

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.

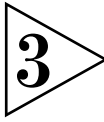
Questions 1–5

Five students—Manolo, Nadia, Owen, Peng, and Rana—are each to deliver exactly one speech. Speeches are on exactly one of two topics—friendship and liberty. Each student has only one major: two major in geology, two in history, and one in journalism. The following conditions must apply:

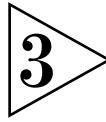
- Exactly two of the students speak on friendship.
- A geology major and a history major speak on friendship.
- Manolo speaks on friendship.
- Rana speaks on liberty.
- Neither Peng nor Rana is a geology major.
- Nadia is a geology major.

1. Which one of the following could be a list of the majors of Manolo, Nadia, Owen, Peng, and Rana, respectively?
- (A) geology, geology, journalism, journalism, history
  - (B) geology, geology, history, history, history
  - (C) history, geology, geology, journalism, history
  - (D) history, geology, journalism, geology, history
  - (E) history, history, geology, journalism, history

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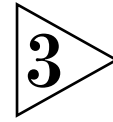
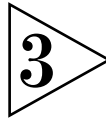
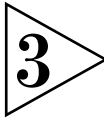


2. If Peng speaks on friendship, then which one of the following could be true?
- (A) Manolo is a history major.
  - (B) Nadia speaks on friendship.
  - (C) Owen speaks on friendship.
  - (D) Owen is a journalism major.
  - (E) Peng is a journalism major.
3. If Owen is a geology major who speaks on friendship, then which one of the following must be true?
- (A) Manolo is a history major.
  - (B) Nadia speaks on friendship.
  - (C) Peng speaks on friendship.
  - (D) Peng is a history major.
  - (E) Rana is a journalism major.



4. If Nadia speaks on friendship, then which one of the following must be false?
- (A) Manolo is a geology major.
  - (B) Manolo is a history major.
  - (C) Owen is a geology major.
  - (D) Peng is a history major.
  - (E) Rana is a history major.
5. Rana must be a journalism major if which one of the following is true?
- (A) Manolo is a geology major and Peng is a history major.
  - (B) Owen is a geology major and Manolo is a history major.
  - (C) Owen is a geology major and Peng is a history major.
  - (D) Both Manolo and Nadia speak on friendship.
  - (E) Both Manolo and Peng speak on friendship.

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Questions 6–12

Each of exactly seven professors—Powell, Shihab, Taylor, Vaughan, Wood, Young, and Zabel—gives exactly one guest lecture in the literary theory course. The lectures are ordered from first through seventh, and their order must conform to the following:

Powell lectures before Wood.

Taylor lectures before Shihab.

Vaughan lectures before Zabel.

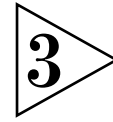
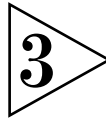
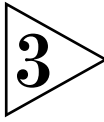
Shihab is no later than third.

Young is not seventh.

Powell lectures first if, but only if, Young lectures before Vaughan.

6. Which one of the following could be the order in which the professors lecture, from first to last?
- (A) Powell, Young, Taylor, Shihab, Vaughan, Zabel, Wood
  - (B) Taylor, Powell, Shihab, Wood, Vaughan, Young, Zabel
  - (C) Taylor, Vaughan, Shihab, Wood, Powell, Young, Zabel
  - (D) Vaughan, Taylor, Shihab, Powell, Wood, Zabel, Young
  - (E) Young, Taylor, Shihab, Powell, Vaughan, Zabel, Wood

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7. Which one of the following could lecture first?

- (A) Shihab
- (B) Vaughan
- (C) Wood
- (D) Young
- (E) Zabel

8. Which one of the following CANNOT give the second guest lecture?

- (A) Powell
- (B) Shihab
- (C) Taylor
- (D) Vaughan
- (E) Wood

9. If Shihab lectures second and Zabel lectures fourth, then which one of the following could be true?

- (A) Powell lectures sixth.
- (B) Taylor lectures third.
- (C) Vaughan lectures fifth.
- (D) Wood lectures fifth.
- (E) Young lectures third.

10. Which one of the following CANNOT be the guest lecture that Vaughan gives?

- (A) second
- (B) third
- (C) fourth
- (D) sixth
- (E) seventh

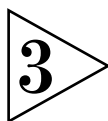
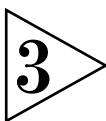
11. If Young lectures fourth and Taylor lectures first, then which one of the following must be true?

- (A) Powell lectures no earlier than sixth.
- (B) Shihab lectures second.
- (C) Vaughan lectures no later than third.
- (D) Wood lectures seventh.
- (E) Zabel lectures no earlier than sixth.

12. If Zabel lectures fourth, then which one of the following could be true?

- (A) Powell lectures second.
- (B) Powell lectures seventh.
- (C) Wood lectures third.
- (D) Young lectures second.
- (E) Young lectures sixth.

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Questions 13–17

A toy retailer is opening a small satellite store with exactly three aisles, numbered from 1 (lowest) to 3 (highest). Six sections—Fantasy, Hobbies, Music, Puzzles, Reading, and Science—will each be confined to exactly one aisle, with each aisle containing at least one of the sections. The following conditions hold:

Reading must be located in the same aisle as either Fantasy or Music.

Fantasy must be located in a lower-numbered aisle than both Music and Puzzles.

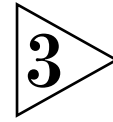
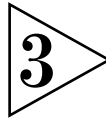
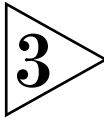
Science must be located in a lower-numbered aisle than Puzzles.

Science cannot be located in a lower-numbered aisle than Hobbies.

13. If aisle 1 contains Hobbies only, which one of the following could be true?

- (A) Fantasy is located in aisle 3.
- (B) Music is located in aisle 2.
- (C) Puzzles is located in aisle 2.
- (D) Reading is located in aisle 3.
- (E) Science is located in aisle 3.

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14. If aisle 3 contains Puzzles only, which one of the following must be true?

(A) Fantasy is located in aisle 1.  
(B) Hobbies is located in aisle 1.  
(C) Music is located in aisle 1.  
(D) Reading is located in aisle 1.  
(E) Science is located in aisle 2.

15. If each aisle contains exactly two of the six sections, then Science must be located in the same aisle as

(A) Fantasy  
(B) Hobbies  
(C) Music  
(D) Puzzles  
(E) Reading

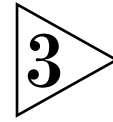
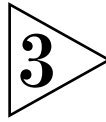
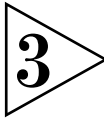
16. Which one of the following CANNOT be the list of the sections located in aisle 2?

(A) Hobbies, Music  
(B) Music, Reading  
(C) Music, Science  
(D) Hobbies, Music, Science  
(E) Music, Reading, Science

17. If aisle 2 contains Science only, then each of the following must be true EXCEPT:

(A) Fantasy is located in aisle 1.  
(B) Hobbies is located in aisle 1.  
(C) Music is located in aisle 3.  
(D) Puzzles is located in aisle 3.  
(E) Reading is located in aisle 1.

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Questions 18–23

Millville has created three new development zones: Z1, Z2, and Z3. Within these zones, subzones can be designated for housing, industrial, or retail use, with no subzone designated for more than one use. By city regulation, a total of no more than three subzones can be designated for each of the three uses. The following restrictions are in place:

Retail subzones are not allowed in Z1.

No more than two subzones for housing are allowed in any particular zone.

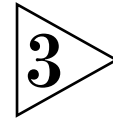
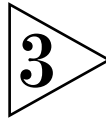
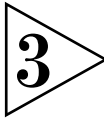
No more than one retail subzone is allowed in any zone in which a subzone is designated for housing.

Industrial subzones are not allowed in any zone in which a subzone is designated for housing or three subzones are designated for retail use.

18. Which one of the following is an allowable way of designating subzones within the three zones?

- (A) Z1: no designated subzones  
Z2: one housing subzone, two retail subzones  
Z3: one industrial subzone, one retail subzone
- (B) Z1: one housing subzone, one industrial subzone  
Z2: two housing subzones, one retail subzone  
Z3: one industrial subzone, one retail subzone
- (C) Z1: one housing subzone, one retail subzone  
Z2: two housing subzones, one retail subzone  
Z3: one industrial subzone, one retail subzone
- (D) Z1: one industrial subzone  
Z2: three housing subzones  
Z3: three retail subzones
- (E) Z1: one industrial subzone  
Z2: two housing subzones, one retail subzone  
Z3: one industrial subzone, two retail subzones

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19. Which one of the following CANNOT be true within a single zone?
- (A) Two subzones are designated, one housing and one retail.
  - (B) Two subzones are designated, one industrial and one retail.
  - (C) Three subzones are designated, all of them retail.
  - (D) Four subzones are designated, none of them industrial.
  - (E) Four subzones are designated, two retail and two industrial.
20. What is the maximum number of designated subzones allowed in Z3?
- (A) 2
  - (B) 3
  - (C) 4
  - (D) 5
  - (E) 6
21. If three subzones are designated for each use, then which one of the following is allowed?
- (A) Exactly one subzone in Z3 is designated for industrial use and exactly one subzone in Z3 is designated for retail use.
  - (B) Exactly two subzones in Z2 are designated for housing.
  - (C) Three subzones in Z1 are designated for industrial use.
  - (D) Three subzones in Z2 are designated for industrial use and exactly one subzone in Z2 is designated for retail use.
  - (E) Three subzones in Z3 are designated for retail use.
22. If one subzone in each of the zones is designated for industrial use, then which one of the following is allowed?
- (A) More subzones are designated for retail use in Z2 than in Z3.
  - (B) A subzone in one of the zones is designated for housing.
  - (C) Exactly two subzones are designated in Z1.
  - (D) Exactly three subzones each are designated in Z2 and Z3.
  - (E) Exactly four subzones are designated in Z3.
23. If three subzones in all are designated for retail use and a subzone in Z2 is designated for housing, then which one of the following is allowed?
- (A) Two subzones in Z1 are designated for housing.
  - (B) More subzones are designated for industrial use in Z2 than in Z3.
  - (C) More subzones are designated for retail use in Z2 than in Z3.
  - (D) The same number of subzones are designated for retail use in Z2 and Z3.
  - (E) A subzone in Z3 is designated for housing.

## 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.