



# TPO 24

## READING

### Paragraph 1:

1. The phrase “So much” in the passage refers to
  - A. the negative effects of overland flow, rain, and evaporation on river water levels
  - B. water that a lake loses to outflowing rivers, to the lake bed, and to evaporation
  - C. the importance of rivers to the maintenance of lake water levels
  - D. the information given about ways that water can enter or exit a lake

### Paragraph 2:

2. The word “gains” in the passage is closest in meaning to
  - A. results
  - B. increases
  - C. resources
  - D. savings
3. Which of the following can be inferred from paragraph 2 about the movement of water into a lake?
  - A. Heavy rain accounts for most of the water that enters into lakes.
  - B. Rainfall replaces approximately the amount of water lost through evaporation.
  - C. Overland flow into lakes is reduced by the presence of forests.
  - D. Seepage has a smaller effect on water level than any other input.
4. Why does the author use the phrase Note the word "net" in the passage?
  - A. To emphasize the impact of seepage on water

### Lake Water

Where does the water in a lake come from, and how does water leave it? Water enters a lake from inflowing rivers, from underwater seeps and springs, from overland flow off the surrounding land, and from rain falling directly on the lake surface. Water leaves a lake via outflowing rivers, by soaking into the bed of the lake, and by evaporation. So much is obvious.

The questions become more complicated when actual volumes of water are considered: how much water enters and leaves by each route? Discovering the inputs and outputs of rivers is a matter of measuring the discharges of every inflowing and outflowing stream and river. Then exchanges with the atmosphere are calculated by finding the difference between the gains from rain, as measured (rather roughly) by rain gauges, and the losses by evaporation, measured with models that correct for the other sources of water loss. For the majority of lakes, certainly those surrounded by forests, input from overland flow is too small to have a noticeable effect. Changes in lake level not explained by river flows plus exchanges with the atmosphere must be due to the net difference between what seeps into the lake from the groundwater and what leaks into the groundwater. Note the word "net": measuring the actual

- levels
- B. To point out that seepage is calculated differently from river flows and atmospheric exchanges
  - C. To compare the different methods of calculating seepage
  - D. To emphasize the difficulty of obtaining specific values for seepage inputs and outputs

**Paragraph 3:**

- 5. The word "Conversely" meaning to
  - A. on the other hand
  - B. in the same way
  - C. in other words
  - D. on average
- 6. According to paragraph 3, which of the following best describes a seepage-dominated lake?
  - A. A lake that is fed by streams but still has fluctuating water levels
  - B. A lake with a constant water level that has no streams or rivers as inputs
  - C. A lake with a stream flowing into it and a stream flowing out of it
  - D. A lake that has surface and underground inputs but loses water during dry seasons

**Paragraph 4:**

- 7. It can be inferred from paragraph 4 that the length of time a given molecule of water remains in a lake
  - A. depends entirely upon the average speed of a lake's currents
  - B. can be measured by the volume of the lake alone
  - C. can be greater or lesser than the residence time
  - D. is similar to the length of time all other

amounts of groundwater seepage into the lake and out of the lake is a much more complicated matter than merely inferring their difference.

Once all this information has been gathered, it becomes possible to judge whether a lake's flow is mainly due to its surface inputs and outputs or to its underground inputs and outputs. If the former are greater, the lake is a surface-water-dominated lake; if the latter, it is a seepage-dominated lake. Occasionally, common sense tells you which of these two possibilities applies. For example, a pond in hilly country that maintains a steady water level all through a dry summer in spite of having no streams flowing into it must obviously be seepage dominated. Conversely, a pond with a stream flowing in one end and out the other, which dries up when the stream dries up, is clearly surface water dominated.

By whatever means, a lake is constantly gaining water and losing water: its water does not just sit there, or, anyway, not for long. This raises the matter of a lake's residence time. The residence time is the average length of time that any particular molecule of water remains in the lake, and it is calculated by dividing the volume of water in the lake by the rate at which water leaves the lake. The residence time is an average; the time spent in the lake by a

molecules remain in that lake

given molecule (if we could follow its fate) would depend on the route it took: it might flow through as part of the fastest, most direct current, or it might circle in a backwater for an indefinitely long time.

**Paragraph 5:**

8. According to paragraph 5, Lake Erie's residence time is lower than Lake Ontario's for which of the following reasons?
- A. Lake Erie has a larger area than Lake Ontario.
  - B. Lake Ontario is shallower than Lake Erie.
  - C. Lake Ontario has a greater volume than Lake Erie.
  - D. Lake Erie receives less rainfall than Lake Ontario.
9. Why does the author discuss the Great Lakes in paragraph 5?
- A. To demonstrate the extent to which residence times vary from lake to lake
  - B. To illustrate how residence times are calculated for specific lakes
  - C. To argue that the residence time of a lake increases with area
  - D. To emphasize that Lake Tahoe's residence time is unusually long
10. According to paragraph 5, major ceremonial events were occasions for
- A. leaders to persuade people from the countryside to move into a pueblo
  - B. farmers to collect information about where crops could be reliably grown
  - C. people to develop better techniques for producing pottery and crafts
  - D. people in the early Puebloan era to share farm and craft products

Residence times vary enormously. They range from a few days for small lakes up to several hundred years for large ones; Lake Tahoe, in California, has a residence time of 700 years. The residence times for the Great Lakes of North America, namely, Lakes Superior, Michigan, Huron, Erie, and Ontario, are, respectively, 190, 100, 22, 2.5, and 6 years. Lake Erie's is the lowest: although its area is larger than Lake Ontario's, its volume is less than one-third as great because it is so shallow-less than 20 meters on average.

**Paragraph 6:**

11. According to paragraph 6, which of the following explains the increase in residence northwestern Ontario?
- A. The amount of water flowing into the lakes has increased.
  - B. The rate of evaporation has decreased more sharply than the amount of rainfall.
  - C. The renewal of the lakes' water has slowed due to changes in climate.
  - D. Plants have required less water from the lakes.

12. According to paragraph 6, residence time is affected by all of the following EXCEPT

- A. amount of rainfall
- B. rate of evaporation
- C. temperature of surrounding air
- D. concentration of chemicals in lake water

13. Look at the four squares III that indicate where the following sentence could be added to the passage.

Of course, a lake may be neither surface-water-nor seepage-dominated if, for example, its inputs are predominantly surface and its outputs are predominantly seepage.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

A given lake's residence time is by no means a fixed quantity. It depends on the rate at which water enters the lake, and that depends on the rainfall and the evaporation rate. Climatic change (the result of global warming?) is dramatically affecting the residence times of some lakes in northwestern Ontario, Canada. In the period 1970 to 1986, rainfall in the area decreased from 1,000 millimeters to 650 millimeters per annum, while above-average temperatures speeded up the evapotranspiration rate (the rate at which water is lost to the atmosphere through evaporation and the processes of plant life). The result has been that the residence time of one of the lakes increased from 5 to 18 years during the study period. The slowing down of water renewal leads to a chain of further consequences; it causes dissolved chemicals to become increasingly concentrated, and this, in turn, has a marked effect on all living things in the lake.

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Once all this information has been gathered, it becomes possible to judge whether a lake's flow is mainly due to its surface inputs and outputs or to its underground inputs and outputs. [■] If the former are greater, the lake is a surface-water-dominated lake; if the latter, it is a seepage-dominated lake. [■]

14. Water enters, remains, and eventually leaves a lake in a variety of ways.
- A. By measuring the water quantities at each of a lake's inputs and outputs, it can be determined whether water enters the lake mainly from surface or groundwater sources.
  - B. Changes in lake level and volume are caused principally by the amount of evaporation of water into the atmosphere.
  - C. It is sometimes possible to decide whether a lake is surface water dominated or seepage dominated by simple observation at different seasons.
  - D. The average period of time that molecules of water spend in a lake—the residence time—varies from lake to lake and overtime within a particular lake.
  - E. The residence times of surface-water-dominated lakes are usually longer than those of seepage-dominated lakes.

The residence time of a lake frequently depends on the kinds of organisms to be found in the lake.

Occasionally, common sense tells you which of these two possibilities applies. [■] For example, a pond in hilly country that maintains a steady water level all through a dry summer in spite of having no streams flowing into it must obviously be seepage dominated. Conversely, a pond with a stream flowing in one end and out the other, which dries up when the stream dries up, is clearly surface water dominated. [■]

#### **Paragraph 1:**

1. According to paragraph 1, which of the following can be inferred about the diaphragm during sleep?
  - A. During sleep the diaphragm requires increased movement of the rib cage.
  - B. The diaphragm helps with breathing as movements of the rib cage decrease during sleep.
  - C. The diaphragm requires a great amount of pressure to function properly.

#### **Breathing During Sleep**

Of all the physiological differences in human sleep compared with wakefulness that have been discovered in the last decade, changes in respiratory control are most dramatic. Not only are there differences in the level of the functioning of respiratory systems, there are even changes in how they function. Movements of the rib cage for breathing are reduced during sleep, making the

- D. The diaphragm contributes to the effective functioning of the rib cage.

contractions of the diaphragm more important. Yet because of the physics of lying down, the stomach applies weight against the diaphragm and makes it more difficult for the diaphragm to do its job. However, there are many other changes that affect respiration when asleep.

**Paragraph 2:**

2. According to paragraph 2, all of the following are true of the voluntary breathing system EXCEPT:
- A. It has its control center in the brain stem
  - B. It controls breathing for a number of activities during wakefulness.
  - C. It is able to bypass the automatic system.
  - D. It produces an irregular breathing pattern.

During wakefulness, breathing is controlled by two interacting systems. The first is an automatic, metabolic system whose control is centered in the brain stem. It subconsciously adjusts breathing rate and depth in order to regulate the levels of carbon dioxide ( $\text{CO}_2$ ) and oxygen ( $\text{O}_2$ ), and the acid-base ratio in the blood. The second system is the voluntary, behavioral system. Its control center is based in the forebrain, and it regulates breathing for use in speech, singing, sighing, and so on. It is capable of ignoring or overriding the automatic, metabolic system and produces an irregular pattern of breathing.

**Paragraph 3:**

3. The word “exclusive” in the passage is closest in meaning to
- A. consistent
  - B. perfect
  - C. partial
  - D. sole
4. According to paragraph 3, which of the following may occur just before NREM sleep begins?
- A. The automatic, metabolic system may increase its dependence on air exchanges.
  - B. Breathing can stop for a short time as a person falls asleep.
  - C. An increase in the oxygen level in the blood

During NREM (the phase of sleep in which there is no rapid eye movement) breathing becomes deeper and more regular, but there is also a decrease in the breathing rate, resulting in less air being exchanged overall. This occurs because during NREM sleep the automatic, metabolic system has exclusive control over breathing and the body uses less oxygen and produces less carbon dioxide. Also, during sleep the automatic metabolic system is less responsive to carbon dioxide levels and oxygen levels in the blood. Two things result from these changes in breathing control that occur during sleep. First, there may be a

can occur as sleep becomes fully obtained.

D. The level of carbon dioxide in the blood may drop suddenly.

5. What is the author's purpose in stating that inhaling is like sucking air out of a balloon?

A. To refute the argument that additional effort is necessary for breathing during sleep

B. To argue that REM sleep is more important than NREM sleep

C. To illustrate the difficulty of breathing during sleep

D. To illustrate how blockage of narrow passages can be prevented during sleep

brief cessation or reduction of breathing when falling asleep as the sleeper waxes and wanes between sleep and wakefulness and their differing control mechanisms. Second, once sleep is fully obtained, there is an increase of carbon dioxide and a decrease of oxygen in the blood that persists during NREM.

#### **Paragraph 4:**

6. All of the following are mentioned in paragraph 4 as being characteristic of breathing during sleep EXCEPT

A. relaxation of the muscles involved in the respiratory system

B. changes in resistance between the two sides of the nose

C. easier airflow in the passages of the upper airway

D. absence of certain complex muscle interactions

But that is not all that changes. During all phases of sleep, several changes in the air passages have been observed. It takes twice as much effort to breathe during sleep because of greater resistance to airflow in the airways and changes in the efficiency of the muscles used for breathing. Some of the muscles that help keep the upper airway open when breathing tend to become more relaxed during sleep, especially during REM (the phase of sleep in which there is rapid eye movement). Without this muscular action, inhaling is like sucking air out of a balloon—the narrow passages tend to collapse. Also there is a regular cycle of change in resistance between the two sides of the nose. If something blocks the "good" side, such as congestion from allergies or a cold, then resistance increases dramatically. Coupled with these factors is the loss of the complex interactions among the muscles that can change the route of airflow from nose to mouth.

**Paragraph 5:**

7. According to paragraph 5, what happens during NREM sleep when inhaling is difficult?
- A. There is an immediate, automatic, adaptive increase in breathing effort.
  - B. The sleeping person takes several inadequate breaths before the breathing effort is adjusted.
  - C. The coughing reflex causes the breathing effort to adjust.
  - D. The airways become cleared as the blood removes irritants.

8. It can be inferred from paragraph 5 that a very mild irritation during sleep will likely cause the sleeping person to

- A. increase the breathing effort
- B. wake up and remove the source of irritation
- C. cough while still sleeping
- D. stop breathing temporarily while still sleeping

9. The word “considerable” meaning to

- A. significant
- B. Steady
- C. Usual
- D. necessary

10. The word “resume” in the passage is closest in meaning to

- A. reduce
- B. stop
- C. readjust
- D. restart

**Paragraph 6:**

11. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave

Other respiratory regulating mechanisms apparently cease functioning during sleep. For example, during wakefulness there is an immediate, automatic, adaptive increase in breathing effort when inhaling is made more difficult (such as breathing through a restrictive face mask). This reflexive adjustment is totally absent during NREM sleep. Only after several inadequate breaths under such conditions, resulting in the considerable elevation of carbon dioxide and reduction of oxygen in the blood, is breathing effort adjusted. Finally, the coughing reflex in reaction to irritants in the airway produces not a cough during sleep but a cessation of breathing. If the irritation is severe enough, a sleeping person will arouse, clear the airway, then resume breathing and likely return to sleep.

Additional breathing changes occur during REM sleep that are even more dramatic than the changes that occur during NREM. The amount of air exchanged is even lower in REM than NREM because, although

out essential information.

- A. Because breathing is more shallow and irregular in REM than in NREM, less air is exchanged in REM.
- B. Breathing in NREM is less effective than breathing in REM because of irregular episodes of rapid breathing during NREM.
- C. Because breathing is more rapid in NREM sleep than in REM sleep, breathing often becomes shallow.
- D. Although REM has brief episodes of shallow breathing or lack of breathing, breathing is more rapid than in NREM.

12. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

To better understand breathing during sleep, it is, however, helpful to first understand how respiration works in general.

Where would the sentence best fit? Click on a square to add the sentence to the passage

1. Directions: From the seven statements below, select the statements that correctly characterize breathing during wakefulness and those statements that correctly characterize breathing during sleep. Drag each answer choice you select into the appropriate box of the table. Two of the answer choices will NOT be used. This question is worth 3 points.

- Wakefulness
- Sleep

#### Answer Choices

- A. The role of the rib cage increases and the role of the diaphragm decreases.
- B. Carbon dioxide in blood rises and oxygen

breathing is more rapid in REM, it is also more irregular, with brief episodes of shallow breathing or absence of breathing.

In addition, breathing during REM depends much more on the action of the diaphragm and much less on rib cage action.

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paragraph1 : Movements of the rib cage for breathing are reduced during sleep, making the contractions of the diaphragm more important. [■] Yet because of the physics of lying down, the stomach applies weight against the diaphragm and makes it more difficult for the diaphragm to do its job. [■] However, there are many other changes that affect respiration when asleep.

paragraph2: [■] During wakefulness, breathing is controlled by two interacting systems. [■] The first is an automatic, metabolic system whose control is centered in the brain stem. It subconsciously adjusts breathing rate and depth in order to regulate the levels of carbon dioxide (CO<sub>2</sub>) and oxygen (O<sub>2</sub>), and the acid-base ratio in the blood. The second system is the voluntary, behavioral system. Its control center is based in the forebrain, and it regulates breathing for use in speech, singing, sighing, and so on. It is capable of ignoring or overriding the

drops.

- C. The coughing reflex is extremely complex.
- D. A great deal of effort is used for breathing.
- E. Upper airways are resistant to colds and allergies.
- F. There is a drop in the volume of air that is exchanged.

Automatic and voluntary respiratory systems are both involved.

automatic, metabolic system and produces an irregular pattern of breathing.

#### **Paragraph 1:**

1. The word "traumatic" meaning to
  - A. Essential
  - B. highly stressful
  - C. highly unusual
  - D. unwise
2. The word "intense" in the passage is closest in meaning to
  - A. strong
  - B. questionable
  - C. obvious
  - D. deliberate
3. According to paragraph 1, before the thirteenth century the people of southwestern North America lived in
  - A. households that
  - B. occupied dwellings that were built into the sides of cliffs
  - C. were largely free to conduct their lives as they pleased
  - D. enforced common standards of behavior and cooperative conduct within their communities

#### **Moving into Pueblos**

In the Mesa Verde area of the ancient North American Southwest, living patterns changed in the thirteenth century, with large numbers of people moving into large communal dwellings called pueblos, often constructed at the edges of canyons, especially on the sides of cliffs. Abandoning small extended-family households to move into these large pueblos with dozens if not hundreds of other people was probably traumatic. Few of the cultural traditions and rules that today allow us to deal with dense populations existed for these people accustomed to household autonomy and the ability to move around the landscape almost at will. And besides the awkwardness of having to share walls with neighbors, living in aggregated pueblos introduced other problems. For people in cliff dwellings, hauling water, wood, and food to their homes was a major chore. The stress on local resources, especially in the firewood needed for daily cooking and warmth,

4. Which of the following best indicates the organization of paragraph 1?
- A. It presents the conditions that caused a change in a population's living patterns and then explains why those conditions got worse.
  - B. It identifies certain present-day cultural traditions and rules and then traces them to their roots in the thirteenth century.
  - C. It casts doubt on one explanation of the move to pueblos and then introduces an alternative explanation that the passage will defend.
  - D. It describes a major change in a population's living patterns and then presents a number of problems that resulted from that change.

**Paragraph 3:**

5. According to paragraph 3, which of the following was one of the consequences of increasing population densities?
- A. People were increasingly crowded into collections of large housing units.
  - B. People stopped planting crops that have relatively low yields.
  - C. Domestic buildings were pushed beyond the canyon limits.
  - D. The natural landscape was destroyed.
6. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- A. Some scholars even claim that the intensification of farmers' various efforts during the 1200s led to further population growth and the consequent need for more arable land.
  - B. Evidence of intensifying agriculture in the 1200s indicates a need to feed a larger population and so extends the argument that a

was particularly intense, and conditions in aggregated pueblos were not very hygienic.

Given all the disadvantages of living in aggregated towns, why did people in the thirteenth century move into these closely packed quarters? For transitions of such suddenness, archaeologists consider either pull factors (benefits that drew families together) or push factors (some external threat or crisis that forced people to aggregate). In this case, push explanations dominate.

Population growth is considered a particularly influential push. After several generations of population growth, people packed the landscape in densities so high that communal pueblos may have been a necessary outcome. Around Sand Canyon, for example, populations grew from 5 -12 people per square kilometer in the tenth century to as many as 30 - 50 by the 1200s. As densities increased, domestic architecture became larger, culminating in crowded pueblos. Some scholars expand on this idea by emphasizing a corresponding need for arable land to feed growing numbers of people: construction of small dams, reservoirs, terraces, and field houses indicates that farmers were intensifying their efforts during the 1200s. Competition for good farmland may also have prompted people to bond together to assert rights over the best fields.

growing population was the cause of the move to pueblos.

C. During the 1200s, farmers met the demand for more arable land, but they also succeeded in cultivating existing land more intensively with the help of agricultural construction projects.

D. Some scholars feel strongly that the construction of small dams, reservoirs, terraces, and field houses in the thirteenth century is independent evidence for growth in the number of people.

**Paragraph 4:**

7. The word “transition” in the passage is closest in meaning to

- A. change
- B. climate
- C. decline
- D. problem

8. Why does the author state that “Growing food at these elevations is always difficult because of the short growing season”?

- A. To explain why the higher elevations were always relatively sparsely populated
- B. To suggest that any worsening of conditions would have significant consequences
- C. To emphasize how resourceful the people growing food at these elevations were
- D. To argue that farming was not the primary source of food at high elevations

9. According to paragraph 4, what did farmers do in response to falling temperatures during the Little Ice Age?

- A. Moved to areas away from Mesa Verde
- B. Moved closer to the northeastern part of Mesa Verde
- C. Began to cultivate crops adapted to a short growing season

Another important push was the onset of the Little Ice Age, a climatic phenomenon that led to cooler temperatures in the Northern Hemisphere. Although the height of the Little Ice Age was still around the corner, some evidence suggests that temperatures were falling during the thirteenth century. The environmental changes associated with this transition are not fully understood, but people living closest to the San Juan Mountains, to the northeast of Mesa Verde, were affected first. Growing food at these elevations is always difficult because of the short growing season. As the Little Ice Age progressed, farmers probably moved their fields to lower elevations, infringing on the lands of other farmers and pushing people together, thus contributing to the aggregations. Archaeologists identify a corresponding shift in populations toward the south and west toward Mesa Verde and away from higher elevations.

- D. Gave up the cultivation of the highest-lying lands

**Paragraph 5:**

10. According to paragraph 5, major ceremonial events were occasions for

- A. leaders to persuade people from the countryside to move into a pueblo
- B. farmers to collect information about where crops could be reliably grown
- C. people to develop better techniques for producing pottery and crafts
- D. people in the early Puebloan era to share farm and craft products

11. According to paragraph 5, which of the following was a reason people in the Mesa Verde area formed communal villages in the thirteenth century?

- A. The climate in the Mesa Verde area became more locally diverse.
- B. Individuals were no longer interested in exchanging pottery and food.
- C. Cooperation between people became more important for survival.
- D. Bad years of farming began to occur more frequently.

12. Paragraph 5 supports which of the following statements about cooperation among the people in the Mesa Verde area from the eleventh through the thirteenth century?

- A. Cooperation allowed many households to give up farming and to specialize in making pottery and crafts.
- B. People went from exchanging food and crafts they individually produced to sharing in a cooperative effort to produce as much food as possible.

In the face of all these pushes, people in the Mesa Verde area had yet another reason to move into communal villages: the need for greater cooperation. Sharing and cooperation were almost certainly part of early Puebloan life, even for people living in largely independent single-household residences scattered across the landscape. Archaeologists find that even the most isolated residences during the eleventh and twelfth centuries obtained some pottery, and probably food, from some distance away, while major ceremonial events were opportunities for sharing food and crafts. Scholars believe that this cooperation allowed people to contend with a patchy environment in which precipitation and other resources varied across the landscape: if you produce a lot of food one year, you might trade it for pottery made by a distant ally who is having difficulty with crops—and the next year, the flow of goods might go in the opposite direction. But all of this appears to have changed thirteenth century. Although the climate remained as unpredictable as ever between one year and the next, it became much less locally diverse. In a bad year for farming, everyone was equally affected. No longer was it helpful to share widely. Instead, the most sensible thing would be for neighbors to combine efforts to produce as much food as possible, and thus aggregated towns

C. Overtime there was less cooperation as farmers competed with each other for trade with distant areas.

D. Individuals stopped cooperating with each other because they did not have enough food for themselves.

13. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

Performing everyday household tasks required more effort.

Where would the sentence best fit? Click on a square to add the sentence to the passage.

14. In the thirteenth century, the people in the Mesa Verde area went from living in scattered independent households to living in large pueblos.

#### Answer Choices

A. Because the thirteenth-century inhabitants of the Mesa Verde area did not have the cultural expectations of today's city dwellers, they easily adapted to communal life.

B. Even though living in pueblos had disadvantages, the population of the area had grown so large that there may have been no other arrangement that would have met its needs.

C. From the eleventh century onward, farmers began to increase food production on existing farmland and started bringing more land under cultivation.

D. A development that contributed to increasing population densities was a cooling climate that led many people to leave the coldest areas and crowd into climatically more favorable areas.

E. The primary reason for moving to pueblos was the social benefits associated with communal life.

were a sensible arrangement.

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In the Mesa Verde area of the ancient North American Southwest, living patterns changed in the thirteenth century, with large numbers of people moving into large communal dwellings called pueblos, often constructed at the edges of canyons, especially on the sides of cliffs. Abandoning small extended-family households to move into these large pueblos with dozens if not hundreds of other people was probably traumatic. Few of the cultural traditions and rules that today allow us to deal with dense populations existed for these people accustomed to household autonomy and the ability to move around the landscape almost at will. [■] And besides the awkwardness of having to share walls with neighbors, living in aggregated pueblos introduced other problems. [■] For people in cliff dwellings, hauling water, wood, and food to their homes was a major chore. [■] The stress on local resources, especially in the firewood needed for daily cooking and warmth, was particularly intense, and conditions in aggregated pueblos were not very hygienic. [■]

F. People were brought together by the need to produce food cooperatively, as the use of food surpluses in one place to relieve shortages in another ended due to a change in climate.

## **LISTENING**

1. Why can the man NOT find the book he needs?

- A. The bookstore is sold out of the book.
- B. The bookstore he is in does not carry the book.
- C. His professor did not order enough copies of the book.
- D. The book is not being used for any course offered at the university.

2. What are two possible reasons that the speakers consider for why the man cannot find the book?

Click 2 Answers

- A. It is for a graduate-level course.
- B. Information about the book was entered incorrectly into the computer system
- C. The man has given the woman an incorrect title for the book.
- D. The professor forgot to submit the book order.

3. What does the woman offer to do for the student?

- A. Save a copy of the book for him as soon as it comes in
- B. Order more copies of the book
- C. Call the computer store across the street
- D. Find a store that sells the book if he cannot find it

4. How does the man react to the information the woman gives him about where computer science books are sold?

- A. He is embarrassed that he did not think of it himself.
- B. He suggests that the information be posted in the store
- C. He apologizes for bothering the woman.
- D. He is annoyed that the woman did not tell him sooner

5. Why does the woman say this

- A. To determine how urgent the student's need is
- B. To figure out why the book is not listed on the computer
- C. To find out what level computer science course the man is taking
- D. To explain why the book might be sold out

6. What does the professor mainly discuss?

- A. Factors that affect successful crocodile communication
- B. Some reasons for crocodile vocalizations
- C. Ways that newborn crocodiles learn to communicate
- D. Reasons why crocodile vocalization is difficult to study

7. According to the professor, what are two functions of the sounds made by male alligators? Click 2 answers

- A. To frighten predators
- B. To attract mates
- C. To locate hatchlings
- D. To threaten other males

8. Based on the discussion, what is one reason hatchlings make vocalizations to their mother while they are in the nest?

- A. To reassure her that they are safe
- B. To signal that they are ready to follow her
- C. To make sure she does not forget them
- D. To indicate that they need to be relocated to a larger nest

9. What is the professor's opinion about the television program that she mentions?

- A. She is concerned about the accuracy of some of the information the experts provided.
- B. She is hopeful that the class will be able to discuss it.
- C. She thinks it was overly critical of some recent theories about crocodiles.
- D. She is surprised that it did not include more examples of crocodile communication.

10. Why does the professor mention dogs?

- A. To explain that mammals are more complex than reptiles
- B. To point out that crocodiles can communicate with dogs
- C. To give an example of mammals that care for their young
- D. To emphasize that crocodiles have highly developed brains

11. What happens when a hatchling makes a distress call?

- A. Its siblings answer back.
- B. The mother repeats the call.

- C. The rest of its family waits near water.
- D. The mother calls to other adult crocodiles for assistance

12. What is the lecture mainly about? Click on 2 answers
- A. Differences between apical ballet and modem dance
  - B. Ways in which modern dance changed during the twentieth century
  - C. Factors that limited Isadora Duncan's opportunities to perform
  - D. A pioneer of a new type of performing art

13. Why does the professor mention modern art and modern music?
- A. To illustrate how different art forms can interact with one another
  - B. To identify some characteristics shared by all forms of artistic expression
  - C. To explain that modem dance also broke with traditions
  - D. To compare the attitudes of European and American critics to modern dance

14. What were two characteristics of Isadora Duncan's dance performances? Click on 2 answers
- A. She danced to contemporary musical compositions
  - B. She wore free-flowing costumes
  - C. She used set designs inspired by nature.
  - D. She danced without shoes.

15. Why does the professor mention that Duncan watched Anna Pavlova practice?
- A. To help explain how Duncan's opinion of ballet was formed
  - B. To show how modern dance began to spread throughout the works
  - C. To reinforce the importance of dancers working together
  - D. To help explain why Duncan decided to become a professional dancer

16. What does the professor imply about the rivalry between classical ballet and modern dance?
- A. Audiences have generally been unaware of it.
  - B. Critics tend to exaggerate Duncan's role in it
  - C. It is not as strong now as it was in Duncan's time.
  - D. It increased as modern dance became more popular than classical ballet

17. Why does the professor say this

- A. To explain why Duncan was invited to perform in Russia
- B. To indicate that the Russian government strongly supported ballet
- C. To explain why there were more dance critics in Russia than in most other countries
- D. To help explain why Duncan's style was not appreciated by some dance critics

18. Why does the student go to speak with the professor?

- A. To discuss material that might be on the final exam
- B. To review his answers to the midterm exam
- C. To get information about a class he missed
- D. To find out about the services of the tutoring center

19. What does the professor tell the student about the tutoring center? Click on 2 answers

- A. It will have extended hours during the final-exam period.
- B. It is located in a building near where he works
- C. He can improve his writing skills there.
- D. He can get help with geography there.

20. What aspect of the hydrologic cycle is the student confused about?

- A. How the process of evaporation works
- B. How topographical features affect precipitation
- C. How water vapor in the atmosphere becomes rain
- D. How lake water fits into the cycle

21. In the conversation, the professor describes the process that causes lake-effect snowstorms.  
Indicate whether each of the following is a step in the process

YES

NO

- A. Arctic air blows across a lake and picks up moisture
- B. Cold air temperatures cause lake water to freeze
- C. Frozen lake water cools the air above it
- D. Water vapor condenses and becomes snow
- E. Warm air rises when it reaches the shore

22. Why does the professor say this:

- A. To make sure the student knows he will have to be familiar with topographical features for the

final exam

- B. To remind the student of a diagram that she presented in class
- C. To point out the severity of weather conditions near the lakeshore
- D. To reinforce the connection between her example and the student's question

23. What is the lecture mainly about?

- A. Theories about how large animals were able to survive the most recent ice age
- B. Environmental changes that occur following an ice age
- C. Theories about the hunting methods used by early humans in North America
- D. Explanations for the disappearance of large animals in North America

24. Why does the professor mention an archaeological site in Southern California?

- A. To present evidence that supports the hunting theory
- B. To present evidence that mammoths migrated southward to avoid cold winters
- C. To point out that mammoth bones are usually found near human debris
- D. To demonstrate that large animals were able to survive in a variety of habitats

25. What is the professor's opinion about the Clovis people?

- A. Their excessive hunting of mammoths was responsible for the extinction of these animals
- B. Their lack of tools for processing meat contradicts the hunting theory.
- C. They were less accomplished at hunting mammoths than the hunting theory suggests.
- D. They were probably too afraid of large animals to hunt them.

26. According to the climate change theory, how did the climate change at the end of the ice age make it more difficult for large animals to survive? Click on 2 answers

- A. By reducing the size of their habitats
- B. By forcing them to endure a wider range of temperatures
- C. By reducing the variety of food available to them
- D. By forcing them to live near humans

27. What does the professor imply is one problem with the climate change theory?

- A. Many large animals actually benefitted from the climate change
- B. Large animals had survived previous climate changes
- C. Large animals were probably already near extinction before the climate changed.
- D. New evidence suggests that the climate change was not as extreme as scientists once believed

28. The professor mentions a series of computer simulations. What did the simulations suggest?

Click on 2 answers

- A. The killing of only a few mammoths could lead to a significant reduction in the mammoth population.
- B. Many mammoths died as the result of an extended drought.
- C. Female mammoths were less able than male mammoths to adapt to climate change
- D. Both hunting and climate change contributed to the extinction of the mammoths

29. What is the lecture mainly about?

- A. Conclusions about the surface of Venus drawn from recent observations
- B. The different types of volcanoes that have been found on Venus
- C. Similarities between geologic processes on Venus and on other planets
- D. New methods used to observe the surface of Venus

30. How were scientists able to learn new information about Venus' surface? Click on 2 answers

- A. More powerful telescopes allowed astronomers to see more surface details
- B. Satellites were used to get radar images of Venus' surface.
- C. Space modules sent photographs after landing on Venus.
- D. A space probe was able to locate gaps among Venus' clouds

31. What differences between volcanoes on Venus and those on Earth does the professor mention?

Click on 2 answers

- A. Volcanoes on Venus are mostly shield volcanoes
- B. Volcanoes on Venus emit thicker lava
- C. Many volcanoes on Earth are concentrated in specific zones.
- D. Many volcanoes on Earth show no volcanic activity

32. Why does the professor mention the fact that Venus has no surface water?

- A. To give an example of a discovery that was unexpected
- B. To illustrate the consequences of intense volcanic activity
- C. To question a theory about the origin of shield volcanoes
- D. To suggest an explanation for why Venus does not have moving tectonic plates

33. According to the professor, what is a possible origin of Venus' clouds?
- A. Gases released as a result of volcanic activity
  - B. Chemical reactions caused by high surface temperatures
  - C. Bursts of radio energy from the planet's surface
  - D. Strong winds that blow dust into the atmosphere
34. What is the professor's opinion about the theory that Venus' volcanoes are active?
- A. The theory has recently been proved by direct observation
  - B. At least two kinds of evidence support the theory
  - C. The data collected so far about the theory are contradictory
  - D. New findings have made the theory quite unlikely.

## SPEAKING

1. Talk about a popular gathering place in your town where people like to go. Describe the place and explain why people enjoy going there. 【地点】
2. Do you agree or disagree with the following statement? Students benefit more from classes with a large number of students than they do from smaller classes. Use specific examples and details to support your opinion. 【agree】

### 3. Close the Campus Coffee house

I propose that the university close the campus coffeehouse. Coffeehouses are great, if people actually use them, like to socialize with friends, while enjoying a cup of coffee and a snack. But students are not using our campus coffeehouse. There are usually lots of empty tables when I pass by the place. It is just a waste of space that could be used for other things. Also, the food at the coffeehouse is not very good. The last time I was there, the cakes and muffins my friends and I ordered were dry and didn't have much flavor.

Sincerely,

Greg Smith

The woman expresses her opinion about the student's proposal. State her opinion and explain the reasons she gives for holding that opinion.

### 4. Flagship Species

Environmental organizations work to protect plants and animals whose natural habitats are threatened by human activity. One way they do this is by selecting a particular species to represent the threatened habitat to the general public. This species, called a flagship species, is one that people are likely to find attractive and interesting. The flagship species is used to raise public awareness and motivate people to take action to protect the threatened habitat. People's support of the flagship species results in protection for all the plant and animal species living in the threatened area.

Using the example of the macaw from the lecture, explain the concept of a flagship species.

5. Briefly summarize the problem the speakers are discussing. Then state which solution you would recommend. Explain the reasons for your recommendation.
6. Using the examples from the lecture, discuss two types of narrators that an author of fiction might use.

## **WRITING**

### **TASK 1**

Animal fossils usually provide very little opportunity to study the actual animal tissues, because in fossils the animals' living tissues have been largely replaced by minerals. Thus, scientists were very excited recently when it appeared that a 70-million-year-old fossil of Tyrannosaurus rex (T. rex), a dinosaur, might still contain remains of the actual tissues of the animal. The discovery was made when researchers deliberately broke open the T. rex's leg bone, thereby exposing its insides to reveal materials that seem to be remains of blood vessels, red blood cells, and collagen matrix.

First, the breaking of the fossilized leg bone revealed many small branching channels inside, which probably correspond to hollows in the bones where blood vessels were once located. The exciting finding was the presence of a soft, flexible organic substance inside the channels. This soft substance may very well represent the remains of the actual blood vessels of T. rex.

Second, microscopic examination of the various parts of the inner bone revealed the presence of spheres that could be the remains of red blood cells. Tests showed that the spheres contained iron—a material vital to the role of red blood cells in transporting oxygen to tissues. Moreover, the spheres had dark red centers (substances with iron tend to be reddish in color) and were also about the size of red blood cells.

Third, scientists performed a test on the dinosaur leg bone that showed that it contained collagen. Collagen is a fibrous protein that is a main component of living bone tissue, in which it forms a so-called collagen matrix. Collagen (or its chemical derivatives) is exactly the kind of biochemical material that one would expect to find in association with bone tissue.

**Summarize the points made in the lecture, being sure to explain how they support/contradict specific points made in the reading passage.**

### **TASK 2**

One of the best ways that parents can help their teenage children prepare for adult life is to encourage them to take a part-time job

