NewSEM2Final

Multiple Response
Choose the BEST answer for each question, or the best phrase to complete each statement.

____ 1. What happens during photosynthesis?

a. The plant uses oxygen and helium to make food
b. The plant uses the energy in sunlight with CO2 and water to make food.
c. The plant uses glucose to make oxygen.
d. The plant uses the energy in sunlight to make carbon dioxide.

____ 2. All living things are made of cells. Some are only one-celled organisms. Others, like humans, are made of many cells and are called _____ organisms.

a. multicellular
b. complex
c. many-faceted
d. higher-order

____ 3. Which of the following statements is not true:

a. All living things are made of cells
b. cells always come from other cells
c. some cells develop from non-living matter
d. cells divide to make an organism grow

____ 4. What is the main function of a cell membrane?
a. makes cells keep a round shape
b. produces chemicals that kill germs
c. controls what enters and leaves the cell
d. helps cells to bond with other cells to create tissue

____ 5. Your body is made of different kinds of cells that do different jobs. They are called
a. specialized cells
b. common cells
c. chemical cells
d. organic cells

____ 6. Lots of the same kinds of specialized cells, like muscle cells for example, grow together to make
a. organs
b. tissue
c. organ systems
d. the skeletal system

____ 7. Which is the correct order from smallest parts to largest?
a. organs, tissues, systems, cells
b. cells, organs, tissues, systems
c. cells, tissues, organs, systems
d. cells, tissues, blood, organs

____ 8. Which of the following is the #1 purpose of your organs and organ systems ? It makes all the others possible. That purpose is to:
a. enable animals to grow and develop
b. help animals develop according to their genetic makeups
c. create tissues that perform specialized functions
d. help cells obtain food, oxygen, and water and remove wastes

____ 9. Choose the statement that is not true: Our cells need nutrients from the food we eat

a. to provide the materials necessary to make new cells
b. to provide the materials necessary to build new body tissue
c. to provide the materials necessary to produce oxygen
d. to provide the fuel the cells need to produce energy

____ 10. Which statement best describes the function of cell membrane diffusion?

a. hydrogen and helium gases are allowed to pass freely into and out of the cell
b. The cell membrane allows oxygen to leave the cell while keeping food inside the cell
c. the cell membrane only allows nutrients to diffuse into the cell but allows nothing to diffuse out of the cell
d. The cell membrane allows nutrients, O2 and CO2 to move from areas of higher concentration to areas of lower concentration

____ 11. Cells have a few things they need so they can stay alive and do their jobs: What do they need?

a. minerals, fats, proteins
b. nutrients and water, oxygen, waste removal
c. waste removal, carbohydrates, carbon dioxide and water
d. protein, carbohydrates, water

____ 12. We eat food to obtain energy and nutrients so our bodies can build more cell parts and stay alive. The energy in food comes from green plants. Where does a green plant get its energy from?

a. nutrients, water, and chemicals in the ground brought up by the roots
b. minerals, water, and energy from the ground brought up by the roots
c. warmth from the soil and heat from the sun
d. electromagnetic radiation streaming from the sun

____ 13. What is another name for cell division?

a. cell transformation
b. cell development
c. cell reproduction
d. cell maturation

____ 14. Multicellular organisms grow

a. when their cells get larger
b. when their cells divide
c. when their tissues allow diffusion
d. when more food is taken in than necessary

____ 15. One kind of specialized cells combine with more of the same kind of specialized cells to make

a. specialized organ systems
b. specialized tissue
c. specialized functions
d. specialized system processes

____ 16. When specialized cells multiply, they

a. divide into new cells exactly like themselves
b. form different cells related to the original
c. divide into improved cells that function better than the original
d. lose some of their original features and functions

____ 17. Organisms have lots of specialized cells in their bodies that form muscle tissue, blood tissue and all other kinds of tissue. But where did the specialized cells come from in the first place?

a. they are in all organisms from the beginning
b. they developed from neuron cells in the brain
c. they came from the female parent's egg cell
d. they develop from stem cells

____ 18. What does a plant use to create food?

a. oxygen, sunlight, and a trace of minerals
b. CO2 in the air, water, sunlight, and a trace of minerals
c. oxygen, minerals, and water
d. nitrogen, oxygen, water, and a trace of hydrogen

____ 19. Plants make _____

a. protein enzymes called protozoan
b. minerals and trasfer them to the soil
c. carbon dioxide gas and release it into the air
d. sugar molecules called glucose

____ 20. Plants use some of the glucose (food) they produce to help themselves grow. What happens to some of the extra glucose that is left over?

a. it immediately deomposes back into the soil
b. it becomes the fruits, vegetables and grains animals and people eat
c. it is absorbed by soil at the roots and by air from the leaves
d. it is turned into fat, CO2, and proteins to be used by other plants

____ 21. Photosynthesis is a

a. physical change
b. physical reaction
c. chemical reaction
d. phase change

____ 22. When plants use photosynthesis to produce food, they are actually making

a. carbon, phosphorus and minerals
b. vitamins and minerals
c. minerals, vitamins, and carbohydrates
d. carbohydrates, proteins, and fats

____ 23. Plant cells take atoms from what two non-living resources to form food?

a. nitrogen and water
b. carbon dioxide and oxygen
c. water and carbon dioxide
d. sunlight and water

____ 24. What three main elements do plants use to produce food (carbohydrates, proteins, fats)?
a. carbon, hydrogen, oxygen
b. carbon, nitrogen, phosphorus
c. berrylium, nitrogen, hydrogen
d. potassuim, oxygen, copper

____ 25. Photosynthesis transforms light energy into
a. chemical properties
b. kinetic energy
c. chemical energy
d. carbon, oxygen, and hydrogen

____ 26. Only _____ can make food.
a. scientists and plants
b. plants and animals
c. plants
d. food companies

____ 27. Which answer does ***NOT*** belong? When animals consume (eat) plants, they get the elements and energy they need to
a. grow
b. build tissue
c. make oxygen
d. reproduce

____ 28. What is the only substance in nature that captures electromagnetic energy from the sun for use in making food?
a. chlorine
b. carbon dioxide
c. a solar panel
d. chlorophyll

____ 29. The powerful primary factors that run the Earth's water cycle are
a. the forces of gravity and magnetism
b. the sun's warming of the Earth and the force of gravity
c. waterfalls and dams
d. swift flowing rivers and precipitation

____ 30. As the ground and oceans absorb the sun's electromagnetic radiation, they heat up and
a. the air above them is warmed and begins to rise
b. the air above them is warmed and begins to sink down
c. take more heat from the air so the air becomes cooler
d. dry out, creating more and more arid, desert-like regions on the Earth

____ 31. Which best describes a convection current?
a. cool air rising, warmer air falling
b. warm air rising, cooler air moving in
c. warm and cool air mixing
d. warm air radiating out in all directions

____ 32. Warm air
a. holds less water vapor than cool air
b. cannot hold any water vapor
c. holds more water vapor than cool air
d. sinks down to the ground when full of water vapor

____ 33. When the air holding water vapor gets cooler, the water vapor
a. expands and becomes mist or fog
b. evaporates higher into the atmosphere
c. immediately freezes and falls to the Earth
d. condenses into liquid droplets

____ 34. Convection currents of moving air are caused by
a. the sun's uneven heating of the Earth
b. the sun's even heating of the Earth
c. evaporation and condensation
d. wind and storms

____ 35. An area of low pressure develops
a. when warm air falls toward the Earth
b. when warm air rises
c. cool air rises
d. cool air falls

____ 36. Which answer does ***NOT*** belong? Some parts of the Earth
a. absorb more sunlight
b. absorb less sunlight
c. receive less direct sunlight
d. reflect all of the sunlight back into the atmosphere

____ 37. On Earth we see convection currents
a. in the atmosphere only
b. in the atmosphere and oceans
c. only in the oceans
d. in the electromagnet spectrum

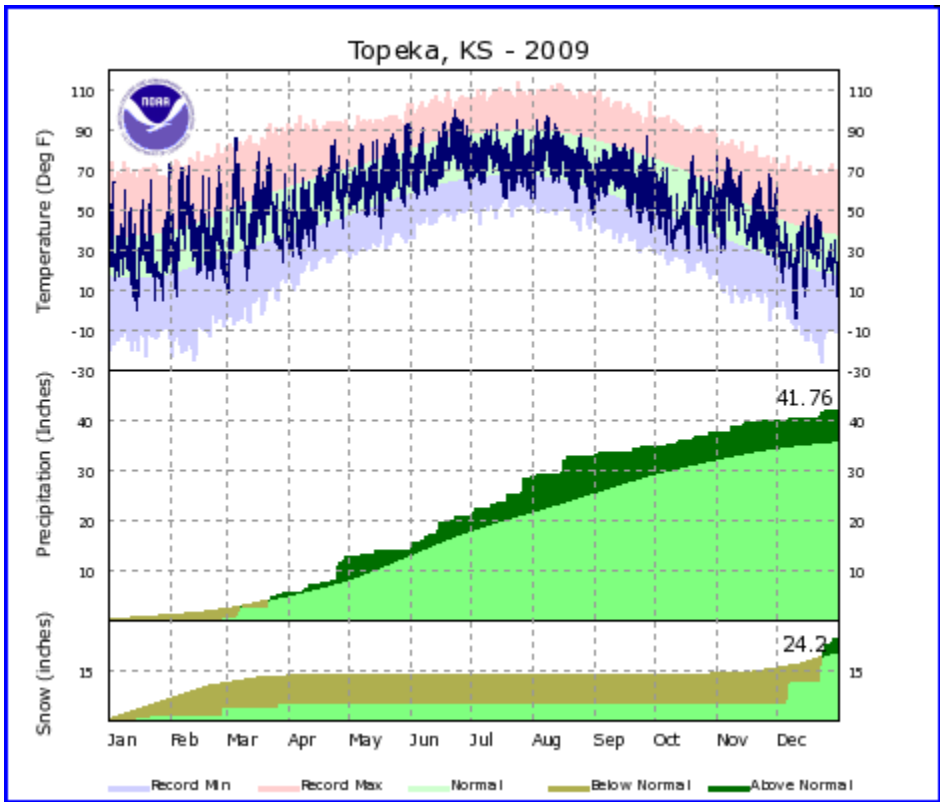
____ 38. The hydrosphere, atmosphere, geosphere and biosphere are
a. where Earth's fossils are deposited
b. four of Earth's time periods
c. Earth's political regions
d. Earth's interconnected "systems"

____ 39. Which of the following is ***NOT*** an example of how human activites can damage habitats and the survival rates of other organisms?
a. earthquakes and volcanoes
b. surface mining and deforestation
c. construction and urban development
d. agriculture, dams, and landfills

____ 40. Most air pollution is caused by burning fossil fuels. Burning fossil fuels releases what into the atmosphere?
a. oxygen
b. helium
c. hydrogen gas
d. carbon dioxide

____ 41. The greenhouse gas carbon dioxide is released into the atmosphere in all of the ways given below. Which of the following is ***NOT*** related to **human activity?**
a. burning coal to produce electricity
b. burning gasoline in automobile engines
c. volcanoes, forest fires and animal respiration (breathing)
d. turning on lights, TVs and computers in Michigan

____ 42.



Examine the data in the graph above. Based on what you see, choose the ***BEST*** description of what the graph is communicating:

a. daily temperatures in Topeka

b. the climate of Topeka

c. daily amounts of rain from January to December in Topeka

d. changes in weather over many decades in Topeka

____ 43. An air mass is

a. An area of the atmosphere moving at a slow speed from west to east.

b. a part of the atmosphere that stays close to the ground and causes stormy weather

c. a large region of air that is full of clouds and precipitation

d. a huge body of air that has similar temperature, humidity, and air pressure throughout

____ 44. Uneven heating of the Earth's surface which causes convection currents and weather happens

a. because the Earth is much closer to the sun in the summertime

b. because the sun shines twice as hot at certain times of the year

c. because it is always winter in one region of the Earth and summer in another

d. because the Earth is curved and tilted

____ 45. Which of the following is ***NOT*** true about ocean water?

a. ocean water stores large amounts of heat

c. ocean water keeps heat energy longer than

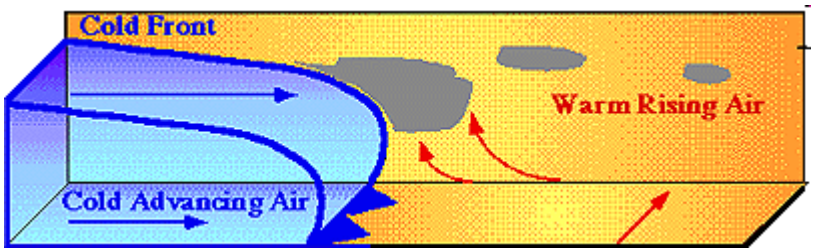
and can greatly affect climate

b. It takes less time for ocean water to heat up from the sun than land

air does

d. ocean water absorbs heat more slowly than land does

____ 46.



Look at the diagram above. Which answer best describes this weather?

a. colder, denser, heavier air is pushing warmer air up and away

b. cold air is moving in to mix with the warm air

c. clouds are absorbing warm air up and away to make room for the advancing cold front

d. as the cold air advances, the warmer air will push it up

____ 47. A cold front is

a. where a warm air mass pushes a cold air mass out of the way

b. where a cold air mass smashes into another cold air mass

c. where a cold air mass pushes a warm air mass out of the way

d. where the climate first begins a transition from warmer temperatures to cooler temperatures

____ 48. Big thunderstorms in the summer and large snowfalls in the winter are weather conditions associated with a

a. warm front

b. occluded front

c. cold front

d. stationary front

____ 49. As warm, moist air rises in the sky and cools

a. it eventually rises into outer space

b. the water vapor in it condenses to form clouds and precipitation

c. the moisture evaporates

d. it become denser and drier so that any clouds in it evaporate

____ 50. Whenever water vapor in the air gets cool enough

a. it may condense into clouds, fog or dew

b. it condenses into frost

c. it evaporates into clouds and fog

d. it rises and creates clear skies

____ 51. Raindrops form and become heavy enough to fall

a. when the air in the sky gets very warm

b. when there is enough wind to blow them

c. when the clouds become less dense and wispy

d. when enough tiny water droplets or ice

down toward the Earth's surface

crystals combine and get larger

____ 52. When precipitation falls any of the following may happen ***EXCEPT*** which one?

a. some of the precipitation may infiltrate through the soil deep into the ground to become groundwater

b. some of the precipitation may evaporate back into the sky by the power of the sun's electromagnetic radiation

c. some of the precipitation may be swept up into outer space by atmospheric winds

d. some of the precipitation may runoff downhill by the force of gravity into streams, rivers and creeks

____ 53.

$$6H_2O + 6CO_2 \text{ ----------> } C_6H_{12}O_6 + 6O_2$$

Which of the following does NOT relate to the chemical formula you see above?

a. six molecules of water plus six molecules of carbon dioxide produce one molecule of sugar plus six molecules of oxygen

b. photosynthesis

c. water, air, and sunlight combine to produce food (sugar molecules) in green plants

d. Hydrogen, nitrogen, and phosphorus atoms get rearranged to produce greenhouse gases

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 54. When rain water infiltrates down through the ground by the force of gravity it eventually stops moving downward. Why?

a. As the rain water infiltrates the ground, most of it evaporates and disappears into the soil

b. Earth worms and other organisms in the soil consume all of the water

c. The force of gravity becomes weaker and weaker as the rain water moves down into the ground

d. The rain water runs into a layer of impermeable rock which allows nothing to get through

____ 55. Which choice does not refer to an underground area of rock, soil, and sand that is full of water in every space and crack?

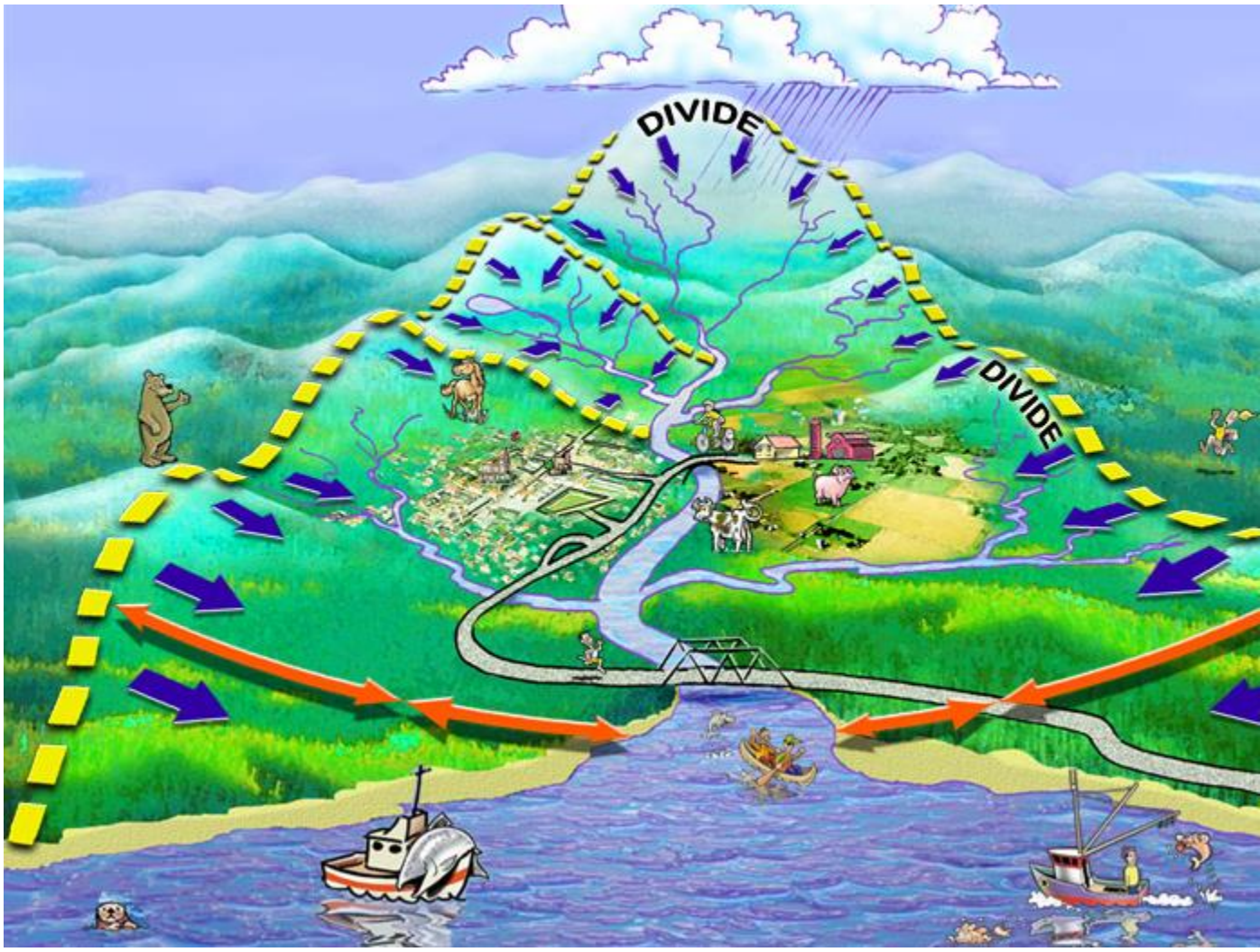
a. aquifer

b. saturated zone

c. runoff

d. groundwater

____ 56.



The diagram above will help you answer #56. Look at the ridge of land labelled "divide" in the diagram above. When precipitation falls, some of the water runs off on one side of the ridge (blue arrows we can see), and some runs off the other sides (other side of blue arrows). Each side is called a(n)

a. watershed
b. aquifer
c. saturated zone
d. water absorption system

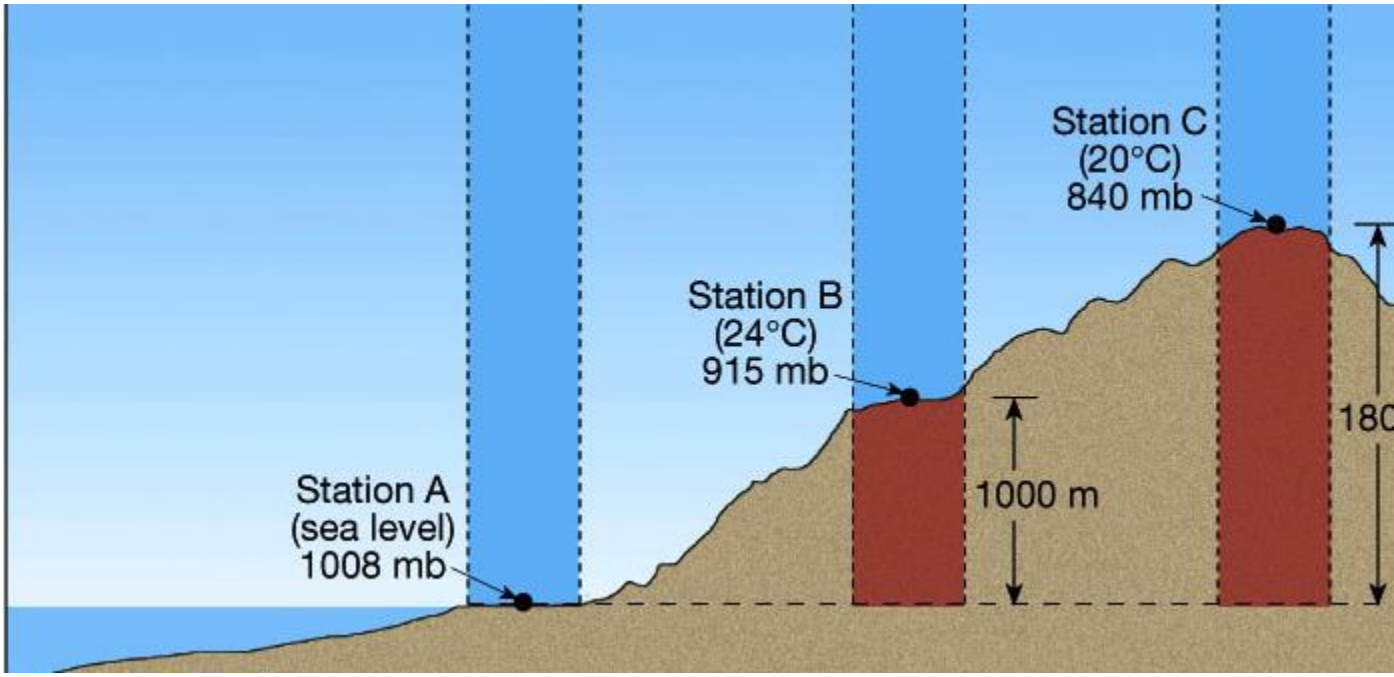
____ 57. Rainwater in Flint runs off downhill by the force of gravity and eventually ends up in

a. the sanitary sewer pipes
b. the water treatment plant
c. the Flint River
d. Lake Superior

____ 58. Choose the answer that does ***NOT*** describe the Earth's atmosphere:

a. Our atmosphere traps heat that is transferred to us from the sun's electromagnetic energy
b. Our atmosphere is a mixture of gases, mostly oxygen and helium
c. Our atmosphere is an envelope of gases that includes nitrogen, oxygen, carbon dioxide and water vapor
d. Our atmosphere has weight and presses down on us all the time

____ 59.



Choose which statement best summarizes the diagram above. The mb units measure air pressure.:

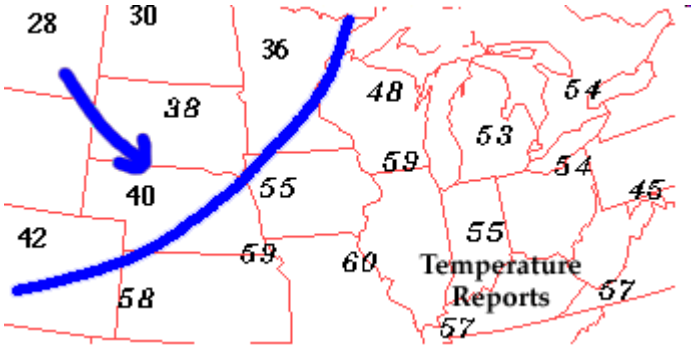
a. as elevation increases, air temperature and air pressure decrease

b. as elevation increases, air temperature and air pressure increase

c. as air pressure increases, elevation and air temperature increase

d. as air pressure increases, elevation increases and air temperature decreases

____ 60.



Look at the diagram and then choose the best description:

a. a warm front, moving west to east, is pushing cold air out of the way

b. warm air is moving downhill to take the place of cooler air

c. a cold front, moving toward the southeast, is pushing warmer air out of the way

d. a line of thunderstorms is moving east to west across the country

NewSEM2Final
Answer Section

MULTIPLE RESPONSE

1. ANS: B
   L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

   PTS: 1
2. ANS: A
   L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms).

   PTS: 1
3. ANS: C
   L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms).

   PTS: 1
4. ANS: C
   L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms).

   PTS: 1
5. ANS: A
   L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems.

   PTS: 1
6. ANS: B
   L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems.

   PTS: 1
7. ANS: C
   L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems.

   PTS: 1
8. ANS: D
   L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems.

   PTS: 1
9. ANS: C
   L.OL.07.23 Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs.

   PTS: 1
10. ANS: D

L.OL.07.23 Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs.

PTS: 1

11. ANS: B
L.OL.07.24 Recognize that cells function in a similar way in all organisms.

PTS: 1

12. ANS: D
L.OL.07.24 Recognize that cells function in a similar way in all organisms.

PTS: 1

13. ANS: C
L.OL.07.31 Describe growth and development in terms of increase of cell number and/or cell size.

PTS: 1

14. ANS: B
L.OL.07.31 Describe growth and development in terms of increase of cell number and/or cell size.

PTS: 1

15. ANS: B
L.OL.07.32 Examine how through cell division, cells can become specialized for specific functions.

PTS: 1

16. ANS: A
L.OL.07.32 Examine how through cell division, cells can become specialized for specific functions.

PTS: 1

17. ANS: D
L.OL.07.32 Examine how through cell division, cells can become specialized for specific functions.

PTS: 1

18. ANS: B
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

19. ANS: D
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

20. ANS: B
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

21. ANS: C
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

22. ANS: D
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

23. ANS: C
L.OL.07.62 Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats.

PTS: 1

24. ANS: A
L.OL.07.62 Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats.

PTS: 1

25. ANS: C
L.OL.07.62 Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats.

PTS: 1

26. ANS: C
L.OL.07.63 Describe evidence that plants make, use and store food.

PTS: 1

27. ANS: C
L.OL.07.63 Describe evidence that plants make, use and store food.

PTS: 1

28. ANS: D
L.OL.07.63 Describe evidence that plants make, use and store food.

PTS: 1

29. ANS: B
E.ES.07.11 Demonstrate, using a model or drawing, the
relationship between the warming by the sun of the Earth and the water cycle as it applies to the
atmosphere (evaporation, water vapor, warm air
rising, cooling, condensation, clouds).

PTS: 1

30. ANS: A
E.ES.07.11 Demonstrate, using a model or drawing, the
relationship between the warming by the sun of the Earth and the water cycle as it applies to the

atmosphere (evaporation, water vapor, warm air
rising, cooling, condensation, clouds).

PTS: 1

31. ANS: B
E.ES.07.12 Describe the relationship between the warming of the atmosphere of the Earth by the sun and convection within the atmosphere and oceans.

PTS: 1

32. ANS: C
E.ES.07.12 Describe the relationship between the warming of the atmosphere of the Earth by the sun and convection within the atmosphere and oceans.

PTS: 1

33. ANS: D
E.ES.07.12 Describe the relationship between the warming of the atmosphere of the Earth by the sun and convection within the atmosphere and oceans.

PTS: 1

34. ANS: A
E.ES.07.12 Describe the relationship between the warming of the atmosphere of the Earth by the sun and convection within the atmosphere and oceans.

PTS: 1

35. ANS: B
E.ES.07.13 Describe how the warming of the Earth by the sun
produces winds and ocean currents.

PTS: 1

36. ANS: D
E.ES.07.13 Describe how the warming of the Earth by the sun
produces winds and ocean currents.

PTS: 1

37. ANS: B
E.ES.07.13 Describe how the warming of the Earth by the sun
produces winds and ocean currents.

PTS: 1

38. ANS: D
E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.

PTS: 1

39. ANS: A
E.ES.07.41 Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.

PTS: 1

40. ANS: D
E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.

PTS: 1

41. ANS: C
E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.

PTS: 1

42. ANS: B
E.ES.07.71 Compare and contrast the difference and relationship between climate and weather.

PTS: 1

43. ANS: D
E.ES.07.72 Describe how different weather occurs due to the constant motion of the atmosphere from the energy of the sun reaching the surface of the Earth.

PTS: 1

44. ANS: D
E.ES.07.72 Describe how different weather occurs due to the constant motion of the atmosphere from the energy of the sun reaching the surface of the Earth.

PTS: 1

45. ANS: B
E.ES.07.73 Explain how the temperature of the oceans affects the different climates on Earth because water in the oceans holds a large amount of heat.

PTS: 1

46. ANS: A
E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.

PTS: 1

47. ANS: C
E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.

PTS: 1

48. ANS: C
E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.

PTS: 1

49. ANS: B

E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.

PTS: 1

50. ANS: A
E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

PTS: 1

51. ANS: D
E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

PTS: 1

52. ANS: C
E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

PTS: 1

53. ANS: D
L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.

PTS: 1

MULTIPLE CHOICE

54. ANS: D
E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

PTS: 1

55. ANS: C
E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.

PTS: 1

56. ANS: A
E.ES.07.82 Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.

PTS: 1

57. ANS: C

E.ES.07.82 Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.

PTS: 1

58. ANS: B
E.FE.07.12 Compare and contrast the composition of the atmosphere at different elevations.

PTS: 1

59. ANS: A
E.FE.07.12 Compare and contrast the composition of the atmosphere at different elevations.

PTS: 1

60. ANS: C
E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.

PTS: 1