13. **Directions:** An introduction for a short summary of the passage appears below. Complete the summary by selecting the THREE answer choices that mention the most important points in the passage. Some sentences do not belong in the summary because they express ideas that are not included in the passage or are minor points from the passage. ***This question is worth 2 points.***

The levels of education, the acquisition of wealth, and occupational prestige determine social status in the United States.

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Answer Choices

A People who have made their money more recently tend not to be accepted by those who have inherited their wealth from family holdings.

B The lower class includes working people with low incomes and a new underclass of people who are dependent on welfare or engage in crime.

C The upper class tends to acquire wealth through inheritance, whereas the upper middle class has a high income that they earn in their professions.

D Although the lifestyle of the upper middle class is the goal for the majority, it is difficult for many people to maintain this standard of living.

E Most people identify themselves as middle class, including blue-collar workers and service workers as well as bureaucratic employees.

F It is still possible to move from one social class to another in the United States by working your way up the ladder in a corporate environment.

PART II

Reading 2 "Weather and Chaotic Systems"

P1 Weather and climate are closely related, but they are not quite the same thing. In any particular location, some days may be hotter or cooler, clearer or cloudier, calmer or stormier than others. The ever-varying combination of winds, clouds, temperature, and pressure is what we call *weather*. *Climate* is the long-term average of weather, which means it can change only on much longer time scales. The complexity of weather makes it difficult to predict, and at best, the local weather can be predicted only a week or so in advance.

P2 Scientists today have a very good understanding of the physical laws and mathematical equations that govern the behavior and motion of atoms in the air, oceans, and land. Why, then, do we have so much trouble predicting the weather? To understand why the weather is so unpredictable we must look at the nature of scientific prediction.

P3 ➔ Suppose you want to predict the location of a car on a road 1 minute from now. You need two basic pieces of information: where the car is now, and how fast it is moving. If the car is now passing Smith Road and heading north at 1 mile per minute, it will be 1 mile north of Smith Road in 1 minute.

P4 Now, suppose you want to predict the weather. Again, you need two basic types of information: (1) the current weather and (2) how weather changes from one moment to the next. You could attempt to predict the weather by creating a "model world." For example, you could overlay a globe of the Earth with graph paper and then specify the current temperature, pressure, cloud cover, and wind within each square. These are your starting points, or initial conditions. Next, you could input all the initial conditions into a computer, along with a set of equations (physical laws) that describe the processes that can change weather from one moment to the next.

P5 ➔ Suppose the initial conditions represent the weather around the Earth at this very moment and you run your computer model to predict the weather for the next month in New York City. The model might tell you that tomorrow will be warm and sunny, with cooling during the next week and a major storm passing through a month from now. But suppose you run the model again, making one minor change in the initial conditions—say, a small change in the wind speed somewhere over Brazil. A This slightly different initial condition will not change the weather prediction for tomorrow in New York City. B But for next month's weather, the two predictions may not agree at all! C

P6 The disagreement between the two predictions arises because the laws governing weather can cause very tiny changes in initial conditions to be greatly magnified over time. D This extreme sensitivity to initial conditions is sometimes called the *butterfly effect:* If initial conditions change by as much as the flap of a butterfly's wings, the resulting prediction may be very different.

P7 ➔ The butterfly effect is a hallmark of *chaotic systems*. Simple systems are described by linear equations in which, for example, increasing a cause produces a proportional increase in an effect. In contrast, chaotic systems are described by nonlinear equations, which allow for subtler and more intricate interactions. For example, the economy is nonlinear because a rise in interest rates does not automatically produce a corresponding change in consumer spending. Weather is nonlinear because a change in the wind speed in one location does not automatically produce a corresponding change in another location.

P8 ➔ Despite their name, chaotic systems are not necessarily random. In fact, many chaotic systems have a kind of underlying order that explains the general features of their behavior even while details at any particular moment remain unpredictable. In a sense, many chaotic systems—like the weather—are "predictably unpredictable." Our understanding of chaotic systems is increasing at a tremendous rate, but much remains to be learned about them.

14. According to the passage, it will be difficult to predict weather

Ⓐ unless we learn more about chaotic systems
Ⓑ because we don't communicate globally
Ⓒ without more powerful computers
Ⓓ until we understand the physical laws of atoms

15. The word particular in the passage is closest in meaning to

Ⓐ basic
Ⓑ specific
Ⓒ unusual
Ⓓ new

16. The word govern in the passage is closest in meaning to

Ⓐ change
Ⓑ control
Ⓒ show
Ⓓ explain

17. Why does the author mention "a car" in paragraph 3?

Ⓐ The car is an example of how conditions are used to make predictions.
Ⓑ The author digresses in order to tell a story about a car.
Ⓒ The car introduces the concept of computer models.
Ⓓ The mathematical equations for the car are very simple to understand.

Paragraph 3 is marked with an arrow [➔].

18. Why do the predictions disagree for the computer model described in paragraph 5?

Ⓐ The conditions at the beginning were very different.
Ⓑ The model was not accurately programmed.
Ⓒ Computer models cannot predict weather.
Ⓓ Over time models are less reliable.

Paragraph 5 is marked with an arrow [➔].

19. Why is weather considered a chaotic system?

Ⓐ Because it is made up of random features
Ⓑ Because it is not yet very well understood
Ⓒ Because it is described by nonlinear equations
Ⓓ Because it does not have an orderly structure

20. Based on information in paragraph 6, which of the following best explains the term "butterfly effect"?

Ⓐ Slight variations in initial conditions can cause very different results.
Ⓑ A butterfly's wings can be used to predict different conditions in various locations.
Ⓒ The weather is as difficult to predict as the rate of a butterfly's wings when it flaps them.
Ⓓ A butterfly flaps its wings in one location, which automatically produces a result in another place.

Paragraph 6 is marked with an arrow [➔].

21. The phrase in which in the passage refers to

Ⓐ the butterfly effect
Ⓑ chaotic systems
Ⓒ simple systems
Ⓓ linear equations

22. Why does the author mention "the economy" in paragraph 7?

Ⓐ To contrast a simple system with a chaotic system
Ⓑ To provide an example of another chaotic system
Ⓒ To compare nonlinear equations with linear equations
Ⓓ To prove that all nonlinear systems are not chaotic

Paragraph 7 is marked with an arrow [➔].

23. The word features in the passage is closest in meaning to

Ⓐ problems
Ⓑ exceptions
Ⓒ characteristics
Ⓓ benefits

24. In paragraph 8, the author suggests that our knowledge of chaotic systems

Ⓐ will never allow us to make accurate predictions
Ⓑ has not improved very much over the years
Ⓒ reveals details that can be predicted quite accurately
Ⓓ requires more research by the scientific community

Paragraph 8 is marked with an arrow [➔].

25. Look at the four squares [■] that show where the following sentence could be inserted in the passage.

For next week's weather, the new model may yield a slightly different prediction.

Where could the sentence best be added?

Click on a square [■] to insert the sentence in the passage.