and deltas  
C) ocean trenches and subduction zones  
D) hot spots and island arcs

2. Which coastal area is most likely to experience a severe earthquake?

A) east coast of North America  
B) east coast of Australia  
C) west coast of Africa  
D) west coast of South America

3. The diagrams below show four major types of fault motion occurring in Earth’s crust. Which type of fault motion best matches the general pattern of crustal movement at California’s San Andreas fault?

A) Lateral Fault (shearing)  
B) Reverse Fault (compression)  
C) Normal Fault (tension)  
D) Thrust Fault

4. The edges of most lithospheric plates are characterized by

A) reversed magnetic orientation  
B) unusually rapid radioactive decay  
C) frequent volcanic activity  
D) low P-wave and high S-wave velocity
5. Which map best shows the direction of movement of the oceanic crustal plates in the vicinity of the East Pacific Rise (ridge)?

A) ![Map A](image)

B) ![Map B](image)

C) ![Map C](image)

D) ![Map D](image)
6. The crust at the mid-ocean ridges is composed mainly of
   A) granite       B) shale       C) basalt       D) limestone

7. Movement of the crustal plates shown in the diagram is most likely caused by
   A) the revolution of the Earth
   B) the erosion of the Earth's crust
   C) shifting of the Earth's magnetic poles
   D) convection currents in the Earth's mantle

8. Mid-ocean ridges such as the East Pacific Rise and the Oceanic Ridge are best described as
   A) mountains containing folded sedimentary rocks
   B) mountains containing fossils of present-day marine life
   C) sections of the ocean floor that contain the youngest oceanic crust
   D) sections of the ocean floor that are the remains of a submerged continent

9. The movement of tectonic plates is inferred by many scientists to be driven by
   A) tidal motions in the hydrosphere
   B) density differences in the troposphere
   C) convection currents in the asthenosphere
   D) solidification in the lithosphere

10. Letters A through D shown on the map below are locations on Earth's surface.

Which location is closest to a major zone of frequent earthquakes and volcanic activities?
   A) A       B) B       C) C       D) D

11. Base your answer to the following question on the diagram below which shows a coastal area with a mountain range and a portion of the ocean floor. A turbidity current through a submarine canyon has formed a fan-shaped sediment deposit on the ocean floor.

   In which region of the ocean is the submarine canyon located?
   A) tidal zone
   B) continental margin
   C) deep ocean basin
   D) mid-ocean ridge

12. Active volcanoes are most abundant along the
   A) edges of tectonic plates
   B) eastern coastline of continents
   C) 23.5° N and 23.5° S parallels of latitude
   D) equatorial ocean floor

13. The formation of the Canary Islands was primarily caused by their location near a
   A) subduction zone
   B) mantle hot spot
   C) divergent boundary
   D) transform fault
14. Which surface feature was produced by crustal movements at a transform plate boundary?
A) East African Rift
B) Aleutian Trench
C) Tasman Hot Spot
D) San Andreas Fault

15. Which of the following is located at a converging plate boundary?
A) Southwest Indian Ridge
B) Iceland Hotspot
C) Marianas Trench
D) Sandwich Plate

Base your answers to questions 16 through 18 on the diagram below which is a cross section of the major surface features of the Earth along the Tropic of Capricorn (23½° S) between 75° W and 15° E longitude. Letters A through G represent locations on the Earth's crust.

16. A mid-ocean ridge is located near position
A) A
B) E
C) C
D) D

17. Which diagram shows the most probable direction of movement of the crustal plates and the inferred mantle convection currents under position A?
A) 
B) 
C) 
D) 

18. What is the approximate width of the Atlantic Ocean at this location?
A) 1,200 km
B) 2,600 km
C) 3,500 km
D) 4,400 km
19. Hot springs on the ocean floor near the midocean ridges provide evidence that
   A) **convection currents exist in the asthenosphere**
   B) meteor craters are found beneath the oceans
   C) climate change has melted huge glaciers
   D) marine fossils have been uplifted to high elevations

20. The map below shows California and a section of the San Andreas Fault.

   ![Map of California and San Andreas Fault](image)

   What is the primary geologic process occurring along the San Andreas Fault?
   
   A) **transform movement**
   B) spreading movement
   C) subduction
   D) convergence
21. Base your answer to the following question on the map below. Letters A through F are locations on Earth’s surface.

Which location is closest to a divergent plate boundary at an oceanic ridge?

A) A  B) B  C) C  D) E

Base your answers to questions 22 and 23 on the block diagram below, which shows a tectonic plate boundary.

22. Which tectonic plate boundary is best represented by this diagram?

A) Nazca Plate and Pacific Plate boundary  
B) Scotia Plate and South American Plate boundary  
C) Juan de Fuca Plate and North American Plate boundary  
D) Antarctic Plate and Indian-Australian Plate boundary
23. Compared to the oceanic crust, the continental crust is
A) more dense and more mafic  B) more dense and more felsic
C) less dense and more mafic   D) less dense and more felsic

Base your answers to questions 24 and 25 on the map below. Dots on the map show the distribution of major earthquake epicenters. The shaded circle labeled A represents a location on Earth's surface.

24. Location A is best described as an area that is
A) within a rift valley at a mid-ocean ridge
B) at the boundary between two diverging plates
C) within a deep-sea trench between two converging plates
D) above a mantle hot spot near the center of a crustal plate

25. Which conclusion can best be inferred from the data shown on this map?
A) Earthquakes generally are evenly distributed over the surface of Earth.
B) Most earthquakes occur west of the Prime Meridian and north of the Equator.
C) Most earthquakes are concentrated in zones along plate boundaries.
D) Most earthquakes occur on continents.

26. Earth's internal heat is the primary source of energy that
A) warms the lower troposphere
B) melts glacial ice at lower altitudes
C) moves the lithospheric plates
D) pollutes deep groundwater with radioactivity

27. On which plate is the Hawaii Hot Spot located?
A) South American  B) Antarctic
C) Nazca           D) Pacific

28. Crustal disturbances such as earthquakes and volcanic eruptions are best described as
A) events that are cyclic and predictable
B) events that are usually related and cannot be predicted with accuracy
C) unrelated events that follow no pattern
D) phenomena seldom found in the same regions
29. Which cross section best represents the convection currents in the mantle beneath the Peru-Chile Trench?

A) in regions of glacial activity
B) in the interior areas of continents
C) at locations with many lakes
D) at interfaces between moving parts of the crust

30. Where does most present-day faulting of rock occur?

A) in regions of glacial activity
B) in the interior areas of continents
C) at locations with many lakes
D) at interfaces between moving parts of the crust

31. What type of plate boundary exists between the African Plate and the Antarctic Plate?

A) convergent  B) transform
C) divergent  D) complex
32. Base your answer to the following question on the map below, which shows the tectonic plate boundaries near the East African Rift. Arrows show relative tectonic plate movement. A region of Africa is crosshatched.

What appears to be happening to the crosshatched region of eastern Africa?

A) A folded mountain range is forming as this region collides with the rest of Africa.
B) Several volcanic mountains are forming as the rest of Africa subducts under this region.
C) **This region is moving eastward relative to the rest of Africa.**
D) This region is moving northward relative to the rest of Africa.
33. Which cross section has arrows that best represent the relative motion of the crustal plates along the Wadati-Benioff zone beneath the Tonga Trench?

A)  

B)  

C)  

D)  
34. The greatest number of earthquakes shown in the cross section occurred
   A) at sea level  B) between sea level and a depth of 100 km
   C) at a depth between 100 and 300 km  D) at a depth between 300 and 600 km

35. The Tonga Trench is located at the tectonic boundary between the Pacific Plate and the
   A) Antarctic Plate  B) Philippine Plate
   C) Indian-Australian Plate  D) Nazca Plate

36. According to the plate tectonics theory, the Peru-Chile Trench and the Andes Mountains formed
    along the west coast of South America because the South American Plate
   A) collided with the Nazca Plate
   B) collided with the North American Plate
   C) slid away from the Nazca Plate
   D) slid away from the North American Plate

37. The map below shows the northern section of the boundary between the Arabian Plate and the African Plate. Arrows show the relative direction of plate motion.

Which type of plate boundary is located at the Jordan Fault?
   A) divergent  B) subduction
   C) convergent  D) transform

38. The diagram below represents a cross section of the Earth's crust at a location where an oceanic plate is converging (colliding) with a continental plate. The arrows indicate the direction of plate motion. Letters W, X, Y, and Z represent locations on the Earth.

For an observer on the Earth's surface, the best evidence of this crustal plate collision would probably be provided by
   A) seafloor fossils at location W
   B) earthquakes and volcanic eruptions near location X
   C) flooding near location Y
   D) horizontal sedimentary layers at location Z

39. The country of Iceland would be closest to the
   A) They are centered at the poles.
   B) They are located in the same geographic areas.
   C) They are related to the formation of glaciers.
   D) They are restricted to the Southern Hemisphere.
Base your answers to questions 41 through 43 on the passage and diagram below and on your knowledge of Earth science. The passage describes geologic studies of the Moon. The diagram represents the Moon's surface and interior, showing the inferred depth of each layer below the Moon's surface.

Moon Studies

Scientific instruments left on the Moon's surface recorded 12,558 moonquakes in eight years. Most of these moonquakes originated between 700 km and 1200 km below the Moon's surface. Scientists infer that most moonquakes are caused by the gravitational forces between the Moon, Earth, and the Sun.

![Layers of the Moon](image)

(Not drawn to scale)

41. What is the inferred thickness of the Moon's mantle?

A) 60 km       B) 638 km       C) **1040 km**       D) 1738 km

42. Which planet has an average density most similar to the average density of the Moon?

A) Mercury       B) **Mars**       C) Jupiter       D) Neptune

43. The same type of evidence was used to find the inferred depths of both the Moon's interior layers and Earth's interior layers. What evidence was used to determine the inferred depth of the boundary between the Moon's mantle and core?

A) **seismic data recorded on the Moon's surface**
B) magnetic data measured on the Moon's surface
C) convection currents mapped in the Moon's mantle and core
D) temperatures measured in the Moon's mantle and core
44. Base your answer to the following question on the geologic cross sections below, which represent bedrock from different areas on Earth.

All the cross sections most likely represent areas of

A) crustal stability  B) mountain building  
C) seashore erosion  D) plateau development

45. Which event followed a massive volcanic eruption and led to the cooling of global temperatures?

A) thunderstorms that developed near the eruption  
B) the release of carbon dioxide and methane gases  
C) the outflow of magma over Earth's surface  D) the addition of ash particles into the atmosphere

46. Contact zones between tectonic plates may produce trenches. One of these trenches is located at the boundary between which plates?

A) Australian and Pacific  
B) South American and African  
C) Australian and Antarctic  
D) North American and Eurasian

47. Base your answer to the following question on the diagram below, which shows a portion of Earth’s interior. Point A is a location on the interface between layers.

The arrows shown in the asthenosphere represent the inferred slow circulation of the plastic mantle by a process called

A) insolation  B) convection  
C) convection  D) radiation
48. The diagram below shows the collision of an oceanic plate and a continental plate.

Collisions between oceanic plates and continental plates are thought to result primarily from

A) hot liquid magma in the inner core
**B) convection currents in the mantle**
C) volcanic eruptions along coastlines
D) meteor impacts in the ocean basins

49. Base your answer to the following question on the cross section below, which shows the boundary between two lithospheric plates. Point X is a location in the continental lithosphere. The depth below Earth's surface is labeled in kilometers.

Between which two lithospheric plates could this boundary be located?

A) South American Plate and African Plate
B) Scotia Plate and Antarctic Plate
C) Nazca Plate and South American Plate
D) African Plate and Arabian Plate

50. When two tectonic plates collide, oceanic crust usually subducts beneath continental crust because oceanic crust is primarily composed of igneous rock that has

A) low density and is mafic
B) low density and is felsic
**C) high density and is mafic**
D) high density and is felsic

51. Where are earthquakes most likely to take place?

A) along the core-mantle interface
B) where the composition of the Earth tends to be uniform
C) near the Earth's Equator
**D) near a fault zone**
52. Which diagram best shows the type of plate boundary found between the China Plate and the Philippine Plate?

A) 

B) 

C) 

D)
53. Base your answer to the following question on the diagram below, which shows details of a section of a rift valley in the center of a mid-ocean ridge. The vertical lines in the diagram represent faults and fractures within the ocean floor bedrock.

Which type of crustal plate boundary is shown in this diagram?

A) divergent  B) convergent  C) universal  D) transform
54. Which features are most often found at crustal plate boundaries like those shown on the map?

A) meandering rivers and warm-water lakes
B) plains and plateaus
C) geysers and glaciers
D) faulted bedrock and volcanoes

55. Geologic studies of the San Andreas fault indicate that

A) many earthquakes occur along the San Andreas fault
B) the North American plate and the Pacific plate are locked in dynamic equilibrium
C) the subduction zone is the boundary at which the crustal plates are drifting apart
D) the age of the bedrock increases as distance from the fault increases

56. Which feature is located at 20º North latitude and 109º West longitude?

A) San Andreas fault
B) East Pacific rise
C) Baja California
D) Juan de Fuca Ridge
57. Base your answer to the following question on the map of the Mid-Atlantic Ridge shown below. Points A through D are locations on the ocean floor. Line XY connects locations in North America and Africa.

The boundary between which two tectonic plates is most similar geologically to the plate boundary at the Mid-Atlantic Ridge?

A) Eurasian and Indian-Australian  
B) Cocos and Caribbean  
C) **Pacific and Nazca**  
D) Nazca and South American

58. At the Aleutian Trench and the Peru-Chile Trench, tectonic plates are generally

A) moving along a transform boundary  
B) moving over a mantle hot spot  
C) diverging  
D) **converging**
59. Base your answer to the following question on the passage and map below. The map shows sections of the Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico.

**Shipwreck**

In 1641, the crew of the ship *Concepcion* used the Sun and stars for navigation. The crew thought that the ship was just north of Puerto Rico, but ocean currents had carried them off course. The ship hit a coral reef and sank off the coast of the Dominican Republic. The X on the map marks the location of the sunken ship.

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60. According to tectonic plate maps, New York State is presently located

A) at a convergent plate boundary
B) above a mantle hot spot
C) above a mid-ocean ridge
D) near the center of a large plate
Base your answers to questions 61 through 63 on the map below, which shows the location of the Peru-Chile Trench.

61. The Peru-Chile Trench marks the boundary between the

A) Pacific Plate and the Antarctic Plate  
B) **Nazca Plate and the South American Plate**  
C) North American Plate and the Cocos Plate  
D) Caribbean Plate and the Scotia Plate

62. In which diagram do the arrows best represent the motions of Earth's crust at the Peru-Chile Trench?

A)  
B)  
C)  
D)

63. Which observation provides the best evidence of the pattern of crustal movement at the Peru-Chile Trench?

A) the direction of flow of warm ocean currents  
B) the mineral composition of samples of mafic mantle rock  
C) comparison of the rates of sediment deposition  
D) the locations of shallow-focus and deepfocus earthquakes

64. At which plate boundary is one lithospheric plate sliding under another?

A) Nazca Plate and Antarctic Plate  
B) **Pacific Plate and Indian-Australian Plate**  
C) Indian-Australian Plate and Antarctic Plate  
D) Nazca Plate and Pacific Plate
65. Base your answer to the following question on the map below and on your knowledge of Earth science. The map shows the coast of the northwestern United States. The Explorer and Gorda ridges and plates are parts of the Juan de Fuca tectonic system.
The arrow on which map best shows the direction of movement of the Juan de Fuca Plate in relation to the Juan de Fuca Ridge?

A)  
B)  
C)  
D)  

66. On the map below, line $AB$ is drawn across several of Earth's tectonic plates in the South Atlantic Ocean.

Which cross section best represents the plate boundaries and mantle movement beneath line $AB$?

A)  
B)  
C)  
D)  
67. The map below shows continental and oceanic crustal plates along the west coast of North America.

Which conclusion is best supported by the map?
A) The boundary of the Pacific plate has very few faults.
B) The Pacific plate has stopped moving.
C) The west coast of North America is composed of the oldest rocks on the continent.
D) **The west coast of North America is a zone of frequent crustal movement.**

68. Rifting of tectonic plates in eastern North America during the Jurassic Period was responsible for the
A) formation of the Catskill delta
B) first uplift of the Adirondack Mountains
C) Alleghenian orogeny
D) **opening of the Atlantic Ocean**

69. The cross section below shows the location of earthquakes near a plate boundary.

This distribution of earthquakes near the plate boundary is most likely caused by
A) a transform fault
B) a mantle hot spot
C) **subduction of a crustal plate**
D) divergence of crustal plates

70. Recent volcanic activity in different parts of the world supports the inference that volcanoes are located mainly in
A) the centers of landscape regions
B) the central regions of the continents
C) **zones of crustal activity**
D) zones in late stages of erosion
71. Which New York State location has the greatest risk of earthquake damage?
A) Binghamton  B) Buffalo  C) Plattsburgh  D) Elmira

72. In the United States, most of the major damage expected from a future earthquake is predicted to occur near a
A) divergent plate boundary, only
B) convergent plate boundary, only
C) mid-ocean ridge and a divergent plate boundary
D) transform plate boundary and a hot spot
73. Base your answer to the following question on the cross section below, which shows a portion of Earth’s crust and upper mantle near a mid-ocean ridge.

The geological features of the ocean floor in this region resulted from

A) colliding plates in the lithosphere
B) sinking iron and magnesium in the lithosphere
C) cooler temperatures in the mantle
D) rising convection currents in the mantle

74. Base your answer to the following question on the map below which shows mid-ocean ridges and trenches in the Pacific Ocean. Specific areas A, B, C, and D are indicated by shaded rectangles.

Movement of the crustal plates shown in the diagram is most likely caused by

A) the revolution of the Earth
B) the erosion of the Earth's crust
C) shifting of the Earth's magnetic poles
D) convection currents in the Earth's mantle

75. Which tectonic feature is associated with a complex or uncertain plate boundary?

A) Southwest Indian Ridge
B) East African Rift
C) Mariana Trench
D) Galapagos Hot Spot

76. The Mariana Trench was most likely created by the

A) subduction of a continental plate
B) subduction of an oceanic plate
C) divergence of a continental plate
D) divergence of an oceanic plate

77. The Aleutian Islands extend westward from southern Alaska to form the northern boundary of the Pacific Ocean. These volcanic islands were formed by the nearby

A) subduction of a continental plate
B) subduction of an oceanic plate
C) divergence of a continental plate
D) divergence of an oceanic plate
Base your answers to questions 78 and 79 on the map below and on your knowledge of Earth science. The map shows the coast of the northwestern United States. The Explorer and Gorda ridges and plates are parts of the Juan de Fuca tectonic system.

78. The Explorer Ridge is the boundary between the Explorer Plate and the

A) North American Plate  B) Pacific Plate
C) Juan de Fuca Plate   D) Gorda Plate
79. The arrow on which map best shows the direction of movement of the Juan de Fuca Plate in relation to the Juan de Fuca Ridge?

A)

B)
80. Base your answer to the following question on the passage and map of a portion of the East African Rift system shown below. Point X represents a location on Earth's surface within a rift valley on the Ethiopian Dome.

The Great Rift Valley

Rifting of Earth's crust in eastern Africa began during the Neogene Period as the Ethiopian and Kenyan Domes formed. These two huge domes were created as Earth's mantle pushed up the overlying crust. As the crust was forced upward, the resulting tension cracked the crust, resulting in the eruption of volcanoes and the formation of large rifts. The crust continued to pull apart, forming rift valleys. These valleys have become deeper and are currently becoming filled with sediments, igneous rock, and water.

Which two lithospheric plates are separated by a mid-ocean ridge in the northeastern portion of the Ethiopian Dome?
81. Base your answer to the following question on the map below which shows the locations of deep-sea core drilling sites numbered 1 through 4. The approximate location of the diverging plate at the East Pacific Ridge is shown by a dashed line. Point \( A \) is located on the East Pacific Ridge.

At point \( A \), the East Pacific Ridge is the boundary between the

A) Cocos Plate and the North American Plate  
B) South American Plate and the Nazca Plate  
C) Pacific Plate and the South American Plate  
D) Pacific Plate and the Nazca Plate
82. Base your answer to the following question on the map below. The map represents the movement of tectonic plates that resulted in the collision of India with Asia. Scientists believe that 71 million years ago, India was at position A.

Which present-day geologic feature in Nepal resulted from this collision?

A) a rift valley  B) a mountain range  C) an oceanic ridge  D) an oceanic trench

83. The block diagram below shows the bedrock age as measured by radioactive dating and the present location of part of the Hawaiian Island chain. These volcanic islands may have formed as the Pacific Crustal Plate moved over a mantle hot spot.

This diagram provides evidence that the Pacific Crustal Plate was moving toward the

A) south  B) east  C) southwest  D) northwest
84. The diagram below shows some features of Earth's crust and upper mantle.

Which model most accurately shows the movements (arrows) associated with the surface features shown in the diagram?

A) ![Model A]  
B) ![Model B]  
C) ![Model C]  
D) ![Model D]

85. Base your answer to the following question on the information and the cross section below. The cross section represents a possible model of the Moon's interior.

Seismographs left on the Moon by astronauts have provided enough data to develop a model of the Moon's interior. Scientists believe that the Moon has a layered interior and that its crustal thickness varies greatly from one side of the Moon to the other.

Which inference is best supported by the Moon's apparent absence of continental drift?

A) The Moon's crust is very thin.  
B) The Moon has a low-density core.  
C) The Moon's mountain ranges are rapidly weathering.  
D) The Moon lacks convection currents in its mantle.

86. What do mid-ocean ridges and hot spots beneath ocean plates have in common?

A) Rising magma moves due to density differences  
B) They are located along crustal plate boundaries  
C) Local earthquakes originate at great depths  
D) Neither is associated with plate motions
87. Base your answer to the following question on the map and data table below. The map shows the locations of volcanic islands and seamounts that erupted on the seafloor of the Pacific Plate as it moved northwest over a stationary mantle hotspot beneath the lithosphere. The hotspot is currently under Kilauea. Island size is not drawn to scale. Locations $X$, $Y$, and $Z$ are on Earth's surface.

Map of Volcanic Features

Data Table
Age of Volcanic Features

<table>
<thead>
<tr>
<th>Volcanic Feature</th>
<th>Distance from Kilauea (km)</th>
<th>Age (millions of years)</th>
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<tbody>
<tr>
<td>Kauai</td>
<td>545</td>
<td>5.6</td>
</tr>
<tr>
<td>Nihoa</td>
<td>800</td>
<td>6.9</td>
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<td>Midway</td>
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<tr>
<td>Suiko seamount</td>
<td>4,950</td>
<td>41.0</td>
</tr>
</tbody>
</table>

Which lithospheric plate boundary features are located at $Y$ and $Z$?

A) **trenches created by the subduction of the Pacific Plate**
B) **rift valleys created by seafloor spreading of the Pacific Plate**
C) **secondary plates created by volcanic activity within the Pacific Plate**
D) **mid-ocean ridges created by faulting below the Pacific Plate**
88. The block diagram below shows the boundary between two tectonic plates.

Which type of plate boundary is shown?

A) divergent  B) convergent  C) transform  D) complex

89. The diagram below shows the interaction of two tectonic plates.

The type of plate boundary represented in the diagram most likely exists between the

A) Antarctic Plate and the African Plate  B) Antarctic Plate and the Indian-Australian Plate  C) South American Plate and the Nazca Plate  D) South American Plate and the African Plate
90. Arrows in the block diagram below show the relative movement along a tectonic plate boundary.

Between which two tectonic plates does this type of plate boundary exist?

A) Nazca Plate and South American Plate  
B) Eurasian Plate and Indian-Australian Plate  
C) North American Plate and Eurasian Plate  
D) Pacific Plate and North American Plate
Base your answers to questions 91 through 93 on the passage and map below and on your knowledge of Earth science. The map shows the locations of the Mt. Redoubt volcano and Anchorage, Alaska.

Mt. Redoubt Volcano

In Anchorage, Alaska, scientists are monitoring sensors located on nearby Mt. Redoubt. The sensors measure seismic activity at the top of the volcano. No one lives near the volcano itself, so there is no danger to humans from lava flows, but ash can be dangerous when breathed in, and can damage airplanes and automobiles if the ash is drawn into their engines. When Mt. Redoubt erupted in 1989, a huge ash cloud reached an approximate height of 7.6 miles above sea level, and spread ash across Alaska for five months. The ash was composed largely of silica, which cooled rapidly as the ash rose into the atmosphere. In March 2009, Mt. Redoubt erupted again.

91. The height of the ash cloud from the 1989 eruption reached an altitude in Earth’s atmosphere located

A) between sea level and the lower troposphere
B) between the troposphere and the stratosphere
C) in the middle of the stratosphere
D) in the middle of the mesosphere

92. Mt. Redoubt's seismic activity is due to the interaction of which two tectonic plates?

A) Pacific Plate and Eurasian Plate
B) Eurasian Plate and North American Plate
C) North American Plate and Pacific Plate
D) Philippine Plate and Eurasian Plate
93. How did the huge ash cloud that covered Alaska in 1989 affect the amount of insolation reaching Earth’s surface and the air temperatures near Earth’s surface?

A) Insolation decreased and temperatures increased.
B) Insolation increased and temperatures decreased.
C) Both insolation and temperatures increased.
D) Both insolation and temperatures decreased.

94. On the map below, points A through D represent locations on Earth's surface.

Which location is positioned over a mantle hot spot?

A) A  B) B  C) C  D) D
Identify the tectonic feature responsible for the formation of the Hawaiian Islands.
96. Which cross section best represents the convection currents in the mantle beneath the Peru-Chile Trench?

A) 

B) 

C) 

D) 

97. Which block diagram represents the plate motion that causes the earthquakes that occur along the San Andreas Fault in California?

<table>
<thead>
<tr>
<th>Key</th>
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<tbody>
<tr>
<td>Code</td>
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A) 

B) 

C) 

D)
98. Base your answer to the following question on the map below which shows part of the earthquake damage field that resulted from the earthquake that occurred in Northridge, in southern California, in January 1994. Several sites associated with the earthquake and earthquake damage are shown.

Which crustal plate boundary is most closely associated with this earthquake?

A) Cocos Plate — Pacific Plate       B) Cocos Plate — Nazca Plate
C) North American Plate — Nazca Plate D) North American Plate — Pacific Plate
99. Locations A, B, C, and D are shown on the map below.

Which location is closest to a tectonic plate boundary?

A) A  B) B  C) C  D) D
The geographic position of Australia on Earth’s surface has been changing mainly because

A) the gravitational force of the Moon has been pulling on Earth’s landmasses
B) heat energy has been creating convection currents in Earth’s interior
C) Earth’s rotation has spun Australia into different locations
D) the tilt of Earth’s axis has changed several times
101. Which features are commonly formed at the plate boundaries where continental crust converges with oceanic crust?

A) large volcanic mountain ranges parallel to the coast at the center of the continents
B) a deep ocean trench and a continental volcanic mountain range near the coast
C) an underwater volcanic mountain range and rift valley on the ocean ridge near the coast
D) long chains of mid-ocean volcanic islands perpendicular to the coast

102. Which block diagram best represents the relative direction of plate motion at the San Andreas Fault?

A)  

B)  

C)  

D)
103. Which world map shows the locations where most earthquakes and volcanoes occur on Earth?
104. Letters $A$ through $D$ shown on the map below are locations on Earth's surface.

Which location is closest to a major zone of frequent earthquakes and volcanic activities?

A) $A$  B) $B$  C) $C$  D) $D$