Name:_____ Date:_____

EarthT2

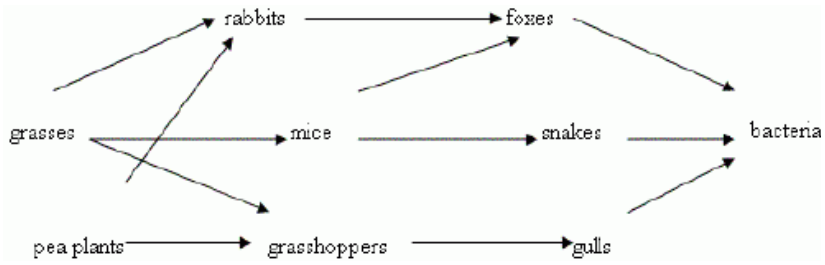
1) Which of the following is an abiotic factor?
   A. cat
   B. dog
   C. person
   D. weather

2) You want to design an experiment that tests the influence of abiotic factors on plant growth. Which abiotic factor would you test?
   A. acidity of the soil
   B. insects infecting the plant
   C. species of plants grown
   D. plant height

3) What is the purpose of including a control in a scientific investigation? To provide:
   A. a basis for comparison
   B. a correction for experimental errors
   C. a preliminary trial of the methods
   D. an opportunity for repetition of the experiment

4) Which of the following is a question that cannot be answered by science?
   A. What is the effect of fires on an ecosystem?
   B. What abiotic factors in an ecosystem are affected by a fire?
   C. What steps can be taken to restore an ecosystem that has been destroyed by fire?
   D. What regulations are necessary to stop displaced animals from ruining private property?

5) Use the diagram to answer the following question. What would happen if the bacteria were taken out of the food web?



A. Foxes would over populate and kill off the rabbits
B. Dead plants and animals would not decompose
C. The number of gulls would decrease
D. Snakes and foxes would eat all of the mice
E. Snakes would get sick and die

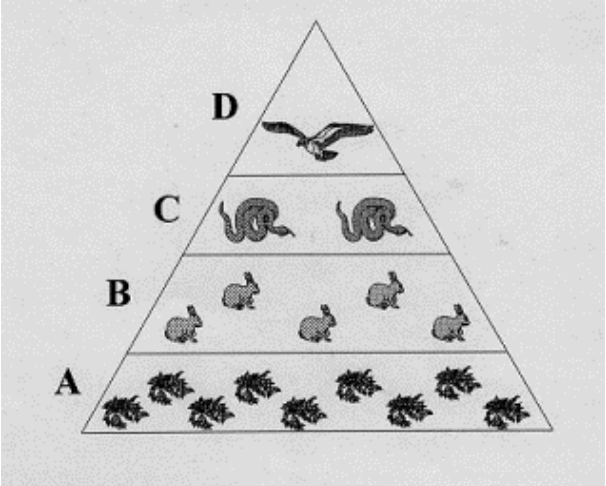
6) What would happen if the mice were taken out of this food web?
   A. The food web would collapse
   B. There would be less grass for the rabbits
   C. The gull population would get smaller
   D. The snake population would get smaller
   E. The fox population would increase

7) Joseph wanted to analyze the relationship between biotic and abiotic factors in a forest meadow. Which of the following would be suitable subjects for study?
   A. The relationship between rabbit feeding habits and number of clover plants
   B. The relationship between number of aspen trees and sparrow nests
   C. The relationship between rainfall and stream volume
   D. The relationship between length of day and average daytime temperature
   E. The relationship between soil type and vegetation types

8) Which would be the most help scientists make recommendations to successfully restore an area damaged by fire?
   A. Research ways to predict and control lightning strikes within the area.
   B. Perform a long term study of climate and weather patterns in the area.
   C. Research successful restoration projects for areas similar to the one that was destroyed.
   D. Perform a survey of local residents to determine their preference on how the area should be restored.

9) The reduced level of oxygen in the lake would determine which of the following?
   A. the number of birds living around the lake
   B. the amount of run-off reaching the lake
   C. the amount of sunlight reaching the lake
   D. the kinds of fish living in the lake

10) Use the chart to answer the following question: What causes the decrease in organisms as you move up the pyramid?



A. Organisms in the upper levels eat more than organisms in the lower levels
B. Organisms in the upper levels eat less than organisms in the lower levels
C. Each level loses energy due to growth, activity and heat loss, so less energy is available for each level up the pyramid
D. The lower levels depend on a steady source of sunlight, while the upper levels have no need for sunlight

11) The rabbits occupy which level of the food pyramid? =>
A. producers
B. primary consumers
C. secondary consumers
D. tertiary consumers

12) Why does a town in the desert rarely experience early morning fog as compared to a town along the coast?
A. There is less rainfall in the desert.
B. Temperatures vary more in the desert.
C. There is less water vapor in the desert air.
D. There are fewer plants in the desert.

13) A rancher moved his herd of cattle to a mountain range pasture. Which example below indicated he exceeded the carrying capacity of that range?
A. The herd grew and prospered
B. The range became overgrazed and barren
C. The range became green and fertile
D. Too many people rode the cattle and caused back problems
E. The cows had more than one calf

14) Two classifications of all the different species in a lake are made. In one system, the organisms are classified by food chains. In the other, the organisms are classified by structural relationships. Which of the following statements is most reasonable?
A. A system based on structural relationships is more accurate than one based on the food chain
B. One system of classification is more useful than the other
C. One system is correct; the other is incorrect
D. Both systems may be correct and useful depending on the kind of problem being investigated

15) The heath hen, an extinct small wild fowl, was a relative of the prairie chicken. Which of the following most likely caused extinction of the heath hen?
A. overhunting
B. stable climate
C. plentiful food supply
D. abundant nesting sites

16) How have scientists helped prevent the extinction of the desert tortoise in Utah?
A. Scientists have informed people of locations of tortoise habitat and argued for their protection.
B. Scientists have passed laws that protect the tortoise.
C. Scientists have just stirred up the fight.
D. Scientists have encouraged people to not worry about the tortoises because they will migrate to a safer habitat.

17) Which biome has the greatest number of plant and animal species in a given area?
A. Coniferous forest
B. Tropical rain forest
C. Desert
D. Grassland

18) As settlers moved into Utah, natural predators such as bears, wolves, and cougars were killed or driven from the area. With the decrease of predator population the deer population exploded. Which of the following best describes an ecological reason for hunting?
A. It promotes physical activity
B. It allows people another sources of food
C. It replaces the function of large predators
D. It replaces the function of the producers

19) Consider the table. What is the major abiotic difference between Biomes Three and Four?

BIOME ONE	BIOME TWO	BIOME THREE	BIOME FOUR
• Slow growth rate • Low species diversity • Low biomass • 0-25 cm average rainfall per year	• Rapid growth rate • Highest species diversity • High biomass • 80-120 cm average rainfall per year • Nutrients in vegetation.	• 80-120 cm average rainfall per year • Dominated by leaf dropping trees • Nutrient rich soil • Medium biomass and species diversity	• 25-75 cm average rainfall per year • Nutrient rich soil • Dominated by grasses, sedges • Medium biomass and species diversity

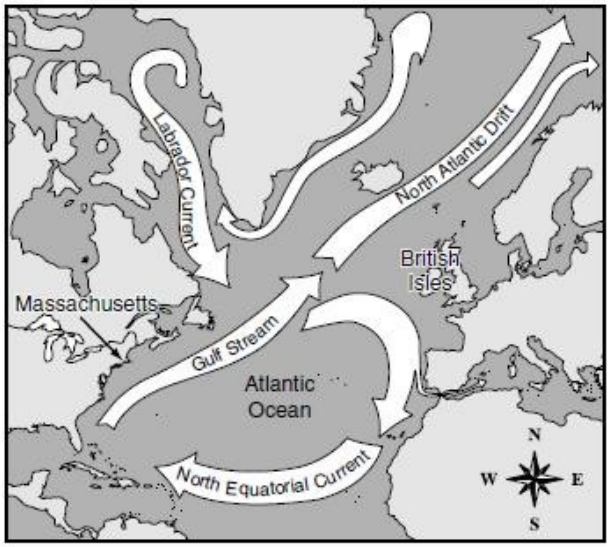
A. Average temperature
B. Average rainfall
C. Types of plants growing in the biome
D. Soil type

20) In which biome would you be most likely to find a cactus?
A. Biome One
B. Biome Two
C. Biome Three
D. Biome Four

21) Which of the following statements about Biome Two is an inference?
A. Biome Two has the greatest biodiversity
B. Biome Two receives a lot of precipitation
C. Biome Two is a tropical rain forest
D. Biome Two's nutrients are stored in the plants
D. Biome Two's nutrients are stored in the plants

22) Scientists invented radio collars that could be attached to wild animals to track their movements. How does this technology help us maintain biodiversity and avoid extinction?
A. The size of territory the animal needs for survival can be documented.
B. The animals can be located and saved from hunters at any time.
C. The animals can be trained to stay out of some areas and go into others.
D. The radio collars can help many species reproduce.

23) The map to the right shows Atlantic Ocean currents. Surface currents in the ocean affect the climate of the land areas nearby. Which of the currents most affects the climate of Massachusetts and its surrounding states?



A. Gulf Stream
B. Labrador Current
C. North Atlantic Drift
D. North Equatorial Current

24) Which of the following discoveries caused science to re-evaluate its opinion of Wagner's hypothesis about continental drift?
A. Sea floor spreading in the Atlantic Ocean
B. Valley and delta land forms on Mars
C. The coastlines of Africa and South America have similar fossils
D. The global rate of volcanic activity has changed over time

25) Extinctions have occurred since life began. Why are scientists concerned about plants and animals going extinct?
A. Scientists care more about plants and animals now than they did in the past
B. Current extinction rates are much higher than natural extinction rates
C. Extinctions cause meteorites to strike the Earth and scientist do not want that to happen
D. Extinctions are not a natural part of life; healthy ecosystems do not have extinctions

26) Consider the following three pieces of data.
I. The continents on Earth fit together like a puzzle.
II. The same plant fossils are found on many different continents.
III. Climate data indicates that some continents in the Arctic once were tropical and warm.

Which of the following best describes the relationship between the above statements?
A. They are evidence for continental drift.
B. They describe major areas of geologic studies.
C. They help to explain why the plates on Earth move.
D. There is no relationship because they are separate areas of science.

27) If science accepts the conclusion that continents have drifted, what are they assuming is true?

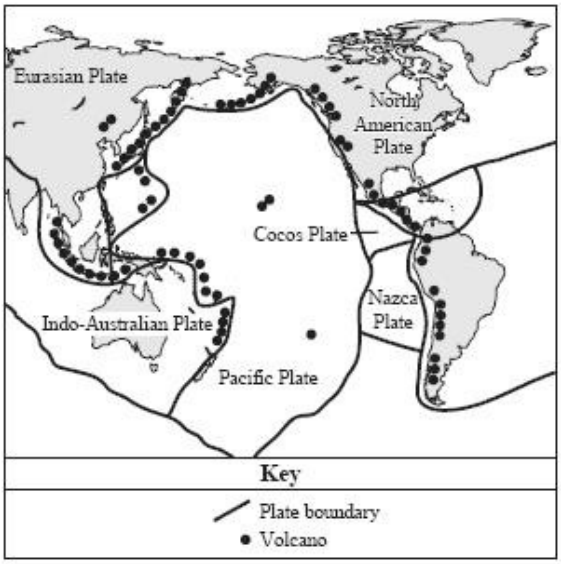
A. Gravity works the same on Earth as it does on other planets and stars in the universe
B. Convection currents worked in the past the same way they work now
C. The world's climate has changed a lot over time
D. Carbon dating is an accurate way to measure age

28) In which biome is the growing season the shortest?

A. Deciduous forest
B. Tropical rain forest
C. Desert
D. Grassland

29) On the map, dark circles indicate the positions of volcanoes in the "Ring of Fire" in and around the Pacific Ocean. Dark lines indicate tectonic plate boundaries of Earth's crust.
According to this map, which of the following describes where volcanoes are most likely to form in the Ring of Fire?

A. Volcanoes form in the middle of a tectonic plate.
B. Volcanoes form below the surface of tectonic plates.
C. Volcanoes form where tectonic plates meet other plates.
D. Volcanoes form where earthquakes are least likely to occur.

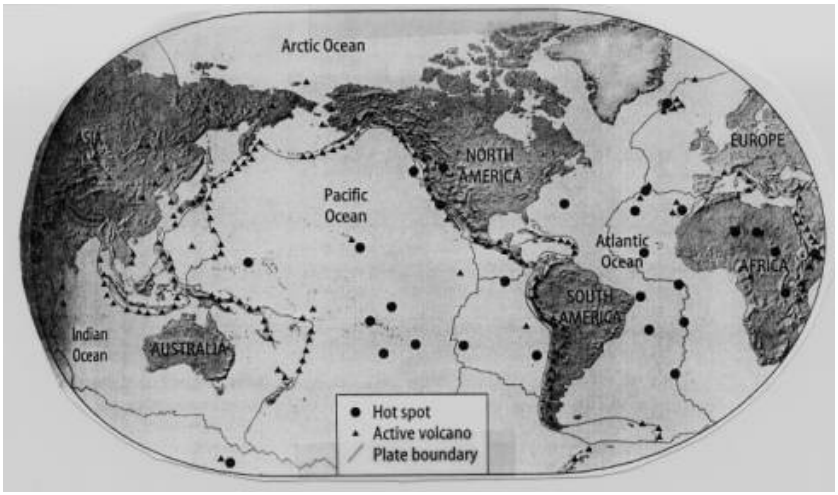


30) What kind of evidence do scientists use to locate boundaries of plates and interpret what type of boundary is present?

A. matching fossil records
B. similar rock layers
C. distribution of earthquakes and volcanoes
D. the way the continental coastlines fit together like a puzzle

31) Use the map to answer the following question.
Which symbol on the map show evidence of plate movement?

A. hot spot
B. active volcano
C. plate boundary
D. lines



32) Where are the most volcanoes located?

A. Atlantic Ocean
B. Pacific Ocean
C. African Continent
D. Asian Continent

33) Why are there more volcanoes where ocean and land meet?

A. Wave action on land plate
B. Ocean plate pulling away from land plate
C. Land plate moving past ocean plane
D. Ocean plate colliding with land plate

34) What type of plate boundary is located on the west side of Africa?

A. Convergent
B. Divergent
C. Transform
D. Strike/Slip

35) The earth's crust is broken into pieces called plates. These plates interact with each other at boundaries. Which of the following is the best data to use when classifying plate boundaries?

A. The length of the boundary between the two plates.
B. The size of the two plates that meet at a boundary.
C. The motion of the two plates relative to each other at the boundary.
D. The speed at which the two plates are moving as they meet at a boundary.

36) Wegener's theory of continental drift was not accepted until the mid-1900's. Which of the following are technological advances that led to the acceptance of this theory and laid the ground work for plate tectonics?

A. Sonar and magnetometers mapped the ocean floor and detected magnetic striping.
B. Satellites created communication networks for scientists on other continents.
C. Computer systems were used to simulate tectonic patterns on other planets.
D. Seismometers were developed to accurately measure volcanic activity.

37) Alfred Wegener proposed that 200 million years ago, continents broke apart from the supercontinent Pangaea and have drifted apart over time. This idea is known as continental drift.
Which of the following is the best fossil evidence for continental drift?

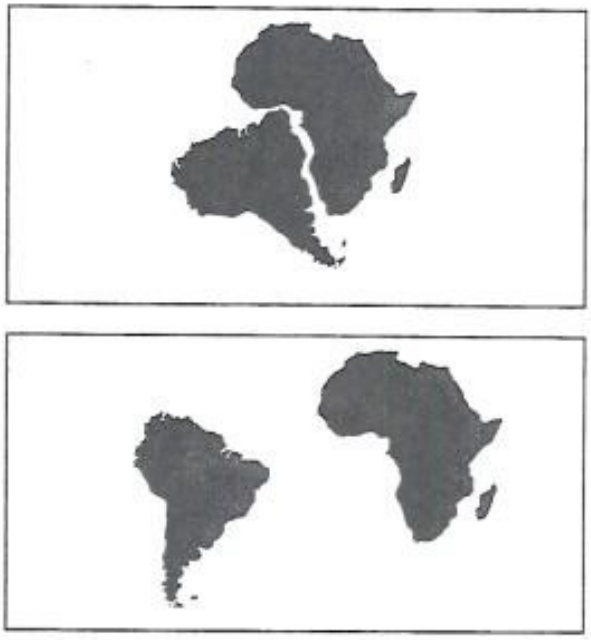
A. Fossils of the same land dwelling animals were found on widely separated continents.
B. Fossils of the same ocean dwelling organisms were found in different oceans.
C. Fossils of the same warm climate organisms were found on continents with warm climates.
D. Fossils of the same freshwater organisms were found on areas with abundant freshwater.

38) How has technology changed scientists' understanding of sea floor spreading and how it is evidence of plate tectonics?

A. Earthquakes are evidence of changes in the ocean floor.
B. The measurement of the weight of the ocean gave evidence of sea floor spreading.
C. The ocean floor was mapped and studied using sonar and magnetometers.
D. Scientists used computer measurements of volcanic activity to give details of the ocean floor.

39) Where are earthquakes most likely to occur on Earth?

A. They are spread evenly around the globe
B. On plate boundaries
C. On continents
D. On the sea floor
E. In mountains



40) The maps show the positions of two continents at two different times. The movement of the two continents as shown may best be explained by

A. volcanic eruptions.
B. magnetic changes.
C. coastal flooding.
D. plate tectonics.

41) What kind of movement on a plate boundary causes mountain building?

A. Divergent movement
B. Convergent movement
C. Transform movement
D. Biome movement

42) Which of the following explains the role of Alfred Wegener's hypothesis of continental drift and the development of the theory of plate tectonics?

A. Wegener's is the only scientist who worked on the continental drift hypothesis.
B. A hypothesis usually has more evidence than a theory does.
C. Wegener's hypothesis was contradicted by recent scientific information.
D. Evidence over the years has filled in the gaps in the continental drift hypothesis.

43) A dormant volcano in Indonesia erupted and ejected an incredible amount of gas and dust into the atmosphere in the early 1800's. This gas and dust caused weather extremes, crop failure and major climatic change worldwide for over a year following the eruption. The link between these changes and the volcano's eruption were not understood for years. What is this an example of?

A. Understanding the results of volcanic eruptions can explain why crops fail.
B. All volcanoes are destructive and have negative effects worldwide.
C. The causes of volcanic eruptions describe why climates will change around the volcano.
D. Studying the effects of volcanic eruptions can help scientists determine their impact on human life.

44) Heat from deep in Earth's interior is transferred to its crust by which process?

A. conduction in the ocean
B. convection in the mantle
C. radiation from the solid core

1. evaporation at mid-ocean ridges
2.

45) Consider the following statement: “The movement of materials in the mantle by convection causes the movement of the tectonic plates.” Which of the following best describes this statement?

A. It is a fact.
B. It is a guess.
C. It is an inference.
D. It is an observation.

46) Which of the following processes describes the interactions between plates that cause volcanoes?

A. Two continental crusts pushing up against each other, forming volcanic cones.
B. Continental crust sinking into the mantle and melting, coming back up as volcanoes.
C. Oceanic crust subducting below continental crust, then melting and rising to the surface.
D. Oceanic crust pushing against oceanic crust causing underwater volcanic peaks.

47) If a person wanted to raise doubts about Wegener’s theory of plate tectonics, what evidence would the person need?

A. Fossil evidence showing similar types of organisms on different continents.
B. The close relationship between plate boundaries and volcanic activity.
C. Studies of rocks on the ocean floor showing that some rocks are younger than others.
D. Deep ocean studies showing no zones of movement on the ocean floor.

48) Which statement best explains why earthquakes occur more frequently in California than in Utah?

A. The rock found in California is igneous, but the rock found in Utah is sedimentary.
B. California is located on the boundary of two crustal plates, but Utah is not.
C. The rock under California is soft, but the rock under Utah is hard.
D. California is located on a continental plate, but Utah is not.

49) What data would a scientist need to support the inference that a big earthquake will level most structures on a faultline?

A. A historical pattern of strong earthquakes along plate boundaries.
B. Recent evidence that strong earthquakes occur along major fault zones.
C. Weather patterns changing from drought conditions to flood conditions.
D. Documented evidence of farm animals acting peculiar.

50) Ocean vents are caused by small cracks in the oceanic crust. Upwelling caused by ocean vents results in changes in the number of organisms near the vent. Why does this happen?

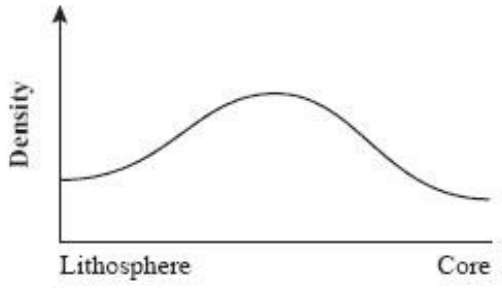
A. The nutrient content is higher around the vents.
B. Ocean organisms enjoy the warmer water around the vents.
C. Wave actions caused by the vents help the area stay unpolluted.
D. Ocean vents provide areas for more organisms to hide from predators.

51) What is the best alternative hypothesis for how plate interactions change Earth’s climate?

A. Heat from volcanic eruptions at plate boundaries causes atmospheric temperatures to increase.
B. Friction between moving plates causes the temperature of the oceans to rise dramatically.
C. The gravitational pull of the moon forces the plates to move more rapidly away from each other.
D. Plate motion causes the continents on the earth to shrink.

52) Which graph best represents the relationship between density and depth of material below Earth's surface?

A.



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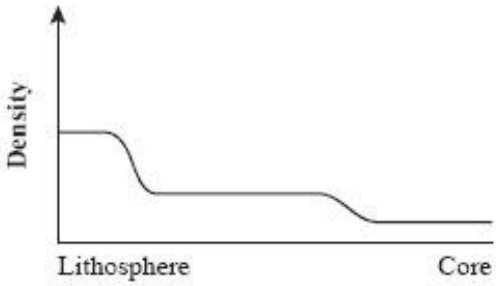

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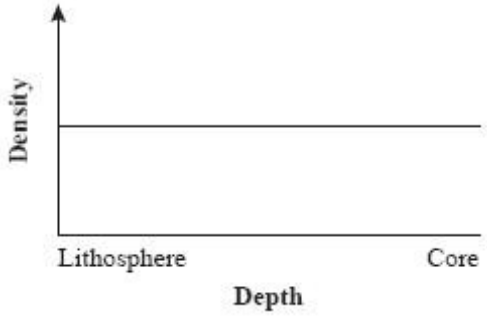

D.