SECTION II

Time—35 minutes

24 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 gymnastics instructor is planning a weekly schedule, Monday through Friday, of individual coaching sessions for each of six students—H, I, K, O, U, and Z. The instructor will coach exactly one student each day, except for one day when the instructor will coach two students in separate but consecutive sessions. The following restrictions apply:

H's session must take place at some time before Z's session.

I's session is on Thursday.

K's session is always scheduled for the day immediately before or the day immediately after the day for which O's session is scheduled.

Neither Monday nor Wednesday can be a day for which two students are scheduled.

1. Which one of the following is a pair of students whose sessions can both be scheduled for Tuesday, not necessarily in the order given?

(A) H and U
(B) H and Z
(C) K and O
(D) O and U
(E) U and Z

2. If K's session is scheduled for Tuesday, then which one of the following is the earliest day for which Z's session can be scheduled?

(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday
(E) Friday

3. Which one of the following must be true?

(A) If U's session is scheduled for Monday, H's session is scheduled for Tuesday.
(B) If U's session is scheduled for Tuesday, O's session is scheduled for Wednesday.
(C) If U's session is scheduled for Wednesday, Z's session is scheduled for Tuesday.
(D) If U's session is scheduled for Thursday, Z's session is scheduled for Friday.
(E) If U's session is scheduled for Friday, Z's session is scheduled for Thursday.

4. Scheduling Z's session for which one of the following days determines the day for which U's session must be scheduled?

(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday
(E) Friday

5. If H's session is scheduled as the next session after U's session, which one of the following could be true about H's session and U's session?

(A) U's session is scheduled for Monday, and H's session is scheduled for Tuesday.
(B) U's session is scheduled for Thursday, and H's session is scheduled for Friday.
(C) They are both scheduled for Tuesday.
(D) They are both scheduled for Thursday.
(E) They are both scheduled for Friday.

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Questions 6–12

A square parking lot has exactly eight lights—numbered 1 through 8—situated along its perimeter as diagramed below.

The lot must always be illuminated in such a way that the following specifications are met:

At least one of any three consecutively numbered lights is off.
Light 8 is on.
Neither light 2 nor light 7 is on when light 1 is on.
At least one of the three lights on each side is on.
If any side has exactly one of its three lights on, then that light is its center light.
Two of the lights on the north side are on.

6. Which one of the following could be a complete and accurate list of lights that are on together?

(A) 1, 3, 5, 7
(B) 2, 4, 6, 8
(C) 2, 3, 5, 6, 8
(D) 3, 4, 6, 7, 8
(E) 1, 2, 4, 5, 6, 8

7. Which one of the following lights must be on?

(A) light 2
(B) light 3
(C) light 4
(D) light 5
(E) light 6

8. If light 1 is off, which one of the following is a light that must also be off?

(A) light 3
(B) light 4
(C) light 5
(D) light 6
(E) light 7

9. Which one of the following statements must be true?

(A) If light 2 is on, then light 6 is off.
(B) If light 3 is on, then light 2 is on.
(C) If light 4 is on, then light 3 is off.
(D) If light 5 is off, then light 4 is on.
(E) If light 6 is off, then light 1 is on.

10. If light 5 is on, which one of the following could be true?

(A) Light 1 is off and light 6 is off.
(B) Light 1 is on and light 7 is on.
(C) Light 2 is off and light 4 is on.
(D) Light 2 is off and light 6 is off.
(E) Light 6 is on and light 7 is on.

11. If light 4 is on, each of the following statements must be true EXCEPT:

(A) Light 1 is on.
(B) Light 2 is on.
(C) Light 5 is off.
(D) Light 6 is on.
(E) Light 7 is off.

12. Suppose that it is no longer part of the specifications that two lights on the north side be on. If all of the other original specifications remain the same, and if exactly one light on the north side is on, which one of the following statements could be false?

(A) Light 1 is off.
(B) Light 2 is on.
(C) Light 3 is off.
(D) Light 4 is on.
(E) Light 5 is on.

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Questions 13–17

Seven children are to be seated in seven chairs arranged in a row that runs from west to east. All seven children will face north. Four of the children are boys: Frank, Harry, Ivan, and Joel. Three are girls: Ruby, Sylvia, and Thelma. The children are assigned to chairs according to the following conditions:

Exactly one child sits in each chair.
No boy sits next to another boy.
Ivan sits next to and east of the fourth child in the row.
Sylvia sits east of Ivan.
Frank sits next to Ruby.

13. What is the maximum possible number of different pairs of chairs in which Frank and Ruby could sit?

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

14. Which one of the following statements must be false?

(A) Both Harry and Joel sit east of Frank.
(B) Both Harry and Ruby sit east of Frank.
(C) Both Harry and Joel sit west of Frank.
(D) Both Harry and Ruby sit west of Frank.
(E) Both Joel and Ruby sit east of Frank.

15. If Thelma sits next to Ivan, and if Frank sits next to Thelma, which one of the following statements could be false?

(A) Both Frank and Ivan sit east of Ruby.
(B) Both Frank and Ruby sit west of Thelma.
(C) Both Frank and Sylvia sit east of Ruby.
(D) Both Frank and Thelma sit west of Sylvia.
(E) Both Frank and Ruby sit west of Joel.

16. If Frank does not sit next to any child who sits next to Ivan, which one of the following statements could be true?

(A) Harry sits west of Frank.
(B) Joel sits west of Ivan.
(C) Ruby sits west of Frank.
(D) Thelma sits west of Frank.
(E) Thelma sits west of Ruby.

17. If Frank sits east of Ruby, which one of the following pairs of children CANNOT sit next to each other?

(A) Frank and Thelma
(B) Harry and Ruby
(C) Harry and Sylvia
(D) Ivan and Ruby
(E) Joel and Ruby

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Questions 18–24

The organisms W, X, Y, and Z respond to the antibiotics ferromycin, ganocyclene, and heptocillin in a manner consistent with the following:

Each of the organisms responds to at least one of the antibiotics.
No organism responds to all three antibiotics.
At least two but not all four or the organisms respond to ferromycin.
If W responds to any antibiotic, then X responds to that antibiotic.
If an organism responds to ferromycin, then it responds to ganocyclene.
Y responds to ferromycin.

18. Each of the following can be true EXCEPT:

(A) W responds to heptocillin.
(B) X responds to ganocyclene.
(C) X responds to heptocillin.
(D) Y responds to heptocillin.
(E) Z responds to ganocyclene.

19. Which one of the following could be true?

(A) W, X, and Z all respond to ferromycin.
(B) W, X, and Z all respond to ganocyclene.
(C) W and exactly one other organism respond to ganocyclene.
(D) W responds to more of the antibiotics than X does.
(E) More of the organisms respond to ferromycin than to ganocyclene.

20. Which one of the following could be true?

(A) Exactly one of the organisms responds to ferromycin.
(B) All four of the organisms respond to heptocillin.
(C) At least one of the organisms responds both to ferromycin and to heptocillin.
(D) At least one of the organisms responds neither to ganocyclene nor to heptocillin.
(E) At least one of the organisms responds to ganocyclene but does not respond to ferromycin.

21. If X does not respond to ferromycin, then which one of the following must be true?

(A) W responds to ganocyclene.
(B) X responds to ganocyclene.
(C) X responds to heptocillin.
(D) Z responds to ferromycin.
(E) Z responds to heptocillin.

22. If any of the organisms responds to two of the antibiotics, then which one of the following is true about such an organism?

(A) It must respond to ferromycin.
(B) It must respond to ganocyclene.
(C) It must respond to heptocillin.
(D) It cannot respond to ferromycin.
(E) It cannot respond to ganocyclene.

23. If none of the organisms responds to heptocillin, then which one of the following must be true?

(A) W responds to ferromycin.
(B) X responds to ferromycin.
(C) Z responds to ferromycin.
(D) Exactly three of the organisms respond to ganocyclene.
(E) Exactly four of the organisms respond to ganocyclene.

24. If three of the organisms respond to exactly the same set of antibiotics as each other, and if Z does not respond to ferromycin, then each of the following must be true EXCEPT:

(A) W responds to ferromycin.
(B) X responds to ganocyclene.
(C) Z responds to ganocyclene.
(D) W responds to exactly the same set of antibiotics as Y.
(E) X responds to exactly the same set of antibiotics as Y.

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.