9 Arrangement and Distribution

Introduction

All the questions of this type involve arranging people or objects in straight lines or around circles, squares, or other geometric shapes. Arrangement puzzles are very common, and you may have solved a few in your younger years. However, as part of the CAT, they become trickier and require you to sharpen your fangs.

Arrangement-based questions can broadly be classified into the following categories:

- Linear arrangement
- Circular (or closed arrangements)
- Ranking, ordering, and sequencing
- Matrix arrangement (also known as grid formation or distribution)

Linear Arrangement/Sequencing

The linear arrangement is a system of sequencing a group of people or elements in a straight line according to specific conditions of positioning and choices.

This method of representing data has a great deal of utility in problems of LR in CAT and OMETs.

Let's understand the concept with the help of illustrations.

Example 1:

Directions for Questions 1 to 5

A prison has seven robbers in different cells, with exactly one robber in each cell. The cells are numbered from 1 through 7, and consecutively numbered cells are considered adjacent to each other. Three of the robbers are male: Badshah, Chhote, and Don. Four of the robbers are female: Jaisi, Jaggu, Tinnu, and Yukti. Badshah and the Yukti are seniors and all of the other robbers are juniors. Each robber can only be placed in one of the seven cells, and the following conditions also apply:

i) Cells 1, 2, and 3 must all contain juniors, exactly two of which must be female.

ii) Exactly two cells must lie between the cells in which the two seniors are placed.

iii) Jaisi and Tinnu cannot be placed in adjacent cells.

iv) Badshah and Don must be placed in adjacent cells.

v) Chhote must be placed either in cell 2 or cell 6.

1. If Yukti is placed into cell 4, then which of the following could be true?
(A) Chhote is placed into cell 6.
(B) Don is placed into cell 5.
(C) Jaisi is placed into cell 2.
(D) Tinnu is placed into cell 5.

Solution: (D)

In arrangement-based caselets, it is important to decide whether to create a common arrangement or to solve each question separately.

If you read the given data, you will understand that it does not provide complete information about the allocation of the cells. So, it is better to take one question at a time rather than jotting down all the possibilities.

It is given in the question that Yukti is in cell 4. Therefore, Badshah must be in cell 7 [as Yukti and Badshah are seniors, and there must be exactly 2 cells between the seniors, as per point (ii)].

As per point (iv), Don is adjacent to Badshah. So, Don must be in cell 6. This means Chhote is in cell 2, as per point (v). This leaves us with any combination of Jaggu, Jaisi, and Tinnu for 1, 3, and 5.

So, Tinnu can be in cell 5.

Hence, option (D) is correct.

2. In how many different cells could Don be placed?

(A) 1
(B) 3
(C) 2
(D) None of these.

Solution: (B)

Badshah could only be placed in cell 4 or cell 7 (as there should be two cells between Badshah and Yukti, and none of them can be among cells 1, 2, and 3 as they are seniors.). Since Badshah and Don should be adjacent, the possible cells for Don could be 3, 5, or 6.

Hence, option (B) is correct.

3. If Jaggu and Tinnu are placed into adjacent cells, then which of the following must be true about the placement of the other robbers?

(A) Badshah and Tinnu are placed into adjacent cells.
(B) Chhote and Jaisi are placed into adjacent cells.
(C) Jaisi is placed in a lower-numbered cell than the cell into which Don is placed.
(D) The robber placed in cell 5 is a male.

Solution: (A)

It is known that out of the four females (Jaisi, Jaggu, Tinnu, and Yukti), exactly two junior females should be there in cells 1, 2, and 3. Also, as explained earlier, Yukti and Badshah will be in cells 4 and 7, not necessarily in the same order. So, Jaggu and Tinnu can be in cells (1/2) or (2/3) in some order. So, definitely Chote will be in cell 6.

So, Don has to be placed in one of the first three cells, as one male junior should be there in one of the first three cells. Also, Don has to be adjacent to Badshah. So, the possible arrangements will be as shown below:

Jaggu / Tinnu	Tinnu / Jaggu	Don	Badshah	Jaisi	Chote	Yukti
Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Cell 6	Cell 7

So, Chhote and Jaisi are surely placed in the adjacent cells.

Hence, option (B) is correct.

4. If Jaisi is placed in cell 1 and Chhote is placed in cell 2, then how many different combinations of robbers and cells are possible?

(A) 1
(B) 2
(C) 3
(D) 4

Solution: (D)

- It is given in the question that Jaisi is in cell 1 and Chhote is in cell 2.
- We also know that cell 3 must have one of Jaggu or Tinnu, as per point (i).
- Cells 4 and 7 must have Badshah and Yukti, in any order. So, there are two possible scenarios here.
- If Badshah is in cell 4 and Yukti is in cell 7, Don must be in cell 5 while cell 3 must have one of Jaggu or Tinnu. This creates two more possibilities.

Now, if Yukti is in cell 4 and Badshah is in cell 7, Don would have to be in cell 6 and one of Jaggu or Tinnu would have to be in cell 5. Once again, Jaggu and Tinnu can be interchanged and this creates another two possibilities. So, there are four different combinations possible.

Hence, option (D) is correct.

5. Which of the following combinations is definitely false?

(A) Jaisi, Chhote, Jaggu, Yukti, Tinnu, Don, and Badshah

(B) Jaisi, Jaggu, Don, Badshah, Tinnu, Chhote, and Yukti

(C) Jaisi, Jaggu, Tinnu, Badshah, Don, Chhote, and Yukti

(D) Jaggu, Chhote, Jaisi, Yukti, Tinnu, Don, and Badshah

Solution: (C)

The combination in option (C) is definitely false as three females are seated together, and we can have exactly two females seated in the first three cells.

Hence, option (C) is correct.

Circular Arrangement

As the name suggests, Circular Arrangement is a way of placing objects or making people sit in a circular fashion. The unique feature of this type of arrangement is that the position of the elements cannot be assigned numerical positions without taking any of the elements as the point of reference. In a Circular Arrangement, the people or the objects can be referred to as being to the left or right of a particular person or object.

Refer to the below-given examples to have an in-depth understanding of this concept.

Example 2:

Directions for Questions 6 to 9

Eight players (Edward, Oliver, Jack, George, Harry, Leo, Tommy, and Oscar) are seated around a circular table, facing the centre. They are wearing T-shirts with numbers printed on the backside.

The following information is known about their positions and the number on their backs.

i) Oliver sits opposite Oscar, who has number 22 on his back.

ii) Two players sit between Oliver and Edward, who sits second to the right of George. Also, George and Oscar sit next to each other.

iii) George has number 79 on his back.

iv) Oliver is an immediate neighbour of Harry and Tommy, and Harry sits second to the left of Tommy.

v) Leo is not a neighbour of Harry, who has the number 50 on his back.

vi) One player has number 06 on his back, and the one who has number 79 on his back sits second to the left of the one who has number 18 on his back.

vii) Tommy has the number 38 on his back.

viii) The player with the number 96 on his back is not Leo.

ix) The player with number 06 is 4th to the left of the player with number 89 and is adjacent to the person with number 18.

6. Who among the following players has the number 18 on his back?

(A) Edward

(B) Oliver

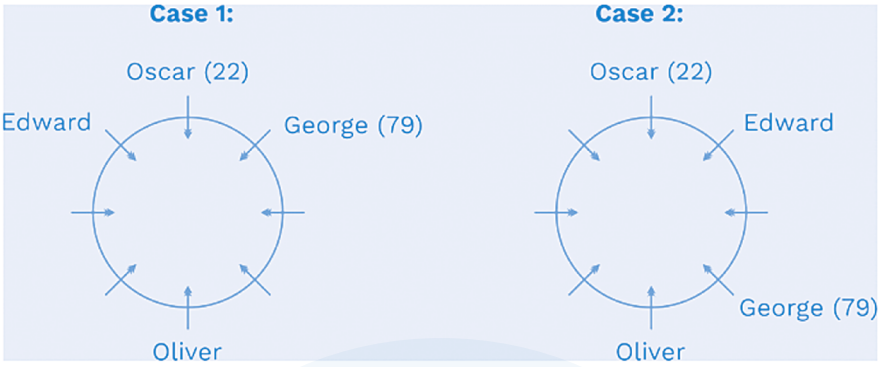
(C) Harry

(D) Leo

Solution: (A)

Oliver sits opposite to Oscar, who has number 22 on his back. Two players sit between Oliver and Edward, who sits second to the right of George. George has number 79 on his back.

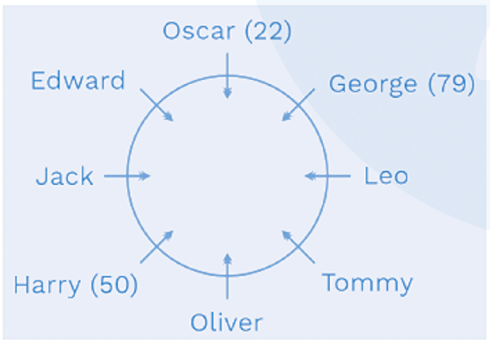
So, the possible arrangements are as shown below:



From point (ii), George and Oscar sit next to each other. So, case 2 will be eliminated.

Also, Oliver is an immediate neighbour of Harry and Tommy and Harry sits second to the left of Tommy. Leo is not a neighbour of Harry, who has the number 50 on his back.

So, the final arrangement will be as shown below:



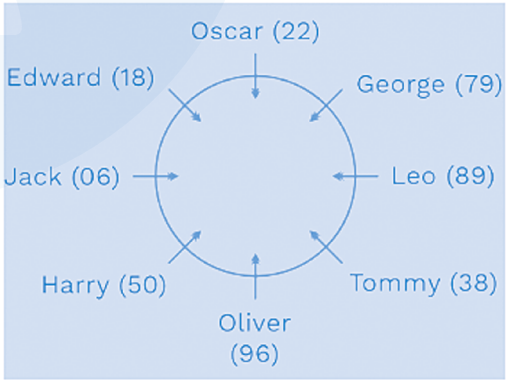
Now, the one who has the number 79 on his back sits second to the left of the one who has the number 18 on his back. So, Edward has the number 18 on his back.

Also, Tommy has a 38 number on his back.

The player with number 06 is fourth to the left of the player with number 89 and is adjacent to the person with number 18. So, Jack and Leo should have numbers 06 and 89, respectively, on their backs.

Further, the player with number 96 on his back is not Leo.

So, the final arrangement (with their respective numbers) will be as shown below:



So, Edward has the number 18 on his back.

Hence, option (A) is correct.

7. Who among the following players sits second to the right of Oscar?

(A) Leo
(B) The one who has the number 06 on his back
(C) Tommy
(D) The one who has the number 96 on his back

Solution: (B)

As per the final arrangement, the one who has number 06 on his back (i.e. Jack) sits second to the right of Oscar.

Hence, option (B) is correct.

8. Who sits to the right of the player with the number 38 on his back?

(A) Oscar
(B) Jack
(C) Leo
(D) None of the above

Solution: (C)

As per the final arrangement, Leo sits to the right of the player with the number 38 on his back.

Hence, option (C) is correct.

9. Which of the following combinations is true?

(A) Tommy – 18
(B) Oliver – 50
(C) Jack – 89
(D) Oliver – 96

Solution: (D)

As per the final arrangement, option (D) is correct.

Hence, option (D) is correct.

Matrix Formation/Distribution

In this type of arrangement questions, you need to arrange the data based on three or four parameters. The parameters can be city, company, age, colour, etc.

For example, in CAT Exam, in the recent past, the following caselets have appeared which were based on the above-mentioned variety of arrangements:

1. Team from various cities and their ratings

2. Dancers and music composers

Let's look at a few examples to understand the approach for solving such questions.

Example 3:

Directions for Questions 10 to 12 Study the following information carefully and answer the given questions.

Each of the five persons—Ajay, Bhanu, Chandu, Dhanu, and Ishwar, lives in different cities namely, Hyderabad, Mumbai, Delhi, Bangalore, and Chennai. They study different courses namely, B.Sc., B.Tech., B.Com., B.Ed. and Botany. They also work for different companies, i.e. TCS, IBM, Infosys, Google, and Tech Mahindra, not necessarily in the same order.

The following information is also known about them:

i) Chandu studied B.Tech. but he is not from Delhi.

ii) Ajay is from Hyderabad but does not work for TCS.

iii) Dhanu works for IBM but did not study Botany.

iv) The person who works for TCS studied B.Com.

v) The person from Chennai works for Google.

vi) The person who works for IBM is not from Mumbai.

vii) The person from Hyderabad studied either B.Sc. or B.Com.

viii) Either Ishwar or Dhanu is from Delhi and the person from Delhi studies Botany.

10. The person from Delhi works for which of the following companies?

(A) Google
(B) TCS
(C) IBM
(D) Cannot be determined

Solution: (D)

Based on the information given explicitly, the following table can be created.

Persons	City	Course	Company
Ajay	Hyderabad	B.Sc. / B.Com	X TCS
Bhanu			
Chandu	X Delhi	B.Tech	
Dhanu	X Mumbai	X Botany	IBM
Ishwar			

- From point (iv), we understand that the person who works for TCS studied B.Com. So Ajay studied B.Sc. (as he doesn't work with TCS)
- From point (viii), either Ishwar or Dhanu is from Delhi and the person from Delhi studies Botany. But Dhanu doesn't study Botany, so Ishwar must be from Delhi and must study Botany.
- Now, the only way to accommodate points (iv) and (v) is by considering that Chandu is from Chennai and works with Google, and Bhanu is from Mumbai, studies B.com, and works with TCS.

So, the final distribution will be as follows:

Persons	City	Course	Company
Ajay	Hyderabad	B.Sc.	Infosys/ Tech Mahindra
Bhanu	Mumbai	B.Com.	TCS
Chandu	Chennai	B.Tech	Google
Dhanu	Bangalore	B.Ed.	IBM
Ishwar	Delhi	Botany	Tech Mahindra / Infosys

Hence, the person from Delhi works for Tech Mahindra/Infosys.

Hence, option (D) is correct.

11. Who among the following is from Bangalore?

(A) Ajay
(B) Bhanu
(C) Dhanu
(D) Chandu

Solution: (C)

From the above table, we can clearly say that Dhanu is from Bangalore.

Hence, option (C) is correct.

12. Which of the following 'Person – City – Course – Company' combination is correct?

(A) Chandu – Chennai – B.Tech. – Infosys
(B) Dhanu – Bangalore – B.Ed. – IBM
(C) Bhanu – Mumbai – B.Com. – Tech Mahindra
(D) Ajay – Chennai – B.Sc. – Infosys

Solution: (B)

Refer to the table prepared earlier.

Clearly, Dhanu – Bangalore – B.Ed. – IBM is the correct combination of 'Person – City – Course – Company'.

Hence, option (B) is correct.

Example 4:

Directions for Questions 13 to 15: Read the given statements and answer the questions that follow.

Renu, a business owner, wanted to make her presence felt on social media. For 7 days a week, starting on a particular day, she created and uploaded videos in three different categories: Wellness, Beauty, and Durables.

She continued the process every week for the next few months.

The following additional conditions were followed:

i) On each day, she uploaded videos in at least one category.

ii) For 6 days of every week, she uploaded exactly three videos of each category such that the maximum gap between any two videos in a particular category was less than three days.

iii) After working for six continuous days, Renu decided to take a break every seventh day and did not upload any video on this day.

iv) She also noticed that there was one particular day during the week when she had uploaded videos in all the three categories.

After the seventh day, the next week will immediately start and so the condition of the maximum gap being less than three days would continue to apply.

The following table gives partial information about the sequence and days on which the videos were uploaded.

Day	Wellness	Beauty	Durables
Day 1	Yes		
Day 2		Yes	
Day 3			Yes
Day 4	Yes		
Day 5			Yes
Day 6		Yes	
Day 7	No	No	No

13. If it is known that the first day mentioned in the table is Wednesday, what is the complete list of all the days on which the video on Beauty was uploaded?

(A) Thursday, Friday, Monday
(B) Thursday, Saturday, Tuesday
(C) Thursday, Sunday, Monday
(D) Thursday, Saturday, Monday

Solution: (C)

Apart from the details given in the table, the following can be concluded (for the third video of each of the categories),

- Renu will definitely upload a wellness video on day 5 or day 6. Otherwise, the gap between the wellness video on day 4 and the next video on wellness (i.e. next week) will exceed the allowed limit, i.e. less than 3 days. This will complete the three videos on wellness. So, she will not upload a wellness video on day 2 or day 3.
- Renu will definitely upload a beauty video on days 3, 4, or 5. Otherwise, the gap between the beauty video on day 2 and day 5 will exceed the allowed limit, i.e. less than 3 days. This will complete the three videos on beauty. So, she will not upload a beauty video on day 1.
- Similarly, Renu will definitely upload a durables video on day 1 or day 2. This will complete the three videos on durables. So, she will not upload a durable video on day 4 or day 6.

So, the following table can be obtained:

Day	Wellness	Beauty	Durables
Day 1	Yes		
Day 2	No	Yes	
Day 3	No		Yes
Day 4	Yes		No
Day 5			Yes
Day 6		Yes	No
Day 7	No	No	No

As per the question, there is one day on which she uploads the videos in all the three categories. That must be day 5 (as per the points mentioned above).

So, the complete table will be as follows:

Day	Wellness	Beauty	Durables
Day 1	Yes	No	Yes
Day 2	No	Yes	No
Day 3	No	No	Yes
Day 4	Yes	No	No
Day 5	Yes	Yes	Yes
Day 6	No	Yes	No
Day 7	No	No	No

14. If it is known that the first day mentioned in the table is Wednesday, on which day did Renu upload videos in all the three categories?

(A) Saturday
(B) Monday
(C) Sunday
(D) Cannot be determined

Solution: (C)

As explained earlier, on day 5, she will upload videos in all the three categories. So, the 5th day from Wednesday (which was Day 1) will be Sunday.

Hence, option (C) is correct.

15. For how many days during the week did Renu upload more than one video on the same day?

(A) 1
(B) 2
(C) 3
(D) 4

Solution: (B)

As explained earlier, Renu can upload more than 1 video only on day 1 and day 5.

Hence, option (B) is correct.

Example 5:

Directions for Questions 16 and 17

Four Friends – Arthur, Bernardo, Charlie, and Daniel planned to see a movie on Sunday. No two of them reached the theatre at the same time. They were wearing caps of different colours namely, pink, black, white, and blue, in no particular order. Furthermore, it is known that:

i) Charlie was not the first one to reach the theatre and he was wearing a black cap.
ii) The person wearing the blue cap reached the theatre earlier than Bernardo.
iii) The person wearing the white cap was not the last one to reach the theatre.
iv) Arthur was not wearing the blue cap.
v) The person wearing the pink cap reached the theatre earlier than the person wearing the white cap.
vi) Arthur reached the theatre before Daniel.

16. Who among the four was wearing the white cap?

(A) Arthur
(B) Bernardo
(C) Charlie
(D) Daniel

Solution: (B)

From statements (i), (ii), and (vi), it can be concluded that Arthur was the first person to reach the theatre.

From statements (i), (ii), and (iv), it can be concluded that Daniel was wearing the blue cap.

Hence, either Arthur or Bernardo was wearing the pink cap or the white cap. From statement (v), it can be concluded that Arthur was wearing the pink cap while Bernardo was wearing the white cap. Further, the final table can be shown as:

	Left to Right *First-to-last to arrive at Theatre*			
Person	Arthur	Daniel	Bernardo	Charlie
Cap color	Pink	Blue	White	Black

Hence, Bernardo was wearing the white cap.

Hence, option (B) is correct.

17. Who among the four was the last to reach the theatre?

(A) Arthur
(B) Bernardo
(C) Charlie
(D) Daniel

Solution: (C)

From the final table, it can be concluded that Charlie was the last to reach the theatre.

Hence, option (C) is correct.

Practice Exercise

Level of Difficulty – 1

Set 1

Directions for Questions 1 to 3: Refer to the data below and answer the questions that follow.

A, B, C, D, and E work at Google, Facebook, Twitter, LinkedIn, and Microsoft (not necessarily in that order). They planned to do a course for the ease of their work. The courses which they studied were X, Y and Z. Only one person studied course Z while two persons each studied X and Y courses. D studied course Y and his course mate was not from Facebook. The person who studied course Z is from Google. B is from Twitter and his coursemate is neither from Microsoft nor LinkedIn. C is neither from Google nor Facebook and his coursemate is not from Microsoft. A didn't study the course Z and his coursemate is not from Facebook.

1. Which of the following statements is definitely true?
(A) A is from Facebook.
(B) D is not from LinkedIn.
(C) D and C are the coursemates.
(D) C is from Microsoft.

2. Which of the following statements can be true?
(A) People from LinkedIn and Microsoft study course Y.
(B) People from Twitter and Facebook study course X.
(C) B and D study course Y.
(D) All of the above.

3. Who works at LinkedIn?
(A) A
(B) C
(C) D
(D) Cannot be determined

Set 2

Directions for Questions 4 to 8: Refer to the data below and answer the questions that follow.

In a school, there are five sections in class X—sections A, B, C, D, and E. Five subjects are taught in these sections on five consecutive days, Monday to Friday. These five subjects are maths, English, social science, mental ability, and science. Each subject was taught in a different section every day. Similarly, in each section, a different subject was taught every day. The following information is also known,

i) In all the sections, except B, English was taught just before science.

ii) Maths was the third subject taught in section D and it was taught after mental ability.

iii) Mental ability was taught in two other sections before section C and was taught in section A immediately after it was taught in section C.

4. Maths was taught in section C on which day?
(A) Friday
(B) Thursday
(C) Tuesday
(D) Monday

5. In which section was English taught on Wednesday?
(A) D
(B) E
(C) B
(D) A

6. Which of the following is the correct order of the sections in which science was taught from Monday to Friday?
(A) B, C, E, A, D
(B) B, C, A, D, E
(C) B, C, D, A, E
(D) B, C, A, E, D

7. Mental ability was taught on which day in section B?
(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday

8. Which subject was taught on Friday in section B?
(A) Science
(B) Maths
(C) English
(D) Mental Ability

Set 3

Directions for Questions 9 to 11

In a military exercise, eight soldiers namely, Vikram, Das, Yash, Deep, Puri, Pawan, Swapnil, and Kamal are seated around a circular table. During their exercise, they exchange their places subject to some conditions. The seats are of different colors: blue, green, indigo, orange, pink, red, violet, and yellow and are arranged alphabetically in an increasing order in a clockwise manner.

Das, who is in the seat of the color Indigo, is opposite Swapnil. Yash is sitting opposite Puri, who is in the red colour seat. Vikram is sitting opposite Pawan. Deep is adjacent to both Swapnil and Pawan.

In the following questions, a notation of (*x, y*) indicates that the person sitting in the colour of seat '*x*' exchanged his seat with the person sitting in colour of seat '*y*'.

9. If swapping of seats is done in the following manner (blue, red), (orange, indigo), (violet, green), (pink yellow), (red, orange), (indigo, green), then which of the following will be true after swapping is done?
(A) Yash is in the red colour seat.
(B) Kamal is in the green colour seat.
(C) Vikram is in the pink colour seat.
(D) Deep is in the indigo colour seat.

10. If swapping of seats is done in the following order (blue, pink), (indigo, pink), (blue, indigo), (pink, violet), (blue, violet), then which of the following persons would be sitting opposite to Vikram?
(A) Pawan
(B) Das
(C) Swapnil
(D) Puri

11. If swapping of seats is done in the following order (green, orange), (indigo, red), (red, pink), (blue, orange), then with which of the following persons should Yash swap his seat so that he will be sitting opposite to Pawan?
(A) Deep
(B) Vikram
(C) Das
(D) Puri

Set 4

Directions for Questions 12 to 16: Refer to the data below and answer the questions that follow.

Five friends, A, B, C, D, and E, who are of different ages, live in exactly one out of five countries—Australia, Bhutan, India, England, and the Netherlands. Each of them went to spend their vacation in one of the other friend's countries such that no country had two friends spending their vacation together. They like exactly one colour from blue, red, yellow, green, and white.

i) The difference between the ages of D and A is 3.

ii) The 28-year-old friend lives in the Netherlands.

iii) E, the youngest of them, is 25 years old and he spent his vacation in India.

iv) A is the oldest among the five and she likes blue.

v) C spent her vacation in A's country.

vi) The difference between the ages of D and E is equal to the difference between the ages of B and A.

vii) The friend who went to England likes white.

viii) The friend who spent his/her vacation in the Netherlands likes red.

ix) The 31-year-old friend vacationed in Bhutan.

12. Where did A go for vacation?
(A) Bhutan
(B) India
(C) The Netherlands
(D) Australia

13. Who among the following likes white colour?
(A) E
(B) C
(C) B
(D) D

14. If the difference between the ages of the friends living in Australia and England is 5 years, then what is the difference between the ages of A and C?
(A) 1
(B) 2
(C) 5
(D) Cannot be determined

15. Using information from the previous question, if the person from Australia likes red, which colour did the person from England like?
(A) Yellow
(B) White
(C) Green
(D) Cannot be determined

16. A is the resident of which country?
(A) Bhutan
(B) The Netherlands
(C) India
(D) England

Level of Difficulty – 2

Set 1

Directions for Questions 1 to 4: Refer to the data below and answer the questions that follow.

Eight persons—P, Q, R, S, T, U, V, and W decided to watch a movie show organized in their city. Two persons went to watch an action movie, two persons went to watch a romantic movie, two persons went to watch a comedy movie and two persons did not watch any movie. Given below is some information about the persons, and the order they reached to attend the movie show.

i) The person who went to watch an action movie came just before the person who went to watch a comedy movie.
ii) V, who did not go to watch an action movie reached just after Q.
iii) S went to watch an action movie and T went to watch a comedy movie.
iv) U came before W and met R when he reached the show.
v) T and Q watched the same type of movie.
vi) The persons who reached first as well as the person who reached last watched a comedy movie.
vii) W, who went to watch a romantic movie, came just before the person who watched no movie.

1. Among the given persons, who was the fourth to reach the movie show?
(A) R
(B) U
(C) W
(D) Cannot be determined

2. If no person went between the two persons who went to watch a romantic movie, then how many persons went between the two persons who went to watch an action movie?
(A) Two
(B) Four
(C) Three
(D) Either three or four

3. If U did not go to watch any movie, then which of the given statements are definitely correct?
I. One person, who went to watch a romantic movie, came just after the person who went to watch a comedy movie, while the other person who went to watch the romantic movie came just after the person who did not watch any movie.
II. R came just after the person who went to watch an action movie.
III. One of the persons who did not watch any movie came just after the person who went to watch an action movie.
(A) Only I and II
(B) Only II and III
(C) Only I and III
(D) All of the above

4. If the person who reached second watched any movie, then which type of movie can that be?
(A) Action
(B) Romantic
(C) Comedy
(D) Cannot be determined

Set 2

Directions for Questions 5 to 10: Refer to the data below and answer the questions that follow.

Six persons: Aman, Binny, Chandan, Dinesh, Enna, and Firoz read three out of six novels:

P, Q, R, S, T, and U. We have the following information:

i) Binny read exactly one novel which Enna did not read.
ii) Exactly two novels read by Aman and Chandan are the same.
iii) Chandan and Firoz read the same three novels.
iv) Firoz read P and T.
v) Enna did not read S.

The following table shows the number of persons who read a particular novel:

Novel	Number of Persons Who Read
P	3
Q	2
R	2
S	5
U	4

5. For many persons, the three novels read by them can be uniquely determined
(A) Three
(B) Four
(C) Five
(D) Six

6. Which novel was definitely read by Binny?
(A) P
(B) Q
(C) R
(D) S

7. Which two persons read novel Q?
(A) Binny and Enna
(B) Dinesh and Enna
(C) Binny and Dinesh
(D) Cannot be determined

8. The novel T is read by how many people?
(A) Two
(B) Three
(C) Four
(D) Cannot be determined

9. The three novels which Enna did not read are:
(A) P, Q, and T
(B) P, Q, and S
(C) Q, S, and T
(D) P, S, and T

10. If novel Q is read by Dinesh and Enna, then who read novel R?
(A) Binny and Dinesh
(B) Binny and Enna
(C) Dinesh and Enna
(D) Cannot be determined

Set 3

Directions for Questions 11 to 14: Study the following information carefully to answer the given questions.

After a 100-m swimming competition, eight swimmers—Carry, Tarkesh, Manoj, Emli, Rohan, Ishan, Saurabh, and Kamal, sat around a circular track, but not necessarily in the same order. Four of them are facing inside and the other four are facing outside. All eight players score different points (between 10 and 100) in a qualifying competition held in Goa.

The following information is also available:

i) Ishan sits third to the right of Carry who scored 1 point more than the person who sits to the Immediate left of Emli.
ii) The person who is sitting second to the left of Ishan is facing the same direction as the person who score 49 points.
iii) Immediate neighbours of Emli have scored 17 and 20 points.
iv) Kamal scored 49 points.
v) Tarkesh scored 54 points.
vi) Emli sits to the immediate left of Manoj.
vii) The person who scored 25 points is facing outwards and is an immediate neighbour of the person who scored 20 points.

viii) Saurabh is an immediate neighbour of the person who scored 49 and 25 points.

ix) Rohan faces the center and sits third to the right of Tarkesh.

x) Manoj scored 17 points and faces the person who scored 30 points.

xi) Points of Emli is equal to the number obtained by reversing the digit of Carry's point.

xii) Emli is not the least scorer, Kamal does not sit second to the left of Ishan.

11. Who among the following scored the highest points?

(A) Manoj
(B) Kamal
(C) Saurabh
(D) Emli

12. Who among the following are the immediate neighbours of the person who scored three times that of Carry?

(A) Carry and Tarkesh
(B) Manoj and Carry
(C) Emli and Manoj
(D) Saurabh and Carry

13. What is the position of Carry with respect to Emli?

(A) Third to the right
(B) Fourth to the left
(C) Sixth to the right
(D) Third to the left

14. What is the sum of the score of Saurabh, Ishan, and Rohan?

(A) 65
(B) 70
(C) 75
(D) 80

Set 4

Directions for Question 15: Refer to the data below and answer the questions that follow.

At Wembley in London, British Indians organized a 2-day food exhibition at Ealing Rd to promote Indian cuisine. There were five eateries each on both sides of the road and were facing each other. The side of the stores facing the north direction named 'Spice of India' were—Masti, Dosa Express, Masala Canteen, Kailash Parbat, and Jungle Juices. On the other side, facing south named 'Flavours of India' were eateries namely, Gana, Saffron, Palm Beach Restaurant, Suraj Sweet Mart, and Patiala Peg, not necessarily in the same order.

It is known that Patiala Peg is not at any of the ends. Palm Beach Restaurant is to the immediate right of Saffron and Suraj Sweet Mart is to the immediate left of Gana, who is facing Masti. 'Spice of India' has as many eateries between Masti and Dosa Express as between Masala Canteen and Kailash Parbat. Gana is second to the left of Saffron. Kailash Parbat and Masala Canteen are not facing either Saffron or Suraj Sweet Mart.

15. For how many eateries, the exact position cannot be identified?

(A) 0
(B) 1
(C) 2
(D) 3

Level of Difficulty – 3

Set 1

Directions for Questions 1 to 6: Refer to the data below and answer the questions that follow.

Twelve sportsmen: Aman, Babli, Chandu, Deepak, Ellena, Flora, Golu, Harish, Indra, Jay, Kailash, and Lala, form four different groups—W, X, Y, and Z and participate in three different competitions: 100 mt Race (RA), Long Jump (LJ), and High Jump (HJ). Each group was represented by only one student in each competition. There were no ties, and the points awarded for first, second, third, and fourth ranks were 5, 4, 3, and 2, respectively. Further, the following points are known.

i) Aman and Ellena were from group W and they both did not come last.
ii) Kailash, Chandu, and Deepak came last. None of these three is in group Z.
iii) Total points scored by the groups are in arithmetic progression.
iv) Chandu is the only sportsman from group X who did not come 1st, and he participated in Long Jump.
v) Harish and Golu came third in High Jump and Long Jump, respectively. Also, they are from group Z.
vi) Jay and Flora, both came first.
vii) Group X got the maximum points. Group Y got 10 points.
viii) Indra and Babli are from the same group and did not come last and Deepak from the same group came last in the High Jump.
ix) Babli, Flora, and Lala took part in the 100-m race.

1. Who came first in High Jump?
(A) Jay
(B) Aman
(C) Ellena
(D) Cannot be determined

2. Who came second in Long Jump?
(A) Aman
(B) Indra
(C) Ellena
(D) Cannot be determined

3. Who came first in Long Jump?
(A) Aman
(B) Ellena
(C) Indra
(D) Cannot be determined

4. Which group got the least total points?
(A) W
(B) Y
(C) Z
(D) Cannot be determined

5. In which competition did Jay participate?
(A) 100-m race
(B) Long jump
(C) High jump
(D) Cannot be determined

6. In which competition did Aman participate?
(A) 100-m race
(B) Long Jump
(C) High Jump
(D) Cannot be determined

Set 2

Directions for Questions 7 to 12

P, Q, R, S, T, U, V, and W are employees of the same organisation, and they have with them different gift coupons namely, Flipkart, Myntra, Lifestyle, Amazon, PVR Cinemas,

Westside, Fabindia, and MakeMyTrip in that order. The total number of gift coupons available with them is 36. No two employees have the same number of coupons with them. Each employee has gift coupons of one type only and at least one gift coupon of the type of gift coupons they have. Further, the following conditions are also stipulated:

i) The total number of Flipkart and PVR cinemas gift coupons is the same as the number of Fabindia gift coupons that V has.
ii) Lifestyle and Amazon gift coupons put together are 10 in number.
iii) The total number of PVR cinemas and Westside gift coupons is 8.
iv) Flipkart and Lifestyle gift coupons together are 6 in number.
v) If the number of gift coupons that U has is not equal to 6, then W will have more gift coupons than U.
vi) If the number of PVR cinemas gift coupons is not equal to 1, then the number of MakeMyTrip gift coupons is greater than Myntra gift coupons.
vii) If the number of gift coupons with V is not 8, then the number of gift coupons with U will be greater than the number of gift coupons with Q.
viii) If the number of Myntra gift coupons is not 5, then the number of Fabindia gift coupons is also not 5.
ix) If T does not have 3 gift coupons with him, then R does not have 4 gift coupons with him.

7. Who among the following has got the largest number of gift coupons with him?
(A) U
(B) T
(C) S
(D) P

8. Who among the following has got the least number of gift coupons?
(A) R
(B) T
(C) U
(D) Q

9. What is the difference in the number of gift coupons of Lifestyle and Flipkart?
(A) 3
(B) 1
(C) 2
(D) 4

10. What is the number of gift coupons that W has?
(A) 2
(B) 7
(C) 1
(D) 6

11. What is the sum of total gift coupons of 'S' and 'T' together?
(A) 8
(B) 9
(C) 11
(D) 14

12. If U gives 4 Westside gift coupons to W then what would be the number of Westside gift coupons left with U?
(A) 0
(B) 2
(C) 3
(D) 1

Set 3

Directions for Question 13 to 17: Study the following information carefully and answer the given questions.

The top eight directors of an Ed-tech company are sitting around a square table. Some are facing centre while the rest are facing outside the centre. Two persons sit on each side of the table. The persons on each side

sit exactly opposite the persons who sit on another side of the table; no person sits on the corner of the table. The ones who like to play sports face centre, while the ones who like to watch sports face outside.

i) Danish likes to watch cricket and sits second to the right of Ellias, who does not like to watch sports. Chanu is not an immediate neighbour of Ellias and doesn't sit opposite Ellias.

ii) The one who likes to watch Rugby sits second to the left of Chanu.

iii) The one who likes to watch Rugby is not an immediate neighbour of Danish. Ellias does not like to watch Rugby. Chanu does not like to watch sports.

iv) Immediate neighbours of Chanu face the same direction. Bhuvan likes to play hockey and the one who likes to play snooker sits third to the right of Bhuvan. Abhishek likes to watch Swimming and is not an immediate neighbour of Danish.

v) No two persons can sit together according to alphabetical order (e.g. Abhishek cannot sit with Bhuvan and Bhuvan cannot sit with Chanu and so on). Not more than two persons who sit together face the same direction.

vi) Bhuvan sits to the immediate left of Danish. Farhan does not like to play sports.

vii) The one who likes to watch Football sits second to the right of Abhishek. Girish likes to play Badminton. Harish sits third to the left of the one who likes to play Archery. Chanu and Abhishek do not sit on the same side.

13. Which of the following sports is related to Ellias?
(A) Archery
(B) Rugby
(C) Football
(D) Snooker

14. Who among the following sits second to the left of Chanu?
(A) Danish
(B) Girish
(C) Farhan
(D) None of these

15. Who among the following sits third to the right of the one who watches cricket?
(A) Harish
(B) The one who plays snooker
(C) Bhuvan
(D) The one who watches swimming

Solutions

Level of Difficulty – 1

1. (D)

D studied course Y, A didn't study course Z, B is from Twitter and C is not from Google. Moreover, the person who studied course Z is from Google.
Thus, E — Z — Google is the correct combination.
Now, there are two possible scenarios.
Case 1: B studied course X.

Z (1)	X (2)	Y (2)
E (Google)	B (Twitter)	D

B's coursemate is neither from Microsoft nor LinkedIn. Thus, B's coursemate is from Facebook. C is not from Google or Facebook and his coursemate is not from Microsoft.
Thus, C — Y — Microsoft. The rest of the table can be filled as shown below:

Z (1)	X (2)	Y (2)
E (Google)	B (Twitter)	D (LinkedIn)
	A (Facebook)	C (Microsoft)

Case 2: B studied course Y.

Z (1)	X (2)	Y (2)
E (Google)		B (Twitter)
		D

B's coursemate is neither from Microsoft nor from LinkedIn. Thus, B's coursemate is from Facebook. C is not from Google or Facebook and his coursemate is not from Microsoft.
Thus, C — X — Microsoft.
So, the table can be formed as shown below:

Z (1)	X (2)	Y (2)
E (Google)	A (LinkedIn)	B (Twitter)
	C (Microsoft)	D (Facebook)

In each of the possible cases mentioned above, C works with Microsoft.
Hence, option (D) is correct.

2. (D)

From the tables prepared earlier, we can conclude that each of the given statements can be true.
Hence, option (D) is correct.

3. (D)

As explained earlier, D or A can work in LinkedIn.
Hence, option (D) is correct.

4. (A)

From points (ii) and (iii), we can draw the table in the following manner:

Section/Day	Monday	Tuesday	Wednesday	Thursday	Friday
A				Mental Ability	
B					
C			Mental Ability		
D			Maths		
E					

- From point (a), we know that except for section B, English was taught just before science. So, English and science can have the combination of days as (Monday-Tuesday) or (Tuesday-Wednesday) or (Wednesday-Thursday) or (Thursday-Friday) in sections A, C, D, and E in any order.
- English will be taught on all the days except Friday in sections A, C, D, and E. It means that English will be taught on Friday in section B.
- Similarly, science will be taught on Monday in section B.
- Also, in section D, we know mental ability must be taught either on Monday or Tuesday. So, English and science can be taught only on Thursday and Friday, respectively, in that section.

Now, the table will appear as under:

Section/Day	Monday	Tuesday	Wednesday	Thursday	Friday
A				Mental Ability	
B	Science				English
C			Mental Ability		
D			Maths	English	Science
E					

Now, for English and science, only two possibilities are there for A, i.e., Monday-Tuesday or Tuesday-Wednesday. If Monday-Tuesday is selected for A then the other subjects can't be assigned as per the given conditions. Hence, English and science will be on Tuesday-Wednesday, in that order, for A.

Now, the order of English and science can be defined in other sections as well. And further, the days of other subjects in different sections can also be defined in the table.

Section/Day	Monday	Tuesday	Wednesday	Thursday	Friday
A	Maths	English	Science	Mental Ability	Social Science
B	Science	Mental Ability	Social Science	Maths	English
C	English	Science	Mental Ability	Social Science	Maths
D	Mental Ability	Social Science	Maths	English	Science
E	Social Science	Maths	English	Science	Mental Ability

So, Maths was taught in section C on Friday.
Hence, option (A) is correct.

5. (B)
As explained earlier, in section E, English was taught on Wednesday.
Hence, option (B) is correct.

6. (D)
As explained earlier, the correct order of the sections in which Science was taught from Monday to Friday is B, C, A, E, and D.
Hence, option (D) is correct.

7. (B)
As explained earlier, Mental Ability was taught on Tuesday in section B.
Hence, option (B) is correct.

8. (C)
As explained earlier, English was taught on Friday in section B.
Hence, option (C) is correct.

9. (B)
Let's analyse the given information completely first, and then answer each question.

i) Given that Das is in indigo colour seat and Swapnil is opposite to Das. Hence, Swapnil is in the violet colour seat.

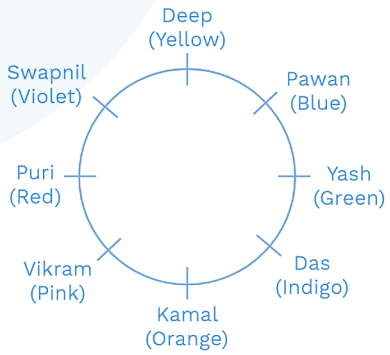
ii) Also, Puri is in red colour seat and Yash is opposite to Puri. Hence, Yash is in green colour seat.

iii) Deep is adjacent to both Swapnil and Pawan. Hence, Pawan must be in blue colour seat and Deep must be in yellow colour seat.

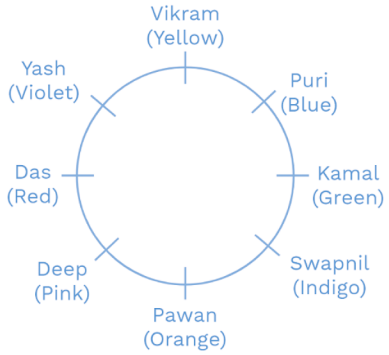
iv) Since Vikram is opposite to Pawan, Vikram must be in pink colour seat.

v) The remaining person, Kamal, must be in orange colour seat.

This is presented in the figure below:



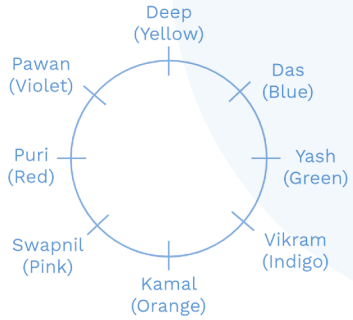
If swapping is done as (blue, red), (orange, indigo), (violet, green), (pink, yellow), (red, orange), (indigo, green), then the arrangement will be:



Hence, option (B) is correct.

10. (A)

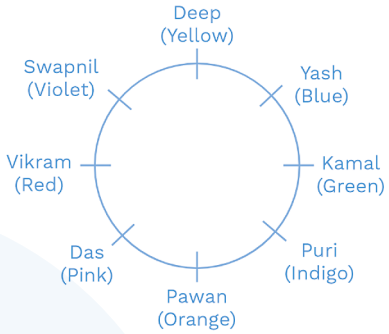
From the final arrangement that we created earlier, we can conclude the following: if the swapping is done as (blue, pink), (indigo, pink), (blue, indigo), (pink, violet), (blue, violet), then the arrangement will be:



Hence, option (A) is correct.

11. (A)

From the final arrangement that we created earlier, we can conclude the following:
if swapping of seats is done in the following manner (green, orange), (indigo, red), (red, pink), (blue, orange), then the final arrangement is shown below:



So, Yash should swap his seat with Deep in order to be opposite to Pawan.
Hence, option (A) is correct.

12. (D)

Using the given information, we can create the following table:

Friend	Residence	Vacation	Age	Colour
A			P (Max)	Blue
B	The Netherlands		28	
C				
D			P - 3	
E		India	25	
		England		White
		The Netherlands		Red
		Bhutan	31	

i) Now, A cannot have a vacation in England or the Netherlands (because she likes blue), or Bhutan (as she cannot be aged 31, otherwise, both B and D will have the same age) or India (because E went there). Therefore, she had a vacation in Australia.

ii) C cannot have a vacation in the Netherlands otherwise, A and B both will be from the Netherlands. Therefore, D went to the Netherlands and likes red colour.

iii) This means that C had a vacation in Bhutan (implying that A's residence is in Bhutan) and B had a vacation in England.

We get the final table as follows:

Friend	Residence	Vacation	Age	Colour
A	Bhutan	Australia	P (Max)	Blue
B	The Netherlands	England	28	White
C		Bhutan	31	Green/Yellow
D		The Netherlands	P - 3	Red
E		India	25	Yellow/Green

So, we can say that A went to Australia for vacation.
Hence, option (D) is correct.

13. (C)
As explained earlier, B likes white colour.
Hence, option (C) is correct.

14. (B)
From the table prepared earlier, the persons living in Australia and England cannot be C and D (because E's residence cannot be India).
Hence, the persons living in Australia and England have to be D and E (in no particular order). Therefore, P – 3 = 30, i.e., P = 33. Therefore, the difference between the ages of A and C = 33 – 31 = 2.
Hence, option (B) is correct.

15. (D)

Using the information from the previous and the current question, we get the table as follows:

Friend	Residence	Vacation	Age	Colour
A	Bhutan	Australia	33	Blue
B	The Netherlands	England	28	White
C	India	Bhutan	31	Green/Yellow
D	Australia	The Netherlands	30	Red
E	England	India	25	Yellow/Green

The person from England either likes yellow or green.
Hence, option (D) is correct.

16. (A)

From the table prepared earlier, we can say that A is a resident of Bhutan.
Hence, option (A) is correct.

Level of Difficulty – 2

1. (B)

Since all the questions are based on the final ordering of these eight people, it is better to analyse the given data and arrange them in a linear or tabular form, as per the requirement, before answering the questions.

- From conditions (iii) and (v), Both Q and T went to watch a comedy movie.
- From conditions (ii) and (vi), Q and V were the first and the second persons, respectively, to reach the show while T was the last person to reach the show.
- From condition (iv), the order is R-U-W but not necessarily one after the other.
- From condition (i), one of the persons who went to watch an action movie came 7th.

So far, we can tabulate the following information:

Order	1	2	3	4	5	6	7	8
Person	Q	V						T
Movie	Comedy						Action	Comedy

From condition (vii), R-U-W can only be in the position 3-4-5.
Thus, so far,

Order	1	2	3	4	5	6	7	8
Person	Q	V	R	U	W			T
Movie	Comedy				Romantic	No movie	Action	Comedy

S went to watch an action movie. The only place that he can fit in is 7. So,
P came 6th in the order.
Therefore,

Order	1	2	3	4	5	6	7	8
Person	Q	V	R	U	W	P	S	T
Movie	Comedy	Romantic/ No movie	Action/ Romantic/ No movie	Action/ Romantic/ No movie	Romantic	No movie	Action	Comedy

U was the fourth to reach the movie show.

Hence, option (B) is correct.

2. (C)

According to the question, the persons watching a romantic movie are adjacent, so they have to be U and W. It means that R and S watched an action movie. So, the table will be as shown below.

Order	1	2	3	4	5	6	7	8
Person	Q	V	R	U	W	P	S	T
Movie	Comedy	No movie	Action	Romantic	Romantic	No movie	Action	Comedy

Based on the above arrangement, the number of persons who went between the two persons who went to watch the action movie is 3.
Hence, option (C) is correct.

3. (C)

According to the question, U didn't go to watch any movie. It means that the romantic movie can be watched only by V. So, R must have watched the action movie. So, the table will be as shown below.

Order	1	2	3	4	5	6	7	8
Person	Q	V	R	U	W	P	S	T
Movie	Comedy	Romantic	Action	No movie	Romantic	No movie	Action	Comedy

Based on the above arrangement, we can see that statements (i) and (iii) are correct.
Hence, option (C) is correct.

4. (B)

Based on the final arrangement created in the earlier question, the person who reached second can only watch a romantic movie if he watched any movie.
Hence, option (B) is correct.

5. (B)

Every person reads exactly three novels out of six, which means the total novel readings are 18. The total number of readings of novels P, Q, R, S, and U is 3 + 2 + 2 + 5 + 4 = 16, so, the number of readings of novel T must be 2.
With the help of points (iii), (iv), and (v) and the table given, we can draw the following table:

Novel/ Person	Aman	Binny	Chandan	Dinesh	Enna	Firoz
P			✓			✓
Q			×			×
R			×			×
S	✓	✓	✓	✓	×	✓
T	×	×	✓	×	×	✓
U	✓	✓	×	✓	✓	×

Now, using points (i) and (ii),

Novel/Person	Aman	Binny	Chandan	Dinesh	Enna	Firoz
P	✓	×	✓	×	×	✓
Q	×		×		✓	×
R	×		×		✓	×
S	✓	✓	✓	✓	×	✓
T	×	×	✓	×	×	✓
U	✓	✓	×	✓	✓	×

Now, we can get two possible cases:

Case 1:

Novel/Person	Aman	Binny	Chandan	Dinesh	Enna	Firoz
P	✓	×	✓	×	×	✓
Q	×	✓	×	×	✓	×
R	×	×	×	✓	✓	×
S	✓	✓	✓	✓	×	✓
T	×	×	✓	×	×	✓
U	✓	✓	×	✓	✓	×

Case 2:

Novel/Person	Aman	Binny	Chandan	Dinesh	Enna	Firoz
P	✓	×	✓	×	×	✓
Q	×	×	×	✓	✓	×
R	×	✓	×	×	✓	×
S	✓	✓	✓	✓	×	✓
T	×	×	✓	×	×	✓
U	✓	✓	×	✓	✓	×

The three novels read can be uniquely determined for only four persons, i.e., Aman, Chandan, Enna, and Firoz.

6. (D)

As explained earlier, the novel which was definitely read by Binny among the options is S.
Hence, option (D) is correct.

7. (D)

As explained earlier, the two persons that read the novel Q are either Binny and Enna or Dinesh and Enna.
Hence, option (D) is correct.

8. (A)

As explained earlier, the novel T is read by two people, Chandan and Firoz.
Hence, option (A) is correct.

9. (D)

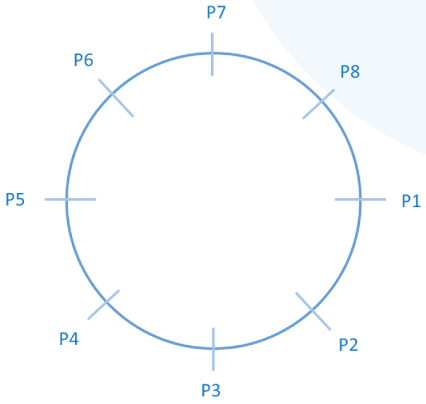
As explained earlier, the three novels which Enna did not read are P, S, and T.
Hence, option (D) is correct.

10. (B)

As explained earlier, if novel Q is read by Dinesh and Enna, then we must consider Case 2, so Binny and Enna read novel R.
Hence, option (B) is correct.

11. (D)

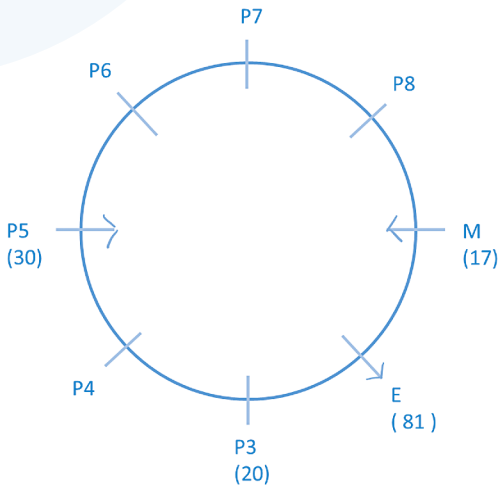
Let's start making the arrangement with eight positions (P1, P2, P3, ... P8) around the circle as shown below.
Note that we only know that four people are facing the centre and four are facing outwards. We do not know whether they are seated in alternate positions or in some other pattern. So, this makes this question quite challenging. However, careful selection of points will help in solving such puzzles quickly.



To begin with, let's try to place the swimmers whose direction is known, and also start jotting down the scores of as many swimmers as possible.

- From point (x), Manoj scored 17 points and he faces the person who scored 30 points. So, Manoj and the diametrically opposite person should be facing the centre. Let's place Manoj at P1. So, the person with 30 points will be at P5.
- From point (vi), Emli sits to the immediate left of Manoj. So, Emli should be at P2.
- From point (iii), immediate neighbours of Emli have scored 17 and 20 points. So, the person at P3 should have 20 points.
- Now, we need to decide whether Emli is facing the center or the other way around. From point (i), Carry scored 1 point more than the person who sits to the immediate left of Emli.
- So, if we consider that Emli is facing centre, the person to her left will be P3, i.e., the one with 20 points. So, Carry's score will be 21. If we reverse the digits of 21, it comes out to be 12, i.e., Emli scored 12 points. So, this case is not possible as Emli didn't score the least (from l).
- So, Emli must be facing outward. Also, Carry must have scored 18 points and Emli must have scored 81 points (from xi).

The arrangement of swimmers, till now, is as shown below:



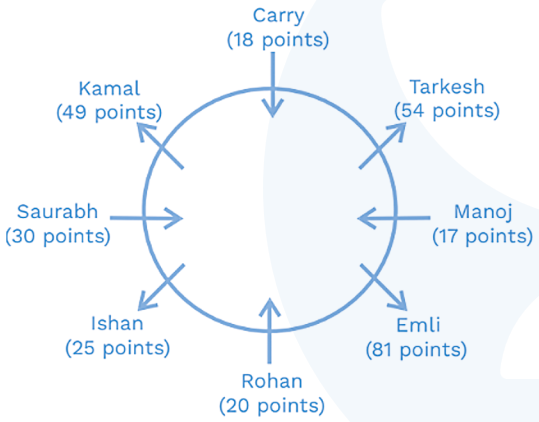
So, Emli scored the highest points.
Hence, option (D) is correct.

12. (B)

Let's continue from the previous explanation.

- From points (v) and (viii), the person at P4 should have scored 25 points, and the person at P6 must have scored 49 points [who is Kamal, from point (iv)]. Also, Saurabh must be at P5.
- From point (i), Ishan sits third to the right of Carry. This is only possible when Carry is at P7, facing the centre, and Ishan is at P4.

  Also, by considering the remaining points, we can get the final arrangement as shown below:



Since Carry scored 18 points, the person with three times the score of Carry is Tarkesh. The immediate neighbours of Tarkesh are Manoj and Carry.
Hence, option (B) is correct.

13. (D)

As it can be seen in the final arrangement, the position of Carry is third to the left of Emli.
Hence, option (D) is correct.

14. (C)

Total points = 30 + 25 + 20 = 75 points.
Hence, option (C) is correct.

15. (C)

As per the information given,

- Palm Beach Restaurant and Saffron are next to each other.
- Gana and Suraj Sweet Mart are also next to each other in that order.

Note: Palm Beach Restaurant and Saffron are facing south. So, consider the left and right, accordingly.

- Also, Gana is second to the left of Saffron.
- So, Patiala Peg will definitely be in the centre (As it is not at the end).

This gives us the following possible arrangement for the eateries under 'Flavours of India':

Palm Beach Restaurant	Saffron	Patiala peg	Gana	Suraj Sweet Mart

Also, Masala Canteen and Kailash Parbat cannot face either Saffron or Suraj Sweet Mart.

So, the only places available for them are opposite Palm Beach Restaurant and Patiala Peg (in any order), as shown below:

Palm Beach Restaurant	Saffron	Patiala peg	Gana	Suraj Sweet Mart	↓
Masala Canteen / Kailash Parbat	Dosa Express	Kailash Parbat / Masala Canteen	Masti	Jungle Juices	↑

For two eateries, Masala Canteen and Kailash Parbat, their exact position is not fixed.
Hence, option (C) is correct.

Level of Difficulty – 3

1. (A)

From points (i), (ii), (iv), (v), (vii), (viii), and (ix), the following table can be drawn.

Group	Members	100-m Race	Long Jump	High Jump	Total Points
W	A, E, K	K (2)		(4)	
X	C	(5)	C (2)	(5)	12
Y	I, B, D	B	I	D (2)	10
Z	G, H		G (3)	H (3)	

We know that in each competition, one sportsman came first, one came second, one came third, and one came fourth, who scored 5, 4, 3, and 2 points, respectively. So, the sum of scores of each competition is 14, and there were three competitions, so the total points scored by all 12 sportsmen must be 42.

From point (iii), we know that the total points scored by the groups are in arithmetic progression. Also, we know groups X and Y scored 12 and 10 points, respectively, which means the remaining two groups should score 9 and 11 points in any order. If group Z has 11 points, then the third member has to score 5 points in the 100 m race, which is not possible because one sportsman has already scored 5 points in the 100 m race. It means group Z has scored 9 points and group W has scored 11 points. By using the remaining points, the table will look like this:

Group	Members	100-m Race	Long Jump	High Jump	Total Points
W	A, E, K	K (2)	A/E (5)	E/A (4)	11
X	C, J, F	F (5)	C (2)	J (5)	12
Y	I, B, D	B (4)	I (4)	D (2)	10
Z	G, H, L	L (3)	G (3)	H (3)	9

Hence, option (A) is correct.

2. (B)

As explained earlier, Indra came second in Long Jump, as she has scored 4 points.
Hence, option (B) is correct.

3. (D)

From the table, we can say that either Aman or Elina might have come first in Long Jump.
Hence, option (D) is correct.

4. (C)

As explained earlier, group Z got the least total points.
Hence, option (C) is correct.

5. (C)

From the table, it is evident that Jay participated in High Jump.
Hence, option (C) is correct.

6. (D)

From the table, we can say that Aman participated in either Long Jump or High Jump.
Hence, option (D) is correct.

Common explanation for all the questions

Let the number of Flipkart gift coupons be *p*.
Similarly, let the number of Myntra gift coupons be *q*, Lifestyle coupons be *r*, Amazon coupons be s, PVR cinemas coupons be *t*, Westside coupons be *u*, Fabindia coupons be *v*, and MakeMyTrip coupons be *w*.
Now, since the total number of gift coupons is 36 and none of the two employees have the same number of gift coupons with them, it implies that they have 1, 2, 3, 4, 5, 6, 7, and 8 gift coupons among them.
Also, the following nine equations can be derived from the given nine points (i-ix) in the same order.
$p + t = v$ ... (i)
$r + s = 10$ ... (ii)
$t + u = 8$ ... (iii)
$p + r = 6$ ... (iv)
If $u \neq 6$ then $w > u$ ... (v)
If $t \neq 1$ then $w > q$ ... (vi)
If $v \neq 8$ then $u > q$ ... (vii)
If $q \neq 5$ then $v \neq 5$ ... (viii)
If $t \neq 3$ then $r \neq 4$ ... (ix)
By (ii) – (iv), we get,
$s = p + 4$ ...(x)
This implies that $s \geq 5$
If s = 5, then from equation (ii), we have $r = 5$, which is not possible.
$\therefore s \neq 5$
Again, from equations (ii) and (iv), the following possible values for variables can be obtained:

Table 1

S	r	p	Validity	Remarks
5	5	1	Invalid	s and r cannot have same values
6	4	2	Valid	
7	3	3	Invalid	r and p cannot have same values
8	2	4	Valid	

From equation (iii), we can obtain the possible set of values for *t* and u as shown below.

Table 2

t	u	Validity	Remarks
1	7	Valid	
2	6	Invalid	Either p or r will have the value 2.
3	5	Valid	
4	4	Invalid	t and u cannot be the same
5	3	Valid	
6	2	Invalid	Either p or r will have the value 2.
7	1	Invalid	If t=7, then v≥9, which is not possible as per Eq. (i) and Table - 1

For the value of *s*, *r*, and *p* there are only two cases possible

Consider Case 1:
$s = 6$, $r = 4$, and $p = 2$
$\therefore$ From equations (i) and (iii), the possible values of *v*, *t*, and *u* can be as shown below:

Table 3

t	v	u	Validity	Remarks
1	3	7	Valid	
3	5	5	Invalid	v and u cannot have same values
5	7	3	Valid	

From equation (ix), if $t \neq 3$, then $r \neq 4$.
In the above table, $t = 1$ or 5 is not possible, as $r = 4$.
Also, $t = 3$ is not valid as mentioned above in the table.

Hence, Case 1 is not possible.

Consider Case 2:
$s = 8$, $r = 2$ and $p = 4$

Case 2a:
$s = 8$, $r = 2$, $p = 4$, $t = 1$, $v = 5$ and $u = 7$
$\therefore$ *q* and *w* should be among 3 and 6.
From equation (v), if $u \neq 6$, then $w > u$, in this case, $u = 7$ which implies that $w < u$ and this is a contradiction.
$\therefore$ This case is not valid.

Case 2b:
$s = 8$, $r = 2$, $p = 4$, $t = 5$, $v = 9$ and $u = 3$
From equation (i), we have $p + t = v$.
But v cannot be 9.
This case is not valid.

Case 2c:
$s = 8$, $r = 2$, $p = 4$, $t = 3$, $v = 7$ and $u = 5$
This case does not contradict any of the conditions and hence is valid.
From equation (vi), we see that if $t \neq 1$, then $w > q$.
$\therefore$ $w = 6$ and $q = 1$.
Now the final table looks like this:

	P	Q	R	S	T	U	V	W
Coupons	Flipkart	Myntra	Lifestyle	Amazon	PVR Cinemas	West Side	Feb India	MakeMy Trip
Number of Coupons	4	1	2	8	3	5	7	6

7. (C)
As per the table, S got the largest number of gift coupons.
Hence, option (C) is correct.

8. (D)
As per the table, Q got the least number of gift coupons.
Hence, option (D) is correct.

9. (C)
As per the table, the required difference = 4 − 2 = 2.
Hence, option (C) is correct.

10. (D)
As per the table, W has six gift coupons.
Hence, option (D) is correct.

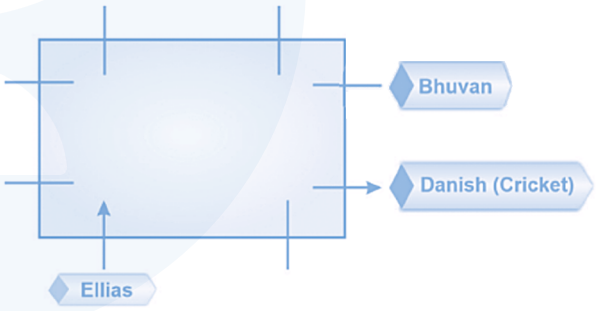
11. (C)
As per the table, the total number of gift coupons of S and T together = 8 + 3 = 11.
Hence, option (C) is correct.

12. (D)
The number of Westside gift coupons left with U would be (5 − 4) = 1.
Hence, option (D) is correct.

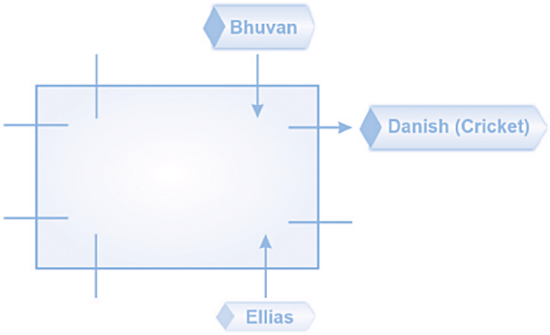
13. (A)
From point (i), Danish likes to watch cricket and sits second to the right of Ellias, who does not like to watch sports, and from point (v), Bhuvan sits to the immediate left of Danish.

So, the following two cases of arrangements are possible.

Case 1:



Case 2:

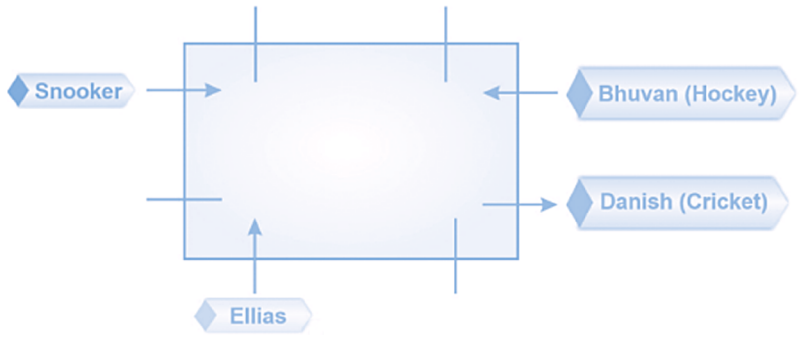


Now, from point (iii) it is clear that Bhuvan likes to play hockey and the one

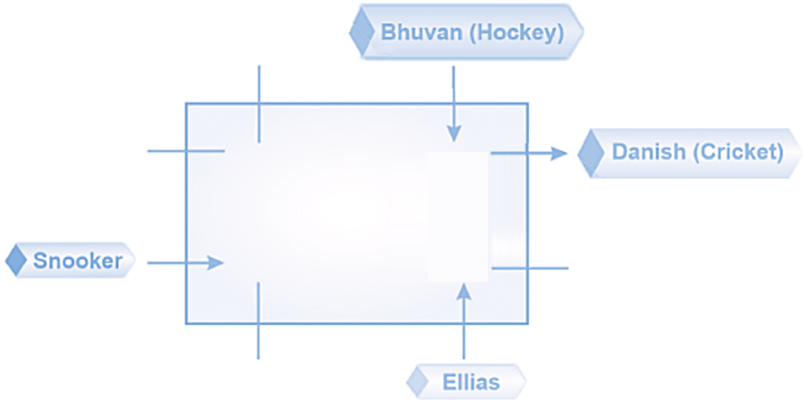
who likes to play snooker sits third to the right of Bhuvan.

So, the two cases of arrangements will be modified as shown below:

Case 1:



Case 2:

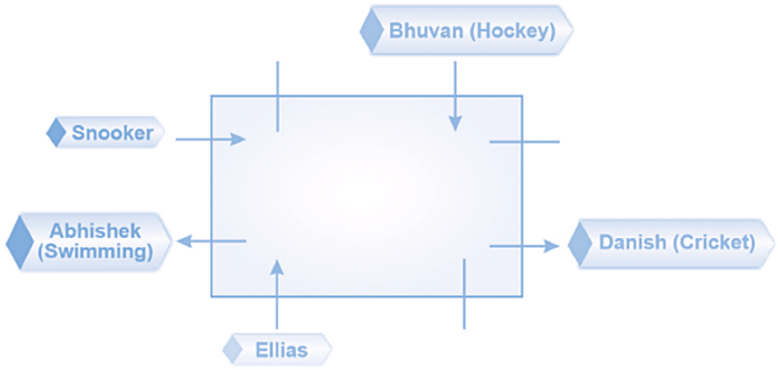


From point (iii), Abhishek likes to watch swimming and is not an immediate neighbour of Danish.

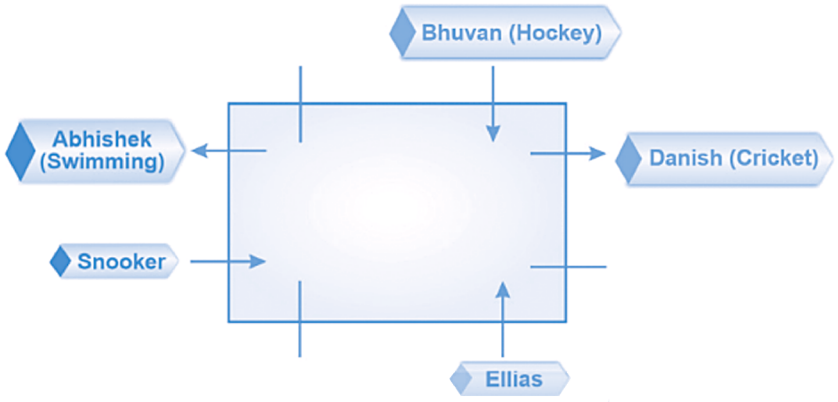
From point (iv), Abhishek cannot sit with Bhuvan.

So, the two cases of arrangements will further be modified as shown below:

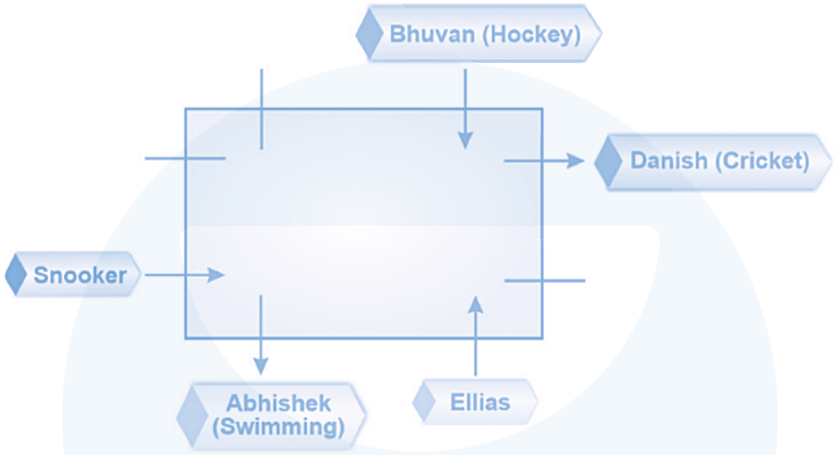
Case 1:



Case 2a:



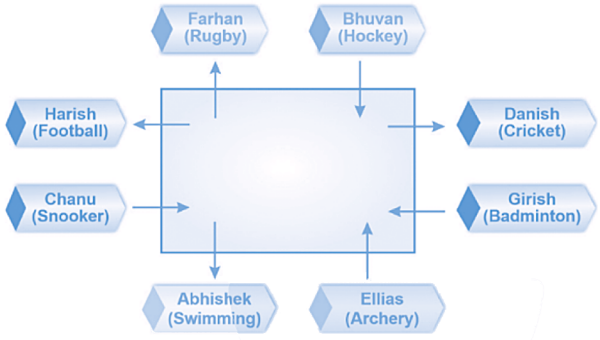
Case 2b:



Also, from point (i), Chanu is not an immediate neighbour of Ellias and doesn't sit opposite Ellias.
From point (v), Chanu and Abhishek do not sit on the same side and according to point (iv). So, case 1 and case 2a will be terminated.

Now, from point (ii), the one who likes to watch Rugby sits second to the left of Chanu, and from point (v), Farhan does not like to play sports.
The one who likes to watch football sits second to the right of Abhishek.
Girish likes to play badminton.
Harish sits third to the left of the one who likes to play archery.
Now, the final arrangement will be:

Case 2b:



Hence, option (A) is correct.

14. (C)

As it can be seen in the final arrangement, Farhan sits second to the left of Chanu.
Hence, option (C) is correct.

15. (D)

As it can be seen in the final arrangement, Abhishek sits third to the right.
Hence, option (D) is correct.