

STUDENT COPY

# IBA

Name :

Batch:

**ANALYTICAL LECTURE - 4**

**PUZZLES**

**MENTORS**<sup>TM</sup>  
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**Directions:** Each of the following questions or groups of questions is based on a short passage or a set of propositions. In answering these questions it may sometimes be helpful to draw a simple picture or chart.

### Question 1 – 3

*An office manager must assign six employees to six offices, consecutively numbered 1 to 6, which are arranged in a row and are separated only by a low height wall. Therefore, voices, sound, cigarette smoke readily pass from one office to those on either side.*

- *Zafar's work requires him to speak on the telephone throughout the day.*
- *Neelim & Tarique often talk to one another and prefer to have offices next to one another.*
- *Mursalin, the senior employee, is entitled to office 5, which has the largest window.*
- *Muib needs silences in the office(s) next to his own*
- *Raiad, Neelim and Muib all smoke. Mursalin must have non-smoker in the office(s) next to him.*

1. The best employee to occupy the office furthest from Tarique would be  
(A) Muib (B) Zafar (C) Mursalin (D) Raiad (E) Neelim
2. The three employees who smoke should be placed in offices  
(A) 2, 3 & 6 (B) 1,2 & 4 (C) 1,2 & 6 (D) 2,3 & 4 (E) 1,2 & 3
3. The best location for Neelim's office is in office?  
(A) 1 (B) 2 (C) 3 (D) 4 (E) 6

### Questions 4-6

**Instruction:** Read the situation below and select the best answer for each of the questions that follow.

*Three men (Zafar, Raiad and Neelim) and three women (Roza, Raiysa and Prapti) are spending a few months at a hillside. They are to stay in a row of nine cottages, each one living in his or her own cottage. No other guest is staying in the row where they are going to stay. Following are six conditions that must be followed while assigning cottages -*

*I. Raiysa, Zafar and Neelim do not want to stay in any cottage, which is at the end of the row.*

*II. Roza and Raiysa are unwilling to stay besides any occupied cottage.*

*III. Only Prapti is in between Raiad and Neelim.*

*IV. Between Raiysa and Neelim's cottage there is just one vacant house.*

*V. None of the girls occupies adjacent cottages.*

*VI. The house occupied by Zafar is next to an end cottage.*

4. Which of the following statements is/are true?  
I. Raiysa is between Roza and Neelim.  
II. At the most four persons can have occupied cottages on either side of them.  
III. Zafar stays besides Raiad.  
A) I only (B) II only (C) I and III only (D) II and III only (E) I, II and III
5. Who is occupying the cottage in the middle?  
A) Raiysa (B) Raiad (C) Roza (D) Neelim (E) Prapti

6. How many of them occupy cottages next to a vacant cottage?  
A) 2      B) 3      C) 4      D) 5      E) 6

### Questions 7-10

A company sells packages of decorative papers, each containing three sheets of paper. The available colors are: red, orange, green, blue, and purple. Each package must conform to the following rules:

- Each package must contain sheets of either two or three different colors.
  - A package containing any orange sheet must also contain at least one red sheet.
  - A package containing any red sheet must also contain at least one orange sheet.
  - Blue and purple sheets cannot be packed in the same package.
  - A package containing any green sheet must also contain at least one purple sheet, but a package containing purple sheet need not contain green sheet.
7. Which of the following is an acceptable package?  
(A) One blue, one green, and one orange sheet  
(B) One orange, one green, and one red sheet  
(C) Two green sheets and one purple sheet  
(D) Two blue sheets and one red sheet  
(E) Three orange sheets
8. An acceptable package CANNOT contain which of the following combination of sheets?  
(A) Red and blue      (B) Orange and blue  
(C) Green and purple.      (D) Orange and green  
(E) None of these
9. An acceptable package CANNOT contain two sheets of  
(A) Orange      (B) Red      (C) Purple      (D) Green      (E) Blue
10. Which of the following could be packed with a green sheet to make an acceptable package?  
(A) One blue and one orange sheet      (B) One red and one orange sheet  
(C) Two purple sheets      (D) Two orange sheets  
(E) Two red sheets

### Questions 11-15

*A restaurant offers three daily specials each day of the week. The daily specials are selected from a list of dishes: P, Q, R, S, T, and U. The daily specials for the menu are selected in accordance with the following restrictions:*

On any day that S is on the menu, Q must also be on the menu.

If R is on the menu one day, it cannot be included on the menu the following day.

U can be on the menu only on a day following a day on which T is on the menu.

Only one of the three specials from a given day can be offered the following day.

11. Which of the following could be the list of daily specials offered two days in a row?  
A. S, R, T and R, P, Q      B. Q, S, R and Q, S, T      C. P, Q, S and S, R, U  
D. Q, S, P and T, U, Q      E. S, Q, R and Q, T, P

12. If P, R, and Q are on the menu one day and P, T, and R are on the menu two days later, which daily specials must have appeared on the menu for the intervening day?  
 A. P, R, and T    B. P, S, and T    C. Q, S, and T    D. Q, S, and U    E. S, T, and U
13. If P and S are on the menu one day, which of the following must be true for the following day?  
 I. U is on the menu    B. S is on the menu    III. T is on the menu    IV. R is on the menu.  
 A. I and II only    B. I and III only    C. III and IV only  
 D. I, II, and III    E. II, III, and IV
14. If on a certain day neither Q nor U is on the menu, how many different combinations of daily specials are possible for that day?  
 A. 1    B. 2    C. 3    D. 4    E. 5
15. If Q, R, and S are on the menu one day, which specials must be offered the following day?  
 A. P, Q, and T    B. P, R, and T    C. P, R, and U    D. R, S, and Q    E. T, S, and U

**Questions 16-19**

*A cryptanalyst must translate into letters all of the digits included in the following two lines of nine symbols each:*

9	3	3	4	5	6	6	6	7
2	2	3	3	4	4	5	7	8

The cryptanalyst has already determined some of the rules governing the decoding.

Each of the digits from 2 to 9 represents exactly one of the each letters A, E, I, O, U, R, S, and T. And each letters is represented by exactly one of the digits.

If a digit occurs more than once, it represents the same letter on each occasion

The letter T and the letter O each are represented exactly 3 times.

The letter I and the letter A are each represented exactly two times.

The letter E is represented exactly 4 times.

16. If 2 represents R and 7 represents A, then 5 must represent:  
 A. I    B. O    C. S    D. T    E. U
17. Which of the following is a possible decoding of the five-digit message:  
 4    6    5    3    6  
 A. O-T-A-E-T    B. O-T-E-U-T    C. O-O-S-E-O  
 D. T-O-I-E-T    E. T-O-R-E-T
18. If 9 represents a vowel, it must represent which of the following?  
 A. A    B. E    C. I    D. O    E. U
19. If 8 represents a vowel, which of the following must represent a consonant?  
 A. 2    B. 4    C. 5    D. 7    E. 9

## Questions 20- 25

*Six contestants, Abrar, Sayem, Nabila, Zafar, Maisha, and Nuha, are to be ranked first (highest) through sixth (lowest), though not necessarily in that order, at the start of a singles Ping-Pong challenge tournament.*

Abrar is ranked above Sayem

Maisha is ranked above both Nabila and Zafar

Nuha is ranked two places above Nabila

Abrar is ranked either third or fourth.

During the tournament, a player may challenge only the player ranked immediately above him or the player ranked two places above him.

20. Which of the following is a possible initial ranking from highest to lowest?

- A. Maisha, Nabila, Nuha, Abrar, Zafar, Sayem
- B. Nuha, Maisha, Nabila, Zafar, Abrar, Sayem
- C. Nuha, Sayem, Nabila, Abrar, Maisha, Zafar
- D. Nuha, Maisha, Nabila, Abrar, Zafar, Sayem
- E. Maisha, Nuha, Nabila, Abrar, Zafar, Sayem

21. If Nuha is initially ranked first, which of the following must also be true of the initial ranking?

- A. Maisha is ranked second.
- B. Nabila is ranked second.
- C. Abrar is ranked third.
- D. Sayem is ranked fifth.
- E. Zafar is ranked sixth.

22. If Abrar is initially ranked third, which of the following must also be true of the initial ranking?

- A. Maisha is ranked first.
- B. Nuha is ranked second.
- C. Sayem is ranked fourth.
- D. Zafar is ranked fourth.
- E. Zafar is ranked sixth.

23. If Nuha is initially ranked third, and if she makes the first challenge, which of the following contestants could she play in the first match?

- |                    |                   |                   |            |
|--------------------|-------------------|-------------------|------------|
| I. Abrar           | II. Nabila        | III. Zafar        | IV. Maisha |
| A. I and II only   | B. I and III only | C. II and IV only |            |
| D. III and IV only | E. I, II, and IV  |                   |            |

24. If the first challenge of the tournament is made by Abrar against Nabila, all of the following must be true of the initial ranking EXCEPT:

- A. Nuha is ranked first.
- B. Maisha is ranked second.
- C. Nabila is ranked third.
- D. Abrar is ranked fourth.
- E. Zafar is ranked fifth.

25. If Maisha makes the first challenge of the tournament against Nuha, then which of the following must be true of the initial rankings?

- A. Nuha is ranked first.
- B. Maisha is ranked third.
- C. Abrar is ranked third.
- D. Nabila is ranked fourth.
- E. Sayem is ranked fifth.

### Questions 26 – 30

26. If  $w$ ,  $x$ ,  $y$ , and  $z$  are the digits of a four-digit number  $N$ , a positive integer, what is the remainder when  $N$  is divided by 9?
- (1)  $w + x + y + z = 13$
  - (2)  $N + 5$  is divisible by 9
27. A number of oranges are to be distributed evenly among a number of baskets. Each basket will contain at least one orange. If there are 20 oranges to be distributed, what is the number of oranges per basket?
- (1) If the number of baskets was halved and all other conditions remained the same, there would be twice as many oranges in every remaining basket.
  - (2) If the number of baskets were doubled, it would no longer be possible to place at least one orange in every basket.
28. How many perfect squares are less than the integer  $d$ ?
- 1)  $23 < d < 33$
  - (2)  $27 < d < 37$
29. Is the perimeter of the triangle with the sides  $a$ ,  $b$  and  $c$  greater than 30?
- (1)  $a - b = 15$ .
  - (2) The area of the triangle is 50.
30. In a certain lane, there is only one red car and one green car. If there are 7 cars between the red car and the green car, what is the total number of cars in that lane?
- (1) There are 9 cars in front of the red car.
  - (2) There are 9 cars behind the green car.