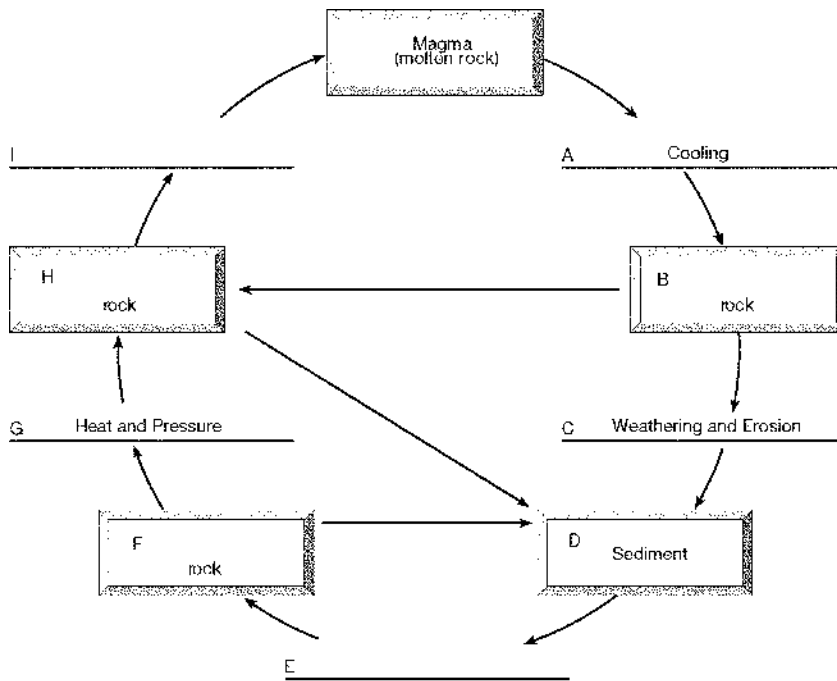


## 2<sup>nd</sup> Semester Final Exam Review

\*\*Please do not write on the Exam\*\*

1. It is generally true that igneous rock
  - A. contain primarily evaporates.
  - B. normally contains fossils.
  - C. can be scratched with a penny.
  - D. are composed of silicate minerals.
  
2. Relative cooling rates of igneous intrusive rocks can be estimated by comparing rocks'
  - A. crystal sizes.
  - B. composition.
  - C. density.
  - D. chemical reactivity.
  
3. Which of the following is *most* likely to produce a fragmental sedimentary rock?
  - A. magma fractured on the ocean floor
  - B. gravel deposited in a silt bed
  - C. calcite crystallized from seawater
  - D. limestone dissolved in cave formation



**Figure 3-1**

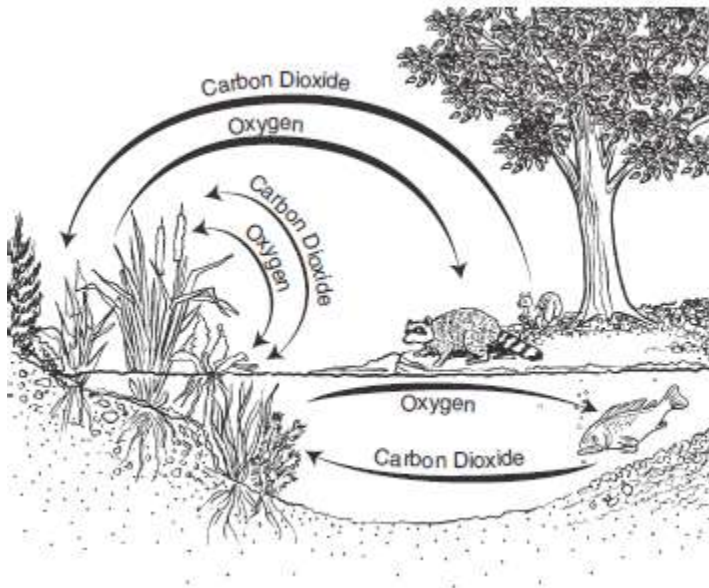
4. In Figure 3-1, what type of rock should occur in the part of the rock cycle labeled F?
  - A. igneous
  - B. metamorphic
  - C. lava
  - D. sedimentary
  
5. In Figure 3-1, what type of rock should occur in the part of the rock cycle labeled B?
  - A. igneous
  - B. metamorphic
  - C. lava
  - D. sedimentary
  
6. In Figure 3-1, what process or processes would be occurring in the part of the rock cycle labeled E?
  - A. cooling
  - B. melting
  - C. compaction and cementation
  - D. weathering and erosion

7. The table below lists the gases coming from a modern Hawaiian volcano. If ancient volcanoes gave off the same gases, which gas would have been *most* helpful in the development of early life-forms that could carry out photosynthesis?

- A.  $N_2$                       B.  $SO_2$                       C.  $CO_2$                       D.  $C_{12}$

Analysis of Gases From a Hawaiian Volcano

| Gas                            | Amount |
|--------------------------------|--------|
| $H_2O$ (steam)                 | 79%    |
| $CO_2$                         | 12%    |
| $SO_2$                         | 6.5%   |
| $N_2$                          | 1.5%   |
| $H_2$ , $CO$ , $Cl_2$ , and Ar | trace  |



8. Which of these statements is *best* illustrated by this diagram?

- A. Animals under water eat plants.  
 B. Land animals exhale oxygen into water.  
 C. Water-dwelling animals breathe carbon dioxide.  
 D. Plants take in carbon dioxide from air or water.

9. From Earth's atmosphere, carbon dioxide is used by plants, algae, and cyanobacteria during the process of

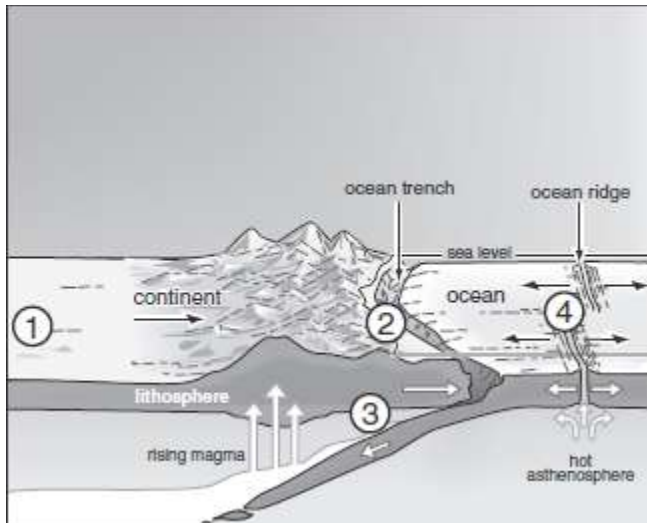
- A. photosynthesis.    B. respiration.    C. decomposition.    D. nitrogen fixation.

10. Carbon in the atmosphere is *most* often found as which of the following compounds?

- A. stratospheric ozone                      C. carbon monoxide  
 B. fossil fuel                                      D. carbon dioxide

11. Which of the following processes puts carbon from a forest floor back into the atmosphere?  
A. combustion      B. photosynthesis      C. evaporation      D. transpiration
12. The release of carbon from limestone reservoirs into the atmosphere is *most* often accomplished  
A. by the formation of limestone in shallow seas.  
B. by the destruction of limestone by lichens.  
C. by the formation of stalagmites and stalactites in limestone caves.  
D. by the chemical reaction between limestone and rainwater.
13. Geothermal energy, a possible energy resource, is based on which phenomenon?  
A. There are concentrations of heat in parts of Earth's crust.  
B. Earth's internal energy heats its surface more than the Sun.  
C. Heat energy from the Sun penetrates deep into Earth.  
D. Human activity is the largest source of heat energy on Earth.
14. All of the energy that drives Earth's rock cycle comes from \_\_\_\_\_.  
A. the wind      B. Earth's interior and the Sun  
C. the breakdown of organic matter      D. the movement of water over Earth's surface
15. Permanent deforestation can contribute to potential global warming by  
A. decreasing atmospheric CO<sub>2</sub> levels.      C. decreasing atmospheric N<sub>2</sub> levels.  
B. increasing atmospheric CO<sub>2</sub> levels.      D. increasing atmospheric N<sub>2</sub> levels.
16. The burning of fossil fuels would cause which of the following  
A. depletion of the ozone layer      C. a decrease in water pollution  
B. a decrease in atmospheric CO<sub>2</sub>      D. an increase in air quality
17. Which of the following energy sources is *most* likely to be abundant in California due to its position on a plate boundary?  
A. wind      B. nuclear      C. solar      D. geothermal
18. Hydroelectric power is produced by \_\_\_\_\_.  
A. falling water that turns a turbine  
B. tides that pour through a dam barrier  
C. hot water that comes from deep underground  
D. electric current that flows across a dam
19. Solar energy is clean and sustainable energy, but a major drawback is  
A. sunlight is abundant      C. it's non-renewable  
B. technology and installation are expensive      D. it produces toxic pollution
20. What is the energy source for the water cycle?  
A. running water      B. the Sun      C. Earth's internal heat      D. gravity

21. Which of the following is the best evidence that Earth's continents were once in vastly different positions than they are today?
- A. Penguins are found only in the Southern Hemisphere.
  - B. Fossils of tropical plants are found in Antarctica
  - C. Volcanoes encircle the Pacific Ocean
  - D. Major rivers form deltas from continental erosion
22. The youngest rocks on the ocean floor are typically located near what feature?
- A. a mid-ocean ridge
  - B. a continental shelf
  - C. an abyssal plain
  - D. a subduction trench
23. Which of the following provides evidence for plate tectonics?
- A. sea-floor spreading
  - B. ocean currents
  - C. Coriolis effect
  - D. atmospheric temperatures
24. Scientists have found fossils of tropical plants in Antarctica. How could tropical plants have grown in Antarctica?
- A. At one time Earth's entire surface was a tropical rain forest.
  - B. At one time Antarctica was located closer to the equator.
  - C. The rotation of the earth has increased causing cooling of the atmosphere.
  - D. Catastrophic volcanic eruptions melted the ice and exposed the soil to sunlight.
25. A rift valley is evidence of which kind of plate boundary?
- A. convergent
  - B. divergent
  - C. transform
  - D. uniform
26. The convergence of two continental plates would produce
- A. island arcs
  - B. rift valleys
  - C. folded mountains
  - D. trenches
27. Which of the following is most responsible for the formation of new crust at the edge of a tectonic plate?
- A. mountain building at a continent-continent convergent boundary
  - B. magma rising up from the mantle at a divergent plate boundary
  - C. two tectonic plates sliding past one another at a transform boundary
  - D. subduction of one oceanic plate under another at a convergent boundary
28. What kind of plate boundary occurs where two plates grind past each other without destroying or producing lithosphere?
- A. divergent
  - B. transform
  - C. convergent
  - D. distransductive
29. Earthquake vibrations are detected, measured, and recorded by instruments called?
- A. sonargraphs
  - B. seismographs
  - C. Richter Scales
  - D. magnetometers



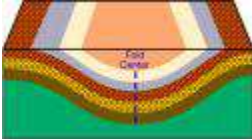
30. At which location would earthquakes be least likely to occur?  
 A. 1                                      B. 2                                      C. 3                                      D. 4
31. The Richter scale measures which of the following earthquake characteristics?  
 A. intensity                              B. magnitude                              C. frequency                              D. probability
32. What is the name of the scale that measures the intensity of an earthquake?  
 A. Fish                                      B. Richter                                      C. Mercali                                      D. Seismograph
33. Which seismic wave travels fastest?  
 A. Primary                                      B. Secondary                                      C. Surface                                      D. Tsunami
34. What causes an Earthquake?  
 A. Atmospheric pressure builds up on the plates.  
 B. Ocean currents cause strain on the surrounding oceanic plates.  
 C. Gravity from the Sun and Moon pull the plates apart.  
 D. Stress builds up on the rocks in a fault due to the motion of the plates.
35. Which type of volcano would be the least explosive?  
 A. cinder cone                              B. stratovolcano                              C. shield volcano                              D. composite cone
36. The Hawaiian Islands are located near which feature?  
 A. transform plate boundary                                      B. convergent plate boundary  
 C. divergent plate boundary                                      D. hot spot
37. Which of the following factors helps determine whether a volcanic eruption will be violent or relatively quiet?  
 A. Amount of dissolved gasses in the magma                              C. Composition of the magma  
 B. Temperature of the magma                                      D. All of these

38. Which volcano has steep slopes and has violent eruptions?  
A. cinder cone      B. stratovolcano      C. shield      D. caldera
39. A caldera is a \_\_\_\_\_.  
A. violent volcanic eruption      C. large depression in a volcano  
B. pot in which witches brew potions      D. very large volcanic bomb
40. The type of convergent plate boundary where one plate dives under another?  
A. mid-ocean ridge    B. spreading center    C. collision center    D. subduction zone
41. Landslides, tsunamis, earthquakes, and volcanic activity are examples of \_\_\_\_?  
A. natural hazards    B. volcanic field      C. geothermal field    D. mass movement
42. Motion along a fault with side to side movement is called a \_\_\_\_\_ fault.  
A. strike-slip      B. normal      C. reverse      D. thrust
43. What energy resource is made possible by the volcanic activity in California?  
A. hydroelectricity    B. nuclear power      C. geothermal energy    D. solar energy
44. What is the most profitable mineral resource in California?  
A. sand and gravel    B. gold      C. silver      D. gypsum
45. The Long Valley Caldera in east-central California was formed by a massive volcanic eruption about 760,000 years ago. Since then, it has erupted several times. Of the following, which would be *least* likely to indicate that another eruption will soon occur?  
A. recurring earthquakes in the vicinity      C. changes in gas emissions from the caldera  
B. decreases in precipitation in the area      D. uplifting of the floor of the caldera
46. Earthquake activity in California is primarily caused by  
A. the lowering of aquifer levels.      C. mining activity during the nineteenth century  
B. the interaction of tides with the coast.    D. plates grinding past each other along faults.
47. Landslides in California are caused by a combination of environmental factors, such as heavy precipitation, and geologic factors, such as  
A. karst topography and poor drainage.    C. reverse faulting and perched water tables.  
B. crust folding and artesian springs.    D. steep topography and unstable soil structure.
48. How did the Cascade and Sierra Nevada Mountain Ranges form?  
A. folding      B. faulting      C. subduction      D. none of these
49. Which of the following best explains why temperature decreases as you go up in elevation in the troposphere?  
A. you are getting closer to the sun  
B. the ozone layer absorbs solar radiation  
C. there is less carbon dioxide and water vapor  
D. winds speeds get slower

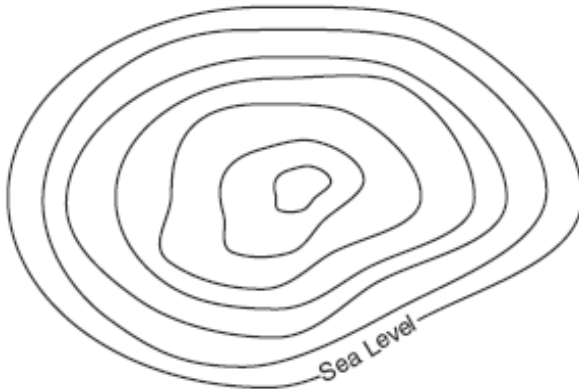
50. What is the main source of California's fresh water?

- A. The Pacific Ocean
- B. Snowpack in the Mountains
- C. The Mississippi River
- D. Groundwater

51. What kind of fold is this?



- A. anticline
- B. syncline
- C. monocline
- D. regional
- E. none



Contour Interval - 5 meters

52. The highest elevation on this topographic map can be no more than about

- A. 25 meters
- B. 34 meters
- C. 45 meters
- D. 49 meters

53. The main purpose of the California aqueduct is to

- A. allow inexpensive water routes for transporting commercial products.
- B. transport fresh water to areas with dense populations.
- C. divert floodwater from populated regions to sparsely populated areas.
- D. provide abundant ocean water to drier regions of California.

54. Water is important to many different types of industry. Which industry's water requirement is the greatest burden on California's fresh water supply?

- A. aerospace
- B. manufacturing
- C. tourism
- D. agriculture

55. From what water project does Murrieta receive its water?

- A. Hetch Hetchy
- B. Central Valley
- C. Los Angeles
- D. Colorado River

56. Due to the uneven distribution of precipitation in California, what was built to balance supply and demand?

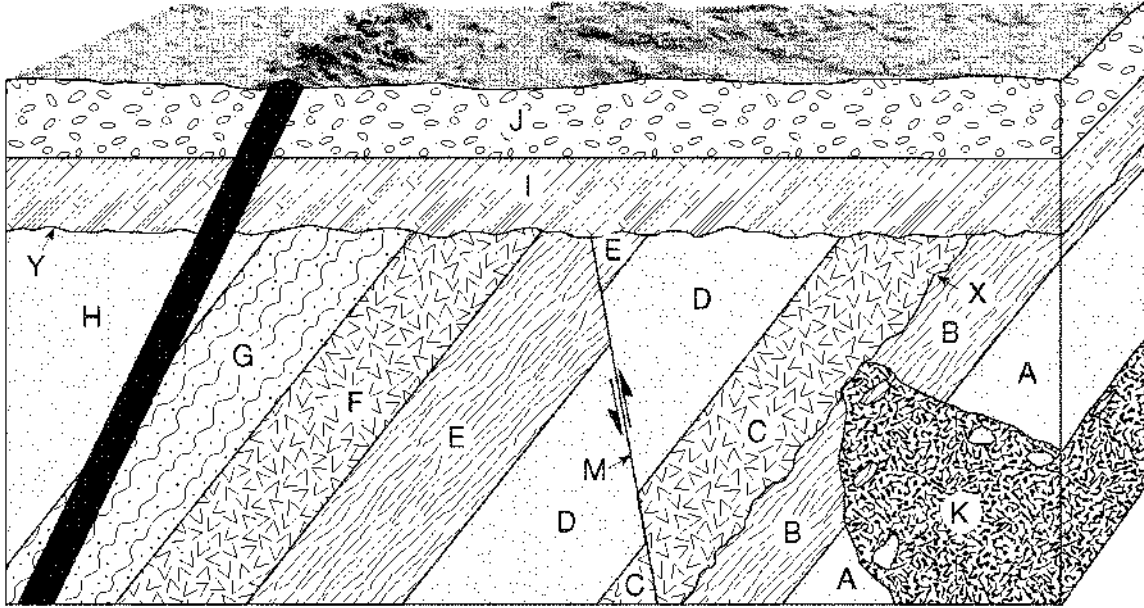
- A. water purification plants
- B. aqueducts
- C. rivers
- D. roads

57. The San Andreas Fault is a plate boundary between which two tectonic plates?

- A. Pacific/Australian
- B. North American/South American
- C. Europe/Asia
- D. Pacific/North American

58. What kind of plate boundary is the San Andreas Fault?  
A. Transform      B. Convergent      C. Divergent      D. Subduction
59. What major natural hazard can affect the coastline of California?  
A. tsunamis      B. flash flooding      C. volcanic flows      D. boating accidents
60. Before humans visited the Moon and brought back lunar rocks, the age of the Moon was unknown. Radioisotope dating of these rocks showed that the age of the oldest lunar rock was closest to  
A. 186,000 years.      B. 6.5 million years.      C. 4.4 billion years.      D. 15 billion years.
61. Which of the following is the best evidence that Earth's continents were once in vastly different positions than they are today?  
A. Penguins are found only in the Southern Hemisphere.  
B. Fossils of tropical plants are found in Antarctica.  
C. Volcanoes encircle the Pacific Ocean.  
D. Major rivers form deltas from continental erosion.
62. Which of the following gases was NOT part of Earth's original atmosphere?  
A. Nitrogen      B. Carbon dioxide      C. Oxygen      D. Water vapor
63. Evidence suggests that Earth is about 4.6 billion years old, even though no Earth rocks have been found that can be dated at more than 4 billion years old. This discrepancy is *most* likely caused by Earth's original crust being  
A. difficult to date so precisely.      B. subject to extensive erosion.  
C. blasted away during Earth's formation.      D. destroyed by solar radiation.
64. The dating process that places geologic events in proper sequence is \_\_\_\_\_.  
A. radiometric dating      B. numerical dating      C. relative dating      D. radiocarbon dating





**Figure 12-1**

65. Which of the following sequences correctly lists the geologic events in Figure 12-1 in order from oldest to youngest (oldest listed first)?
- A, B, C, X, K, D, E, F, M, G, H, Y, L, I, J
  - A, B, K, X, C, D, E, F, G, H, M, Y, I, J, L
  - L, J, I, Y, M, H, G, F, E, D, C, X, K, B, A
  - K, A, B, C, X, D, E, M, F, G, H, Y, I, J, L
66. In figure 12-1, what type of unconformity is shown at X?
- disconformity
  - angular unconformity
  - conformity
  - nonconformity
67. What is the youngest feature shown in Figure 12-1?
- fault M
  - igneous intrusion L
  - rock layer A
  - rock layer J
68. Radiocarbon dating is used to date \_\_\_\_\_.
- distant geologic events more than one million years ago
  - recent geologic events up to 75,000 years ago
  - recent geologic events up to 10,000 years ago
  - all geologic events of the past
69. The radiometric dating of an igneous rock provides \_\_\_\_\_.
- a date for when the rock was eroded
  - a date for when the rock formed
  - the relative age of the rock
  - the age of Earth
70. Which span of geologic time span covers about 88 percent of Earth's history?
- Precambrian
  - Cenozoic
  - Mesozoic
  - Paleozoic

71. In an area where a river has cut deep into Earth, there are several layers of very different rock exposed. The oldest rock layer is most likely to be the layer that is
- A. below the other layers
  - B. the thickest layer
  - C. the most rich in fossils
  - D. igneous intrusive rock
72. What event may have triggered the great Paleozoic extinction?
- A. changes in Earth's orbit
  - B. heightened solar activity
  - C. meteorite strike
  - D. climatic change
73. Scientists have found fossils of tropical plants in Antarctica. How could tropical plants have grown in Antarctica?
- A. At one time, Earth's entire surface was a tropical rain forest.
  - B. At one time, Antarctica was located closer to the equator.
  - C. The rotation of Earth has increased, causing cooling of the atmosphere.
  - D. Catastrophic volcanic eruptions melted the ice and exposed the soil to sunlight.
74. Which of the following was made possible by the presence of photosynthetic bacteria on Earth?
- A. a water cycle
  - B. an oxygen cycle
  - C. carbon fixation
  - D. anaerobic respiration
75. What piece of evidence supports the theory that volcanic eruptions formed Earth's early atmosphere?
- A. Volcanoes expel gases with chemical compositions which closely match the ratios of gases in air.
  - B. Volcanoes are clustered near the equator, so their gas output spreads over Earth's surface.
  - C. Volcanoes expel a mixture of gases consisting almost entirely of water vapor and oxygen.
  - D. Volcanic eruptions are inversely proportional to local atmospheric pressure.
76. The primitive atmosphere of Earth was deficient in free oxygen. What process was primarily responsible for the development of the present percentage of free oxygen in the Earth's atmosphere?
- A. outgassing
  - B. photosynthesis
  - C. volcanic eruptions
  - D. oxidation of iron-based minerals
77. Most of the molecular oxygen in the early atmosphere of Earth resulted from
- A. photosynthesis in primitive plants.
  - B. decaying primitive plants and animals.
  - C. volcanic eruptions.
  - D. lightning striking Earth.
78. The first atmosphere that formed above Earth was *most* likely due to what process?
- A. eruption of volcanoes
  - B. movement of water
  - C. development of land plants
  - D. occurrence of violent storms

79. A day on Saturn takes about 10 Earth hours. Which fact would *best* explain this short day?

- A. Saturn is less dense than Earth.
- B. Saturn is much farther from the Sun than Earth.
- C. Saturn rotates more rapidly than Earth.
- D. Saturn's orbit has greater eccentricity than Earth's.

80. The diameter of Saturn is almost ten times that of Earth, yet its density is much less. This can best be explained by the fact that Saturn

- A. is farther from the Sun
- B. is a gaseous planet
- C. has a shorter period of rotation
- D. has a ring around its center

81. The Earth is the only planet in the solar system that has

- A. clouds
- B. oceans of water
- C. an atmosphere
- D. a core

82. Which of the following statements best describes how the planets of the solar system formed?

- A. They are condensed rings of matter thrown off by the young Sun.
- B. They are the remains of an exploded star once paired with the Sun.
- C. The Sun captured them from smaller, older nearby stars
- D. They formed from a nebular cloud of dust and gas.

83. Early telescopes showed stars as only points of light, while the planets appeared to be much larger, providing evidence that stars must

- A. be more plentiful in our solar system than planets
- B. travel in elliptical orbits like planets.
- C. be much farther from Earth than planets.
- D. reflect much more light than planets.

84. What is the source of energy for the Sun?

- A. hydrogen fusion
- B. internal combustion
- C. nuclear fission of metals
- D. burning of solar gases

85. Where is our sun located in the Milky Way?

- A. within one of the spiral arms
- B. at the exact center of the galactic nucleus
- C. in the galactic halo
- D. at the tip of one of the spiral arms

86. Galaxies are made mostly of billions of \_\_\_\_\_.

- A. white dwarfs
- B. stars
- C. planets
- D. asteroids

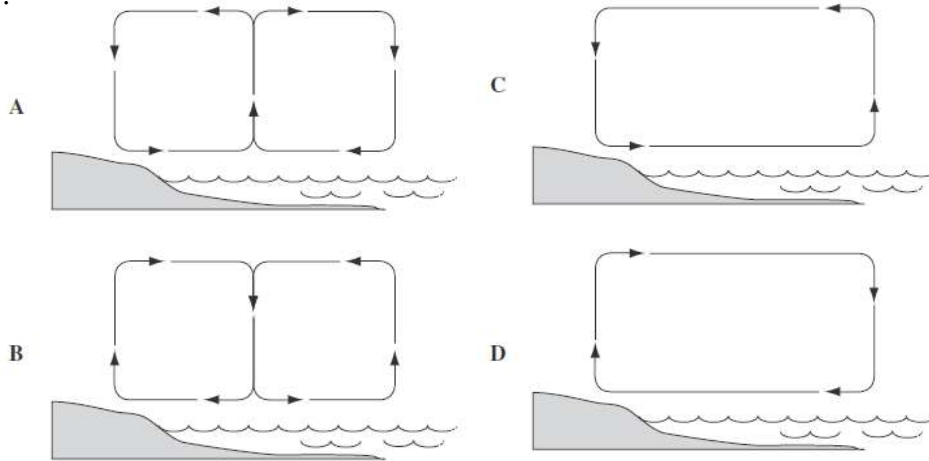
87. Only about 50% of the solar energy directed toward Earth penetrates directly to the surface. What happens to the rest of the radiation?

- A. It is absorbed or reflected by the atmosphere
- B. It loses energy traveling through space
- C. It is reflected off the Moon and back into space
- D. It loses energy overcoming the Sun's gravity

88. More solar energy reaches the equatorial regions than the polar regions because the equatorial regions

- A. are covered by a greater area of land.
- B. have more vegetation to absorb sunlight.
- C. have days with more hours of light.
- D. receive sun rays closest to vertical.

89. Which diagram below is the *best* model for the movement of coastal air during the afternoon?

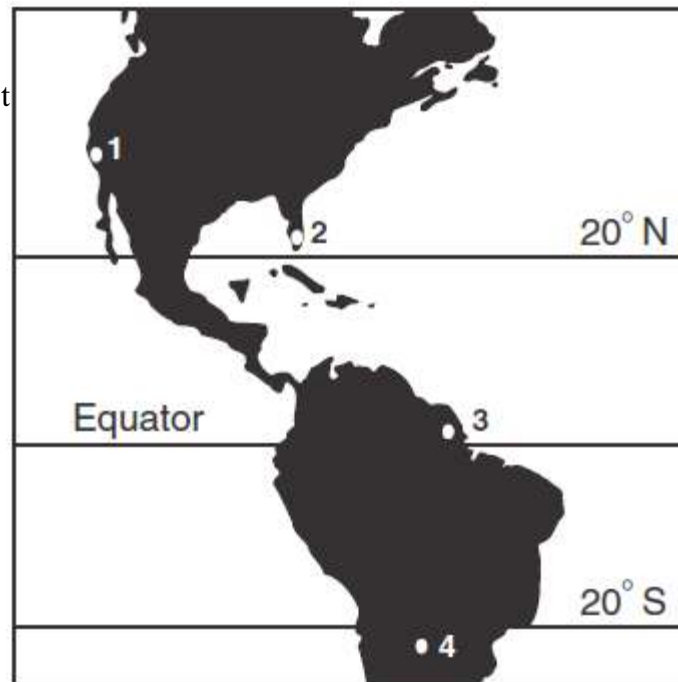


90. When a layer of cool air at the surface of Earth is found under a layer of warmer air above it, the result is known as

- A. the Coriolis effect.
- B. the greenhouse effect.
- C. a temperature inversion.
- D. an upwelling.

91. At which location on the map would a rain forest *most* likely be found?

- A. 1
- B. 2
- C. 3
- D. 4



92. Snow on the ground prevents polar climates from gaining heat by what mechanism?
- A. heating by greenhouse gases
  - B. heat spread from the equator
  - C. reflection of solar radiation
  - D. release of heat from Earth's core
93. When comparing temperatures of two California regions of the same latitude, students found that the nighttime temperature dropped significantly at the desert site but only slightly at the coastal site. This difference is mostly caused by
- A. lower wind speeds in the desert than at the coast.
  - B. less water vapor in the desert than at the coast.
  - C. lower carbon dioxide levels in the desert than at the coast.
  - D. less vegetation in the desert than at the coast.
94. Which of the following is NOT a possible consequence of global warming?
- A. more frequent and intense hurricanes
  - B. rising sea level
  - C. reduction in secondary pollutants
  - D. more frequent and intense droughts
95. More solar energy reaches the equatorial regions than the polar regions because the equatorial regions
- A. are covered by a greater area of land.
  - B. have more vegetation to absorb sunlight.
  - C. have days with more hours of light.
  - D. receive sun rays closest to vertical.
96. What is the driving force for surface ocean currents?
- A. density layering
  - B. global winds
  - C. the Coriolis effect
  - D. salt concentration
97. The rising of cold water from deeper layers to replace warmer surface water is called \_\_\_\_\_.
- A. the Coriolis effect
  - B. a surface current
  - C. upwelling
  - D. reflection
98. The Gulf Stream in the Northern Hemisphere and the Brazilian Current in the Southern Hemisphere move poleward. Compared to inland areas at the same latitude, the coastal areas bordering these currents will
- A. be warmer.
  - B. be more arid.
  - C. have more advection fogs
  - D. have shorter growing seasons.
99. The rain shadow effect is associated with \_\_\_\_\_.
- A. oceans
  - B. rivers
  - C. latitude
  - D. mountains
100. What is the relationship between elevation and climate?
- A. The higher the elevation is, the colder the climate.
  - B. The lower the elevation is, the colder the climate
  - C. The higher the elevation is, the warmer the climate
  - D. There is no relationship between elevation and climate