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 1–7

A record producer is planning the contents of a CD consisting of a sequence of exactly five instrumental pieces—*Reciprocity*, *Salammbo*, *Trapezoid*, *Vancouver*, and *Wisteria*. To create and sustain certain moods, the sequence of pieces will satisfy the following constraints:
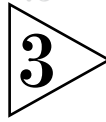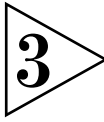
Salammbo must be earlier than *Vancouver*.
Trapezoid must either be earlier than both *Reciprocity* and *Salammbo* or later than both *Reciprocity* and *Salammbo*.
Wisteria must either be earlier than both *Reciprocity* and *Trapezoid* or later than both *Reciprocity* and *Trapezoid*.
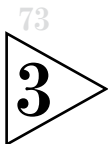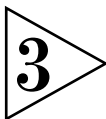
1. The five pieces could appear in which one of the following sequences on the CD, in order from first to last?

(A) *Reciprocity, Trapezoid, Wisteria, Salammbo, Vancouver*

(B) *Salammbo, Reciprocity, Trapezoid, Vancouver, Wisteria*

(C) *Trapezoid, Wisteria, Salammbo, Vancouver, Reciprocity*

(D) *Vancouver, Wisteria, Salammbo, Reciprocity, Trapezoid*

(E) *Wisteria, Salammbo, Vancouver, Trapezoid, Reciprocity*

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2. If *Salammbo* is the fourth piece on the CD, then which one of the following must be true?

    (A) *Reciprocity* is earlier on the CD than *Wisteria*.
    (B) *Salammbo* is earlier on the CD than *Trapezoid*.
    (C) *Trapezoid* is earlier on the CD than *Reciprocity*.
    (D) *Vancouver* is earlier on the CD than *Wisteria*.
    (E) *Wisteria* is earlier on the CD than *Trapezoid*.

3. If *Reciprocity* is the first piece on the CD, then which one of the following could be true?

    (A) *Trapezoid* is the second piece on the CD.
    (B) *Vancouver* is the third piece on the CD.
    (C) *Wisteria* is the third piece on the CD.
    (D) *Salammbo* is the fourth piece on the CD.
    (E) *Trapezoid* is the last piece on the CD.

4. If *Trapezoid* is the second piece on the CD, then which one of the following could be true?

    (A) *Salammbo* is the first piece on the CD.
    (B) *Reciprocity* is the first piece on the CD.
    (C) *Vancouver* is the third piece on the CD.
    (D) *Wisteria* is the fourth piece on the CD.
    (E) *Reciprocity* is the last piece on the CD.

5. The first and second pieces on the CD, listed in order, could be

    (A) *Reciprocity* and *Vancouver*
    (B) *Reciprocity* and *Wisteria*
    (C) *Salammbo* and *Trapezoid*
    (D) *Trapezoid* and *Wisteria*
    (E) *Wisteria* and *Salammbo*

6. If *Vancouver* is the second piece on the CD, then which one of the following could be true?

    (A) *Wisteria* is the first piece on the CD.
    (B) *Salammbo* is the third piece on the CD.
    (C) *Trapezoid* is the third piece on the CD.
    (D) *Reciprocity* is the fourth piece on the CD.
    (E) *Reciprocity* is the last piece on the CD.

7. If *Wisteria* is the first piece on the CD, then which one of the following CANNOT be true?

    (A) *Trapezoid* is the third piece on the CD.
    (B) *Vancouver* is the third piece on the CD.
    (C) *Salammbo* is the fourth piece on the CD.
    (D) *Vancouver* is the fourth piece on the CD.
    (E) *Trapezoid* is the last piece on the CD.

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Questions 8–13

At a business symposium there will be exactly five speakers: Long, Molina, Xiao, Yoshida, and Zimmerman. Each speaker will give exactly one speech, in either the Gold Room or the Rose Room. In each room, there will be exactly one speech at 1 P.M. and one speech at 2 P.M. In one of the rooms, yet to be determined, there will also be a speech at 3 P.M. The schedule of speeches is constrained by the following:

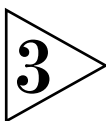Molina's speech must be earlier than Long's, and in the same room.

Neither Xiao's speech nor Yoshida's speech can be earlier than Zimmerman's.

If Long's speech is in the Gold Room, then Xiao's and Zimmerman's speeches must both be in the Rose Room.

8. Which one of the following could be the speeches given in each room, listed in the order in which they occur?
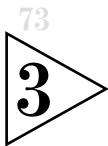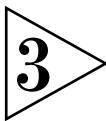
(A) Gold Room: Molina's, Long's
Rose Room: Zimmerman's, Xiao's, Yoshida's

(B) Gold Room: Molina's, Yoshida's, Long's
Rose Room: Xiao's, Zimmerman's

(C) Gold Room: Xiao's, Molina's, Long's
Rose Room: Zimmerman's, Yoshida's

(D) Gold Room: Yoshida's, Long's, Molina's
Rose Room: Zimmerman's, Xiao's

(E) Gold Room: Zimmerman's, Molina's
Rose Room: Xiao's, Yoshida's, Long's

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9. Which one of the following pairs of speeches CANNOT be given at the same time?

(A) Long's and Yoshida's
(B) Long's and Zimmerman's
(C) Molina's and Xiao's
(D) Xiao's and Yoshida's
(E) Yoshida's and Zimmerman's

10. If Xiao's speech is at 3 P.M., which one of the following CANNOT be true?

(A) Long's speech is in the same room as Yoshida's.
(B) Molina's speech is in the same room as Xiao's.
(C) Xiao's speech is in the same room as Yoshida's.
(D) Xiao's speech is in the same room as Zimmerman's.
(E) Yoshida's speech is in the same room as Zimmerman's.

11. Which one of the following could be a complete and accurate list of the speeches given in the Gold Room, in the order in which they occur?

(A) Long's, Molina's
(B) Molina's, Yoshida's
(C) Molina's, Yoshida's, Long's
(D) Yoshida's, Zimmerman's, Xiao's
(E) Zimmerman's, Molina's, Long's

12. If Yoshida's speech is at 1 P.M., which one of the following could be true?

(A) Long's speech is at 1 P.M. in the Gold Room.
(B) Long's speech is at 2 P.M. in the Rose Room.
(C) Molina's speech is at 2 P.M. in the Gold Room.
(D) Xiao's speech is at 3 P.M. in the Gold Room.
(E) Xiao's speech is at 1 P.M. in the Rose Room.

13. Which one of the following, if substituted for the constraint that neither Xiao's speech nor Yoshida's speech can be earlier than Zimmerman's, would have the same effect in determining the schedule of speeches with regard to rooms and times?

(A) Long's speech must be at 3 P.M.
(B) Molina's speech cannot be earlier than Zimmerman's.
(C) Either Xiao's speech or Yoshida's speech must be after Zimmerman's.
(D) Either Xiao's speech or Yoshida's speech or both must be at 2 P.M.
(E) Zimmerman's speech must be at 1 P.M.

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Questions 14–18

During the seventeenth century, three families—the Trents, the Williamses, and the Yandells—owned the five buildings that constituted the center of their village—the forge, the granary, the inn, the mill, and the stable. Each family owned at least one of the buildings and each building was owned by exactly one of the families. The historical evidence establishes the following about the ownership of the buildings:

The Williamses owned more of the buildings than the Yandells owned.
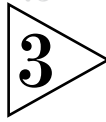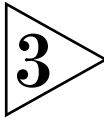
Neither the inn nor the mill belonged to the owner of the forge.

Either the Trents owned the stable or the Yandells owned the inn, or both.

14. Which one of the following could be an accurate matching of each family to the building or buildings it owned?

(A)   Trents: the granary, the stable
       Williamses: the inn, the mill
       Yandells: the forge
(B)   Trents: the granary, the mill
       Williamses: the inn, the stable
       Yandells: the forge
(C)   Trents: the forge, the mill
       Williamses: the granary, the stable
       Yandells: the inn
(D)   Trents: the forge, the granary
       Williamses: the mill
       Yandells: the inn, the stable
(E)   Trents: the stable
       Williamses: the inn, the mill
       Yandells: the forge, the granary

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15. Which one of the following is a pair of buildings that CANNOT both have been owned by the Trents?

    (A)   the forge, the granary
    (B)   the granary, the mill
    (C)   the granary, the stable
    (D)   the inn, the mill
    (E)   the inn, the stable

16. If the Yandells owned the mill, which one of the following must be true?

    (A)   The Trents owned the forge.
    (B)   The Trents owned the inn.
    (C)   The Williamses owned the forge.
    (D)   The Williamses owned the granary.
    (E)   The Williamses owned the inn.
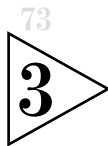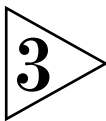
17. If one of the families owned both the granary and the inn, which one of the following could be true?

    (A)   The Trents owned the granary.
    (B)   The Trents owned the mill.
    (C)   The Williamses owned the forge.
    (D)   The Williamses owned the stable.
    (E)   The Yandells owned the inn.

18. If the Trents owned exactly one of the buildings, which one of the following is a complete and accurate list of the buildings any one of which could be the building that the Trents owned?

    (A)   the forge
    (B)   the forge, the mill
    (C)   the inn, the stable
    (D)   the forge, the granary, the mill
    (E)   the forge, the mill, the stable

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Questions 19–23

A florist is filling a customer's order for three bouquets—bouquet 1, bouquet 2, and bouquet 3. Each of the bouquets is to be composed of one or more of five kinds of flowers—lilies, peonies, roses, snapdragons, and tulips—subject to the following conditions:

  Bouquets 1 and 3 cannot have any kind of flower in common.
  Bouquets 2 and 3 must have exactly two kinds of flowers in common.
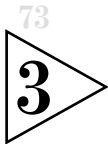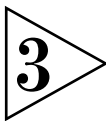 Bouquet 3 must have snapdragons.
  If a bouquet has lilies, that bouquet must also have roses but cannot have snapdragons.
  If a bouquet has tulips, that bouquet must also have peonies.

19. Which one of the following could be a complete and accurate list of the kinds of flowers in each of the bouquets?

(A)   bouquet 1: lilies, roses
      bouquet 2: peonies, roses, tulips
      bouquet 3: peonies, snapdragons, tulips
(B)   bouquet 1: peonies, roses
      bouquet 2: peonies, snapdragons
      bouquet 3: peonies, snapdragons, tulips
(C)   bouquet 1: peonies, tulips
      bouquet 2: roses, snapdragons, tulips
      bouquet 3: roses, snapdragons
(D)   bouquet 1: roses
      bouquet 2: peonies, snapdragons
      bouquet 3: lilies, peonies, snapdragons
(E)   bouquet 1: snapdragons
      bouquet 2: lilies, roses
      bouquet 3: lilies, roses

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20. If lilies are in bouquet 1, which one of the following must be true?

   (A)   Lilies are in bouquet 2.
   (B)   Peonies are in bouquet 3.
   (C)   Roses are in bouquet 2.
   (D)   Tulips are in bouquet 2.
   (E)   Tulips are in bouquet 3.

21. If tulips are in bouquet 1, which one of the following could be a complete and accurate list of the kinds of flowers in bouquet 2?

   (A)   peonies, tulips
   (B)   peonies, snapdragons
   (C)   peonies, snapdragons, tulips
   (D)   peonies, roses, tulips
   (E)   peonies, roses, snapdragons, tulips

22. Which one of the following CANNOT be a complete and accurate list of the kinds of flowers in bouquet 2?

   (A)   lilies, roses
   (B)   peonies, tulips
   (C)   peonies, roses, snapdragons
   (D)   peonies, roses, tulips
   (E)   peonies, roses, snapdragons, tulips

23. Which one of the following CANNOT be true?

   (A)   Lilies and roses are the only kinds of flowers in bouquet 1.
   (B)   Peonies and tulips are the only kinds of flowers in bouquet 1.
   (C)   Lilies, peonies, and roses are the only kinds of flowers in bouquet 2.
   (D)   Peonies, roses, and snapdragons are the only kinds of flowers in bouquet 2.
   (E)   Peonies, snapdragons, and tulips are the only kinds of flowers in bouquet 3.

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.