CHAPTER – 1

LINEAR ARRANGEMENT

Linear Sequencing:

Linear sequencing is essentially arranging the items given in a sequence (in a single line). The questions of this type are also referred to as "Seating Arrangement". The word "seating arrangement" should not be misconstrued – it should not be treated as consisting of questions involving only persons sitting as per specified conditions. Essentially, these questions involve arranging subjects (people or things) satisfying the given conditions. The arrangement is done only on one "axis" and, hence, the position of the subjects assumes importance here in terms of order like first position, second position, etc.

Let us look at the examples:

Directions for questions 1 to 5: Read the data given below carefully and answer the questions that follow.

Seven persons Paul, Queen, Rax, Sam, Tom, Unif and Vali are sitting in a row. Rax and Sam sit next to each other. There must be exactly four persons between Queen and Vali. Sam sits to the immediate right of Queen.

1. If Paul and Tom are separated exactly by two persons, then who sits to the immediate left of Vali?
(A) Paul (B) Tom
(C) Unif (D) Rax

2. If Queen is not sitting at either extreme of the row, then who among the following has as many persons to his left as he has to his right?
(A) Sam (B) Unif
(C) Rax (D) Vali

3. If Queen sits at one extreme, then who is at the other extreme?
(A) Paul (B) Tom
(C) Vali (D) Cannot be determined

4. Tom sits to the right of Queen, and Paul is separated from Tom by exactly three persons. Then, who is sitting to the immediate left of Vali?
(A) Unif (B) Paul
(C) Tom (D) Rax

5. In how many different ways can the seven persons sit in a row?
(A) 3 (B) 2 (C) 10 (D) 12

Solutions for questions 1 to 5:

Let us write down the conditions given in short form and then represent them pictorially. Also, let us treat the left of the persons sitting as "left" and their right as "right" for interpreting the conditions.

Rax and Sam sit next to each other ➔ RS or SR.
There are exactly 4 persons between Queen and Vali ➔ Q — — — — V or V — — — — Q.
Sam sits to the immediate right of Queen ➔ SQ.
Now let us analyse the data/conditions that we are given and then put the three conditions together. Let us number the seats from *our* left to right as Seat 1 to Seat 7.

Since S is to the right of Q and since R and S have to be next to each other, R can come only to the immediate right of S. Thus, R, S and Q, will be in the order RSQ. Since there are four persons between Q and V, Q can be placed in seats 1, 2, 6 or 7. But if Q is in Seat 1or 2, then there are no seats for R and S. Hence, there are only two seats available for Q. Let us fix the positions of R, S and V in each of these two positions of Q and write them down.

The directions Left and Right are as shown below.

L ←					→ R	
1	2	3	4	5	6	7
Q	S	R			V	__

1	2	3	4	5	6	7
__	Q	S	R	__	__	V

Arrangement I:

1	**2**	**3**	**4**	**5**	**6**	**7**
	V			R	S	Q

Arrangement II:

1	**2**	**3**	**4**	**5**	**6**	**7**
V			R	S	Q	

These are the only two arrangements possible for the four persons V, R, S and Q. The other three persons Paul, Tom and Unif can sit in the three vacant seats in any order, as no information is given about them. Now let us look at each of the questions.

1. Paul and Tom are separated by exactly two persons. Arrangement I is the only one possible as in Arrangement II, Paul and Tom cannot have exactly two persons between them. So, we have the arrangement as follows:
T/P, V, U, P/T, R, S, Q
So, Unif must be sitting to the immediate left of Vali.
Choice (C)

2. If Queen is not at the extreme right, then only Arrangement II above is possible. The person who has as many persons on his left as on his right can only be the person who is sitting in the middle seat, i.e. seat 4. In this arrangement, Rax is sitting in seat 4.
Choice (C)

3. "Queen sits at one extreme" means that we should look at arrangement I. In this arrangement, any one out of the three persons Paul, Tom and Unif can be in seat 1, i.e. extreme right. Choice (D)

4. If Tom and Paul are separated by exactly three persons, then only Arrangement II is possible. So, Tom and Paul have to be in seats 3 and 7, Since, we are also given that Tom is to the right of Queen, Tom has to be in seat 3 and Paul, in seat 7. So, the arrangement must be as follows:
V, U, T, R, S, Q, P
The person sitting to the immediate left of Vali is Unif.
Choice (A)

5. We have two possible arrangements – Arrangement I and Arrangement II that we looked at already. In each arrangement, the remaining three people can sit in the remaining three seats in 6 ways. Thus, a total of 12 ways of seating the seven persons is possible.
Choice (D)

Directions for questions 6 to 10: Read the data given below carefully and answer the questions that follow.

Seven boys – Rajan, Shyam, Vardhan, Mithra, Vimal, Raj and Kishan – are sitting in a row. Shyam sits to the immediate left of Vardhan and third to the right of Rajan, whereas Mithra, who sits at the left extreme, is next to Kishan.

6. Who is sitting to the immediate right of Shyam?
(A) Mithra (B) Kishan
(C) Vimal (D) Vardhan

7. If Vardhan and Kishan exchange places with each other without changing the rest of the arrangement that is already done, who will be sitting to the immediate left of Rajan?
(A) Kishan (B) Raj
(C) Vimal (D) Vardhan

8. If only Shyam sits between Raj and Vardhan, who is exactly in the middle of the row?
(A) Raj (B) Vardhan
(C) Vimal (D) Rajan

9. Which of the following cannot confirm the seating arrangement of all the boys?
(A) Raj is to the immediate right of Rajan, whereas Vimal is to the left of Shyam.
(B) Mithra and Raj have two persons between them.
(C) Raj and Kishan have two persons between them.
(D) Rajan and Shyam have two persons in between them.

10. After arranging all the boys as per the conditions given in the data, if Rajan now exchanges his place with Mithra, and Vardhan exchanges his place with Vimal, then how many persons will be there between Vimal and Rajan?
(A) three (B) two (C) five (D) four

Solutions for question 6 to 10:

Let us denote Left and Right as shown below:
◄ L ► R
Now, let us represent the data given in pictorial form (We use R for Raj and Rn for Rajan; Va for Vardhan; Vi for Vimal; S for Shyam; M for Mithra and K for Kishan).
Mithra sits at the left extreme – next to Kishan ➔ M K — — — — —.

Shyam sits to the immediate left of Vardhan and third to the right of Rajan ➔ Rn — — S Va.

Putting both the above together, Va can go only to extreme right position. Thus, we have the arrangement as M K Rn — — S Va.

Raj and Vimal occupy the two vacant seats between Rajan and Shyam.

6. From the seating arrangement figure above, Vardhan is to the immediate right of Shyam. Choice (D)

7. If Kishan and Vardhan exchange places, as can be seen from the arrangement, the person to the immediate left of Rajan will be Vardhan.
Choice (D)

8. If Shyam sits between Raj and Vardhan, then the seating arrangement is as follows: Mithra, Kishan, Rajan, Vimal, Raj, Shyam, Vardhan. Then, Vimal will be exactly in the middle of the row. Choice (C)

9. Statement (A) makes the arrangement as:
Mithra, Kishan, Rajan, Raj, Vimal, Shyam, Vardhan

Statement (B) gives the seating arrangement as:
Mithra, Kishan, Rajan, Raj, Vimal, Shyam, Vardhan.

Statement (C) makes the seating arrangement as:
Mithra, Kishan, Rajan, Vimal, Raj, Shyam, Vardhan.

So, only statement (D) cannot make the seating arrangement unique while others can.
Choice (D)

Important point to note is that on the basis of the given data, we know that the places of only Raj and Vimal have not been fixed. Hence, if there is an additional statement that we are considering to determine the arrangement uniquely, it SHOULD have at least one of the two people Raj and Vimal. In this case, choice (D) does not have either one of the two names and hence, this statement cannot help us determine the arrangement uniquely. So, this becomes the answer choice. Choice (D)

10. The arrangement is
M K Rn R/Vi Vi/R S Va

Rajan exchanges his place with Mithra, and Vimal with Vardhan, then we have the following arrangement:
Rn K M R/Va Va/R S Vi.

While we still do not know the exact position of Vardhan (or which place Vimal sits), we can see that there are five persons between Rajan and Vimal.
Choice (C)

In addition to the questions that we saw above, where a set of questions are based on the data given, there are also "stand-alone" questions. In these questions, on the basis of the data given, only one question is asked. Given below is an example of this type.

Directions for question 11: Select the correct alternative from the given choices.

11. Four persons A, B, C and D arrive to attend a meeting. D arrives 10 minutes after B and twenty minutes before A, who arrives 10 minutes before C. Who is the first person to arrive at the meeting?
(A) A (B) B (C) C (D) D

Solution for question 11:

11. C arrived after A. A arrived after D. D arrived after B. This implies that B arrived first. Choice (B)

Directions for questions 12 to 15: These questions are based on the following information.

Six people A to F are standing in a row. While three of them are facing north, the other three are facing south. B is fifth to the left of C. F is exactly between A and D. E is

to the immediate left of B. A is to the immediate right of E who is facing north. A and D face the same direction.

12. Who among the following is standing at one of the ends?
(A) A (B) B (C) E (D) F

13. Who among the following is third to the right of E?
(A) A (B) F (C) D (D) B

14. Three of the following are alike in a certain way. Find the odd one.
(A) A (B) B (C) C (D) D

15. Who is third to the left of F?
(A) A (B) B (C) E (D) D

Solutions for questions 12 to 15:

As B is fifth to the left of C, B and C are at the ends.
As F is exactly between A and D the following cases are possible.

B E A/D F D/A C↑ or B A/D F D/A C↑ or C↑ A/D F D/A E B or C↑ E A/D F D/A B.
As E is to the immediate left of B case 2 and 4 are eliminated.
As A is to the immediate right of E, the following cases remain:
B↓ E A F D C↑ or C↑ D F A E B↑
As E is facing north, the second case cannot be considered. Given A and D face same direction. As there are already two people facing North, A and D must face south only. The final arrangement is:
B↓ E↑ A↓ F↑ D↓ C↑

12. B is standing in one of the ends. Choice (B)

13. D is third to the right of E. Choice (C)

14. Only C is facing north. Choice (C)

15. B is third to the left of F. Choice (B)

Exercise – 1(a)

Directions for questions 1 to 4: Select the correct alternative from the given choices.

1. Five people L, M, N, O and P sit in a row, not necessarily in the same order. P sits exactly in between M and N. If L sits exactly in between M and O, then which of the following must be true?
(A) O sits to the immediate right of M.
(B) L and N always sit together.
(C) M sits exactly at the center of the row.
(D) P sits between M and L.

2. Six persons Tanmay, Sanjay, Ganpat, Dhruv, Nagraj and Jivan are standing in a queue at a railway ticket counter. Further it is known that
(i) Ganpat is two positions ahead Jivan.
(ii) only Nagraj is ahead Tanmay.
(iii) neither Sanjay nor Jivan is standing at the end of the queue.

How many persons are ahead of Dhruv but behind Tanmay?
(A) Zero (B) Two
(C) Three (D) Four

3. The Principal called five persons Srinivas, Murali, Raghu, Vijay and Krishna who are Director, Secretary, Treasurer, Professor and Student Leader of a college, not necessarily in that order. They are seated in the five seats facing the Principal.
The Treasurer sat to the immediate left of Krishna who is one seat away from the Director.
Murali is two places away from the Secretary.
Vijay, who is the Student Leader, is one place to the right of Murali.

What is the position of Krishna with respect to the Professor?
(A) To the immediate right.
(B) Three places away to the left.
(C) Two places away to the left.
(D) None of the above

4. Seven men, A, B, C, D, E, F and G have parked their cars in a row. The cars of E and F should be next to each other. The cars of D and G should be parked next to each other. Whereas A and B cannot park their cars next to each other. But B and D must park their cars next to each other and C's car is parked to the immediate right of G's car. If E parks his car to the left of F, then which of the following statements is false?
(A) There are two cars in between B and G's cars.
(B) B and C's cars are not parked together.
(C) G's car is the only car in between D and C's cars.
(D) A's car is at the left extreme end.

Directions for questions 5 to 7: These questions are based on the following information.

Five persons – Amit, Balram, Chetan, Deepak and Eswar are sitting in a row facing North. The following information is known about them.
(i) Only Deepak is sitting between Amit and Balram.
(ii) Neither Amit nor Balram is at the ends.
(iii) Chetan is sitting to the immediate left of Balram.

5. Who is sitting at the right end of the row?
(A) Amit (B) Balaram
(C) Chetan (D) Eswar

6. How many persons are sitting between Amit and Chetan?
(A) Zero (B) One
(C) Two (D) Three

7. What is the position of Eswar with respect to Balram?
(A) Immediate right. (B) Second to the left.
(C) Third to the right. (D) Immediate left.

Directions for questions 8 to 10: These questions are based on the following information.

Six persons P, Q, R, S, T and U are sitting in a row facing North. Further it is known that:
(i) Exactly two persons are sitting between P and Q.

(ii) Exactly one person is sitting between T and U.
(iii) Q is sitting at the right end of the row.

8. If U is sitting adjacent to S, then how many persons are sitting between U and R?
(A) One (B) Two
(C) Three (D) Cannot be determined

9. If S is sitting to the immediate right of T, then who is sitting second to the right of R?
(A) P (B) T (C) U (D) S

10. Who among the following cannot be adjacent to T?
(A) P (B) R
(C) S (D) None of these

Directions for questions 11 to 13: These questions are based on the following information.

Eight books on different subjects- Biology, Chemistry, Physics, Maths, English, Hindi, Zoology and Economics are stacked together. Further it is known that
(i) Economics is above Biology, which is just above Hindi, which is not at the bottom.
(ii) There are only two books between the Zoology and the English books.
(iii) Number of books above Chemistry is less than the number of books below it.
(iv) Only Maths book is above Zoology.

11. Which book is at the bottom of the stack?
(A) Physics (B) Hindi
(C) English (D) Economics

12. How many books are there between Economics and Hindi?
(A) Three (B) Two
(C) Four (D) Cannot be determined

13. Find the pair that does not exhibit a similar relationship as the other three pairs.
(A) Biology – Hindi
(B) Economics – Chemistry
(C) English – Hindi
(D) Maths – Zoology

Directions for questions 14 to 16: These questions are based on the following information.

Four persons A, B, C and D are sitting in row I facing South and four other persons P, Q, R and S are sitting in row II facing North. Each person in row I is facing exactly one person in row II. The following information is also known about them.
(i) P is sitting opposite C and D is not sitting opposite S.
(ii) A is sitting diagonally opposite R.
(iii) B is second to the right of C.

14. Who is sitting opposite S?
(A) A (B) B (C) C (D) D

15. Which of the following is the correct order of persons sitting in Row I from right to left?
(A) ACDB (B) ADCB (C) BDCA (D) BCDA

16. Who among the following is adjacent to Q but not opposite B?
(A) P (B) R
(C) S (D) Cannot be determined

Directions for questions 17 to 19: These questions are based on the following information.

There are nine members – Anup, Bagha, Dulal, Elena, Fuli, Gopal, Harsh, Indira and Ketan, in a Kho-Kho team. All are sitting in a row, such that any two adjacent people are facing opposite directions.

Elena is adjacent to Indira and Anup. Ketan is adjacent to Fuli and Gopal. Bagha and Dulal are facing the same direction, where Bagha is sitting to the left of Dulal. Harsh is sitting to the immediate right of Anup.

17. Who does not sit at any of the ends?
(A) Bagha (B) Fuli
(C) Dulal (D) Indira

18. If Fuli is facing south, then who among the following will face North?
(A) Dulal (B) Harsh
(C) Elena (D) None of these

19. What is the minimum number of people that can sit between Bagha and Indira?
(A) 0 (B) 2
(C) 3 (D) More than 3

Directions for questions 20 to 22: These questions are based on the following information.

Nine persons A, B, C, D, E, F, G, H and I are seated in a row, not necessarily in the same order. Following is some information regarding the seating arrangement.

(i) A is seated as many places to the left of C as D is seated to the right of B.
(ii) The only person seated between F and H is seated two places to the left of I.
(iii) Neither C nor D is seated at any of the ends.
(iv) G, who is not seated at any of the ends, is seated to the right of E.
(v) E and F are seated together.

20. In how many ways can these nine persons be seated?
(A) Two (B) Four
(C) One (D) Three

21. Which of the following is definitely TRUE?
(A) D and E are seated together.
(B) C is seated to the left of D.
(C) F and G are seated together.
(D) A and B are seated together.

22. Which one of the following may be a valid representation of the seating positions of the person?

(a) B A D C E F G H I
(b) B D A C E F G H I
(c) A B C D E F G H I
(d) A C B D E F G H I

(A) (a), (b), (c) and (d)
(B) (a) and (d) only
(C) (b) and (c) only
(D) (a), (b) and (d) only

Directions for questions 23 to 26: These questions are based on the following information.

There are eight people A to H each one seated in one among the nine chairs, facing north. It is further known that:

I. None among E, C and D is either at the ends or adjacent to one another.
II. There are three chairs to the left of A and three persons to the right of B. Neither of A and B is adjacent to the vacant seat.
III. F is at the left end of the row while G is to the immediate left of H.

23. In how many ways, can these eight people be seated?
(A) Two (B) Six (C) Four (D) One

24. Who among the following is sitting at the end?
(A) H (B) C (C) G (D) A

25. If both E and D are adjacent to A, then, who among the following is adjacent to B?
(A) F (B) G (C) C (D) A

26. What is the position of the vacant chair with respect to A?
(A) Immediate left (B) Immediate right
(C) Second to the left (D) Second to the right

Directions for questions 27 to 30: These questions are based on the following information.

There are three doctors, three engineers and two teachers among eight friends A to H who are sitting in a row. Some of them are facing north while the other are facing south. It is also known that:

I. All the people of same profession are neither sitting together nor facing the same direction.
II. There are at least four people between A and F. A and F belong to the same profession.
III. Neither D nor E is an engineer.
IV. There is a doctor to the Immediate right of every teacher while there is a teacher to the immediate left of every doctor.
V. B, the doctor is sitting in one of the ends is sitting second to the left an other doctor who is facing north.
VI. Neither a teacher nor a doctor is to the left of one of the engineers.
VII. C is to the immediate right of D while C, E and H are facing the same direction.

27. Who among the following is a teacher?
(A) A (B) B (C) C (D) D

28. The person of which of the following professions is not sitting at any of the ends?
(A) Teacher
(B) Doctor
(C) Engineer
(D) More than one of the above

29. Who among the following is adjacent to an engineer but not an engineer himself??
(A) B (B) A (C) D (D) C

30. Who among the following can be at one of the ends and what is his profession?
(A) F, Teacher (B) H, Engineer
(C) F, Doctor (D) H, Doctor

Exercise – 1(b)

Directions for questions 1 to 3: These questions are based on the following information.

Seven flags of different colours – Violet, Indigo, Blue, Green, Yellow, Orange and Red – are placed in a row from left to right, not necessarily in that order. The Indigo flag and the Yellow flag have four flags between them. The Orange flag is not between the Indigo flag and the Yellow flag. The Violet flag and the Red flag cannot be next to the Blue flag.

1. What is the total number of possible arrangements?
(A) 12 (B) 8
(C) 4 (D) None of these

2. If the Black flag and the White flag are also to be placed in the row, such that they are adjacent to each other but neither of them is next to the Violet flag or the Red flag, and also neither of them is at any of the ends, then what is the total number of possible arrangements?
(A) 24 (B) 48
(C) 96 (D) None of these

3. Which of the following statements is true?
(A) Yellow flag is at one of the ends.
(B) The Indigo flag and the Orange flag are adjacent to each other.
(C) The Blue flag is adjacent to the Green flag.
(D) The Yellow flag or the Indigo flag is/are adjacent to both the Orange flag and the Blue flag.

Directions for questions 4 to 6: These questions are based on the following information.

Eight persons A, B, C, D, E, F, G and H are sitting in a row facing North. Only two persons are sitting to the left of D. A is adjacent to G and F. E is at one of the ends and three persons are sitting between him and G.

4. If there are three persons between B and H, then who is sitting to the left of D?
(A) B
(B) H
(C) C
(D) Cannot be determined

5. If C is at one of the ends and B is adjacent to D, then how many persons are sitting between C and H?
(A) Three
(B) Zero
(C) Five
(D) Cannot be determined

6. If C is adjacent to G and H is at one of the ends, then who is third to the left of G?
(A) B
(B) D
(C) C
(D) Cannot be determined

Directions for questions 7 to 11: These questions are based on the following information.

Exactly six persons from amongst five boys – A, B, C, D, E – and four girls – P, Q, R, S – are to sit in six chairs, which are arranged in a row from left to right, and the others stand. The following conditions are to be adhered to while making the arrangement.

(i) No two girls sit in adjacent seats.
(ii) Exactly three boys should be among those who are seated in these six chairs.
(iii) A and P are seated next to each other.
(iv) If E sits, then R also sits and vice-versa, but they do not sit next to each other.
(v) If P or R sits, then Q will stand.

7. If C sits at the left end and A is sitting in the second seat from the right end, then who sits to the immediate right of A?
(A) P (B) R
(C) Q (D) Cannot be determined

8. Which of the following is not a valid arrangement of persons sitting from left to right?
(A) P, A, E, S, C, R (B) A, P, E, S, C, R
(C) S, E, P, A, R, D (D) B, R, E, A, P, Q

9. If D is second from the right end, then the total number of possible arrangements is
(A) Nine (B) Seven
(C) Ten (D) Five

10 If P is sitting at the left end, then who could be sitting at the right end?
(A) R or E (B) E or S
(C) S or R (D) R or E or S

11. If it is known that S sits in the third seat from the left end and B sits in the second seat from the right, end then who sits exactly next to two girls?
(A) A (B) E
(C) B (D) Data inadequate

Directions for questions 12 to 14: These questions are based on the following information.

Nine persons A to I are standing in a row. Each of E and G is next to exactly one person. There are two persons between C and A. F is between I and B. B is to the immediate right of E, and C is to the immediate left of G.

12. Which of the following additional statements is necessary to determine the order of the persons in the row, from left to right?
(A) I is to the immediate left of A and C is to the immediate right of H.
(B) A is to the left of D and H.
(C) There are two persons between F and D.
(D) C is sitting to the left of G.

13. If I is to the immediate right of A, then who is to the immediate left of C?
(A) D (B) F
(C) H (D) Either D or H

14. How many arrangements are possible, given that, F is to the immediate right of B?
(A) Three (B) Four
(C) Six (D) Eight

Directions for questions 15 to 18: These questions are based on the following information.

Seven friends P, Q, R, S, T, U and V sit on a bench facing north. Each of them is of a different weight (in kg), viz., 79, 83, 85, 87, 89, 92 and 96, not necessarily in the same order. The following information is known about them.

P sits third to the right of the heaviest person. The heaviest person sits exactly between R and the lightest person, who sits at an end. The third lightest person sits adjacent to R but it is neither P nor adjacent to P. Q sits third to the left of the person whose weight is the next higher to R. R's weight is neither 83 kg nor 87 kg. P's weight is neither 92 kg nor 79 kg. T's weight is 83 kg. S is heavier than V but is not the heaviest.

15. Who is the third lightest?
(A) P (B) Q (C) R (D) S

16. How many persons sit between R and U?
(A) One (B) Two
(C) Three (D) Five

17. Who sits second to the right of the heaviest person?
(A) P
(B) S
(C) The person whose weight is 89 kg
(D) The person whose is weight is 87 kg

18. How many persons are lighter than S?
(A) Four (B) Five
(C) Three (D) Two

Directions for questions 19 to 22: These questions are based on the given information.

Eight persons – K, L, M, N, O, P, Q and R are sitting in a row (not necessarily in the same order).

Four of them are facing north and the remaining four are facing south. They belong to different professions – Professor, Scientist, Musician, Beautician, Teacher, Lawyer, Architect and Principal.

(1) P faces north and sits at the right end.
(2) Either Lawyer or Principal (but not both) is adjacent to Musician whose neighbours face south.
(3) M is a professor and sits adjacent to the Scientist. Beautician sits three places away to the right of the Lawyer.
(4) N, the Principal, sits second to the right of O.
(5) Musician faces same direction as P and sits second to the left of P.
(6) R is the Scientist who is to the immediate left of the Architect and faces south.
(7) K is neither a Principal nor a Lawyer. L and Scientist are neighbours of the Architect.
(8) Q, the Musician, sits three places away from the Architect and is to the immediate right of K.

19. Who sits second to the left of N?
(A) The Architect (B) The Teacher
(C) O (D) K

20. Who are the neighbours of the Lawyer?
(A) N and Architect
(B) O and Scientist
(C) O and Principal
(D) Both (A) and (C)

21. Which among the following statements is true?
(A) Teacher sits at the left end.
(B) L is not a Beautician.
(C) O is an Architect.
(D) Both (B) and (C)

22. Three of the following are alike in a certain way and hence form a group. Which is the one that does not belong to that group?
(A) O – Architect (B) P – Beautician
(C) N – Principal (D) R – Scientist

Directions for questions 23 to 26: These questions are based on the following information.

Four boys K, L, M, and N sit in row – I facing North and they are of different professions among engineer, doctor, professor and actor. Four girls P, Q, R, and S sit in row – II facing south and they are of different professions among lawyer, teacher, director, and collector. They sit in such a way that the distance between any two adjacent persons in a row is the same such that one person in one row faces the other a person in the other row, but not necessarily in the same order

Collector sits opposite the person who sits third to the right of N. Doctor and teacher sit opposite each other. Engineer sits opposite the person who sits third to the left of R. Only one person sits between K and L. R sits second to the right of S, the director. P does not sit opposite engineer and K is neither an engineer nor a doctor. Lawyer does not sit opposite actor

23. Who is the doctor?
(A) K (B) M (C) L (D) N

24. Who sits opposite the director?
(A) Actor (B) Professor
(C) L (D) K

25. Which of the following 'person–profession' combination is correct?
(A) P – Director (B) S – Collector
(C) M – Actor (D) N – Engineer

26. What is the position of P with respect to R?
(A) Immediate right
(B) Immediate left
(C) Second to the right
(D) Second to the left

Directions for questions 27 to 30: These questions are based on the following information.

Six people A, B, C, D, E and F, each of a different weight among 60, 80, 75, 58, 82 and 96 kgs(not necessarily in the given order), sit in a row facing north. The following details are known about them:
I. The sum of weights of no two adjacent persons is more than 156 kgs.
II. A, the person with the least weight is third to the left of C.
III. Neither A nor C is an immediate neighbour of B.
IV. D and E are not neighbours.

Directions for questions 27 and 28: Write your answer in the input box provided below the question.

27. In how many ways can the six people be seated?

28. If D and E are the immediate neighbours of A, what is the weight of F (in Kgs)?

Directions for questions 29 and 30: Select the correct alternative from the given choices.

29. Who is second to the left of A?
(A) B (B) C (C) D (D) E

30. What is the sum of the weights of the people at the ends?
(A) 155
(B) 162
(C) 142
(D) Cannot be determined

Key

Exercise – 1(a)

1.	C	6.	C	11.	A	16.	A	21.	C	26.	C
2.	C	7.	C	12.	D	17.	B	22.	A	27.	A
3.	C	8.	B	13.	C	18.	A	23.	B	28.	A
4.	A	9.	A	14.	A	19.	A	24.	A	29.	C
5.	D	10.	D	15.	C	20.	B	25.	C	30.	B

Exercise – 1(b)

1.	D	6.	A	11.	A	16.	A	21.	D	26.	B
2.	D	7.	B	12.	A	17.	C	22.	B	27.	4
3.	C	8.	D	13.	D	18.	B	23.	D	28.	60
4.	C	9.	C	14.	C	19.	D	24.	A	29.	A
5.	D	10.	D	15.	B	20.	D	25.	C	30.	D