SECTION III

Time—35 minutes

23 Questions

Directions: Each group of questions in this section is based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question and blacken the corresponding space on your answer sheet.

Questions 1–5

A chemistry class has six lab sessions scheduled over three days—Wednesday, Thursday, and Friday—one session being held each morning and one each afternoon. Each session will be led by a different lab assistant—Julio, Kevin, Lan, Nessa, Olivia, or Rebecca. The assignment of lab assistants to sessions is constrained as follows:

Kevin and Rebecca must lead sessions that meet on the same day.

Lan and Olivia cannot lead sessions that meet on the same day.

Nessa must lead an afternoon session.

Julio's session must meet on an earlier day of the week than Olivia's.

1. Which one of the following could be an accurate assignment of lab assistants to morning and afternoon sessions, respectively, on the three days?

(A) Wednesday: Rebecca, Kevin
Thursday: Julio, Lan
Friday: Nessa, Olivia

(B) Wednesday: Olivia, Nessa
Thursday: Julio, Lan
Friday: Kevin, Rebecca

(C) Wednesday: Lan, Kevin
Thursday: Rebecca, Julio
Friday: Olivia, Nessa

(D) Wednesday: Kevin, Rebecca
Thursday: Julio, Nessa
Friday: Olivia, Lan

(E) Wednesday: Julio, Lan
Thursday: Olivia, Nessa
Friday: Rebecca, Kevin

GO ON TO THE NEXT PAGE.

2. If Lan does not lead a Wednesday session, then which one of the following lab assistants must lead a Thursday session?

   (A) Rebecca
   (B) Olivia
   (C) Nessa
   (D) Kevin
   (E) Julio

3. If Kevin's session meets on the day before Nessa's, then which one of the following is a complete and accurate list of lab assistants any one of whom could lead the Thursday afternoon session?

   (A) Julio, Nessa
   (B) Kevin, Rebecca
   (C) Kevin, Nessa, Rebecca
   (D) Julio, Kevin, Nessa, Rebecca
   (E) Julio, Kevin, Lan, Nessa, Rebecca

4. If Julio and Kevin both lead morning sessions, then any of the following could be true EXCEPT:

   (A) Lan's session meets Wednesday morning.
   (B) Lan's session meets Thursday afternoon.
   (C) Nessa's session meets Friday afternoon.
   (D) Olivia's session meets Thursday morning.
   (E) Olivia's session meets Friday morning.

5. If Julio leads the Thursday afternoon session, then for how many of the other lab assistants can one determine which sessions they lead?

   (A) one
   (B) two
   (C) three
   (D) four
   (E) five

GO ON TO THE NEXT PAGE.

Questions 6–11

A shopping center has exactly seven spaces—space 1 through space 7—arranged in a straight row. Seven businesses—an optometrist, a pharmacy, two restaurants, a shoe store, a toy store, and a veterinarian—will be located in the shopping center, one in each space. The locations of the businesses are subject to the following constraints:

The pharmacy must be at one end of the row and one of the restaurants at the other.

The two restaurants must be separated by at least two other businesses.

The pharmacy must be next to either the optometrist or the veterinarian.

The toy store cannot be next to the veterinarian.

6. Which one of the following could be the order of the businesses in spaces 1 through 7 respectively?

(A) pharmacy, optometrist, shoe store, restaurant, veterinarian, toy store, restaurant

(B) pharmacy, veterinarian, optometrist, shoe store, restaurant, toy store, restaurant

(C) restaurant, shoe store, veterinarian, pharmacy, optometrist, toy store, restaurant

(D) restaurant, toy store, optometrist, restaurant, veterinarian, shoe store, pharmacy

(E) restaurant, optometrist, toy store, restaurant, shoe store, veterinarian, pharmacy

GO ON TO THE NEXT PAGE.

7. If the shoe store is in space 2, which one of the following could be true?

(A) The optometrist is in space 5.
(B) The pharmacy is in space 1.
(C) A restaurant is in space 3.
(D) The toy store is in space 6.
(E) The veterinarian is in space 4.

8. If the veterinarian is in space 5, which one of the following must be true?

(A) The optometrist is in space 2.
(B) The pharmacy is in space 7.
(C) A restaurant is in space 4.
(D) The shoe store is in space 6.
(E) The toy store is in space 3.

9. If the optometrist is next to the shoe store, the businesses immediately on either side of this pair must be

(A) the pharmacy and a restaurant
(B) the pharmacy and the toy store
(C) the two restaurants
(D) a restaurant and the toy store
(E) a restaurant and the veterinarian

10. If the shoe store is in space 4, which one of the following must be true?

(A) The optometrist is next to a restaurant.
(B) The pharmacy is next to the veterinarian.
(C) A restaurant is next to the toy store.
(D) The shoe store is next to the toy store.
(E) The shoe store is next to the veterinarian.

11. Which one of the following, if substituted for the constraint that the two restaurants must be separated by at least two other businesses, would have the same effect in determining the locations of the businesses?

(A) A restaurant must be in either space 3, space 4, or space 5.
(B) A restaurant must be next to either the optometrist or the veterinarian.
(C) Either the toy store or the veterinarian must be somewhere between the two restaurants.
(D) No more than two businesses can separate the pharmacy and the restaurant nearest it.
(E) The optometrist cannot be next to the shoe store.

GO ON TO THE NEXT PAGE.

Questions 12–18

A software company employs exactly seven sales representatives—Kim, Mahr, Parra, Quinn, Stuckey, Tiao, and Udall—to work in its three sales zones—Zone 1, Zone 2, and Zone 3. Each sales representative works in exactly one of the sales zones, in accordance with the following conditions:

Either Parra or Tiao (but not both) works in Zone 1.

Either Tiao or Udall (but not both) works in Zone 2.

Parra and Quinn work in the same sales zone as each other.

Stuckey and Udall work in the same sales zone as each other.

There are more of the sales representatives working in Zone 3 than in Zone 2.

12. Which one of the following could be an accurate matching of the sales representatives to the sales zones in which they work?

(A) Zone 1: Kim, Parra
Zone 2: Stuckey, Udall
Zone 3: Mahr, Quinn, Tiao

(B) Zone 1: Kim, Tiao
Zone 2: Stuckey, Udall
Zone 3: Mahr, Parra, Quinn

(C) Zone 1: Parra, Quinn
Zone 2: Kim, Udall
Zone 3: Mahr, Stuckey, Tiao

(D) Zone 1: Stuckey, Udall
Zone 2: Kim, Tiao
Zone 3: Mahr, Parra, Quinn

(E) Zone 1: Tiao
Zone 2: Kim, Parra, Quinn
Zone 3: Stuckey, Udall

GO ON TO THE NEXT PAGE.

13. If more sales representatives work in Zone 1 than in Zone 3, then which one of the following could be true?

(A) Kim works in Zone 2.
(B) Mahr works in Zone 2.
(C) Parra works in Zone 3.
(D) Tiao works in Zone 1.
(E) Udall works in Zone 3.

14. Which one of the following must be false?

(A) Kim and Stuckey both work in Zone 1.
(B) Kim and Stuckey both work in Zone 3.
(C) Mahr and Stuckey both work in Zone 3.
(D) Mahr and Udall both work in Zone 3.
(E) Parra and Stuckey both work in Zone 1.

15. Which one of the following could be a complete and accurate list of the sales representatives working in Zone 3?

(A) Kim, Mahr
(B) Kim, Tiao
(C) Parra, Quinn
(D) Stuckey, Tiao, Udall
(E) Parra, Quinn, Stuckey, Udall

16. Quinn CANNOT work in the same sales zone as which one of the following?

(A) Kim
(B) Mahr
(C) Stuckey
(D) Tiao
(E) Udall

17. Item Removed From Scoring.

18. If Mahr and Stuckey work in the same sales zone, then which one of the following could be true?

(A) Kim works in Zone 2.
(B) Mahr works in Zone 1.
(C) Parra works in Zone 3.
(D) Stuckey works in Zone 2.
(E) Tiao works in Zone 1.

GO ON TO THE NEXT PAGE.

Questions 19–23

During a recital, two pianists—Wayne and Zara—will perform solos. There will be five solos altogether, performed one immediately after another. Each solo will be either a modern piece or a traditional piece. The choice of pianist and type of piece for the solos must conform to the following conditions:

The third solo is a traditional piece.

Exactly two of the traditional pieces are performed consecutively.

In the fourth solo, either Wayne performs a traditional piece or Zara performs a modern piece.

The pianist who performs the second solo does not perform the fifth solo.

No traditional piece is performed until Wayne performs at least one modern piece.

19. Which one of the following could be all of the solos that are traditional pieces?

(A) the first, third, and fourth
(B) the second, third, and fourth
(C) the third and fourth
(D) the third and fifth
(E) the fourth and fifth

GO ON TO THE NEXT PAGE.

20. What is the minimum number of solos in which Wayne performs a traditional piece?

(A) zero
(B) one
(C) two
(D) three
(E) four

21. If the pianist who performs the first solo also performs the second solo, then which one of the following must be true?

(A) Zara performs the first solo.
(B) Wayne performs the third solo.
(C) Zara performs the fifth solo.
(D) The second solo is a traditional piece.
(E) The fourth solo is a modern piece.

22. If the fifth solo is a traditional piece, then for exactly how many of the solos is the choice of pianist completely determined?

(A) one
(B) two
(C) three
(D) four
(E) five

23. If in the fifth solo Wayne performs a traditional piece, which one of the following could be true?

(A) Zara performs the first solo.
(B) Wayne performs the second solo.
(C) Zara performs the third solo.
(D) The second solo is a modern piece.
(E) The fourth solo is a traditional piece.

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.
DO NOT WORK ON ANY OTHER SECTION IN THE TEST.