

LINEAR ARRANGEMENT

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)

Exercise – I(a)

Directions for questions 1 to 5: Select the correct choice from the given choices.

1. A grocer, a doctor, a lawyer, a tailor and a barber are the five persons seated in a row. The grocer does not wish to sit immediately next to the barber. The barber and the tailor sit immediately next to each other. The lawyer is at the right end of the row. The grocer is immediately to the left of the lawyer. Who is in the middle of the row?
(A) tailor (B) doctor
(C) barber (D) Cannot be determined
2. Five people Pradeep, Qutub, Raj, Sandy and Tej are in a row. Raj sits to the immediate right of Tej. If Pradeep and Qutub have two persons sitting between them, which of the following must be true?
(A) Pradeep is at one end of the row.
(B) Qutub is sitting beside Pradeep.
(C) One among Tej and Raj is at one of the ends of the row.
(D) Sandy is at one of the ends of the row.
3. Four boxes P, Q, R and S, three files A, B and C are kept on a table one after the other in a row from left to right. File C has as many items to its left as to its right. No box is at any end of the row. Box P is kept to the immediate right of file A, while file C is kept to the immediate left of box R.
What is kept third from the right of the row on the table?
(A) C (B) S (C) R (D) A
4. Eight persons Ankit, Bobby, Chetan, Dhiru, Parvez, Qadir, Rinku and Sahil sit in two parallel rows with four seats in each row facing each other. Ankit and Bobby are not in the same row. Parvez sits to the immediate left of Chetan in the same row and opposite Qadir. Chetan is at an end of the row. Rinku and Bobby have two persons between them. Ankit and Parvez have one person between them. Which of these pairs of persons can be diagonally opposite each other?
(A) Sahil and Dhiru or Qadir and Rinku.
(B) Parvez and Ankit or Ankit and Chetan.
(C) Ankit and Bobby or Rinku and Chetan.
(D) Either (A) or (B)
5. Five books on five different subjects Physics, Chemistry, Mathematics, Anatomy and Botany are arranged on a shelf. The book on Mathematics is not on top or at the bottom. Chemistry book and Botany book have exactly two books between them, same as Mathematics and Physics books. Which of the following books has to be in the middle of the shelf?
(A) Mathematics (B) Physics
(C) Anatomy (D) Cannot be determined

Directions for questions 6 to 8: These questions are based on the following information.

Ten persons A, B, C, D, E, F, G, H, I and J are sitting in a row.

- (i) Exactly three persons are sitting between C and J.

- (ii) A, G, H, D and F are sitting from right to left in that order but no two among them are in adjacent positions.
(iii) G is sitting in the fourth position from the right.
(iv) I, E, B and C are sitting from left to right in that order but no two among them are in adjacent positions.
6. How many persons are sitting between I and A?
(A) 5 (B) 6 (C) 4 (D) 7
 7. How many different arrangements are possible?
(A) 2 (B) 3
(C) 4 (D) None of these
 8. If F and H interchange their positions, then who are sitting at the ends?
(A) C, F (B) F, H (C) H, C (D) H, A

Directions for questions 9 to 12: Read the data given below carefully and answer the questions that follow.

M, N, O, P, Q, R and S are seven persons sitting in a row for a photo session. O sits to the immediate left of S, and R is to the immediate right of P. N has equal number of persons on either side of him in the row. M is to the immediate left of N and there are exactly three persons between M and S.

9. Who sits to the immediate right of Q?
(A) O (B) M (C) S (D) P
10. If Q wants to sit to the immediate left of N, then with whom should he exchange his seat?
(A) P (B) R (C) O (D) M
11. How many persons are there between R and Q?
(A) 2 (B) 3 (C) 4 (D) 1
12. If P and Q exchange their places in the row, which of the following must be false?
(A) Q is to the left of N.
(B) M and O have two persons between them.
(C) P and R sit together.
(D) S is at one of the extreme ends.

Directions for questions 13 to 16: Read the data given below and answer the questions that follow.

Nine persons A, B, C, D, E, F, G, H and I are seated in a row. The seats are numbered from 1 to 9 from left to right as per the following restrictions.
C, F and I sit together.
E is to the immediate right of H.

B sits in the fourth seat from the left end and D sits in the third seat from the right end. E is not between B and D.

13. If G sits to the immediate left of D, then who will sit at the centre of the row?
(A) B (B) A (C) D (D) F
14. If F sits between C and I, then in how many ways these nine persons can be seated?
(A) 2 (B) 1 (C) 3 (D) 4

15. Who among the following is at one of the extreme ends of the row?
(A) C (B) F (C) E (D) I

16. If I sits at one of the extreme ends and F sits to the immediate left of B, then in how many ways can all be seated, assuming that the other conditions remain the same?
(A) 1 (B) 2 (C) 3 (D) 4

Directions for questions 17 to 20: These questions are based on the following data.

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.

17. If A's car is not next to C's car, then what is the position of A's car from the right end of the row?
(A) 1st (B) 7th
(C) 5th (D) 1st or 7th

18. If F does not park his car next to A's, which is parked in the left extreme, then which of the following men can park their cars between the cars of E and G?
(A) G, C and B (B) A, F and C
(C) F, G and C (D) F, B and D

19. In how many ways can the seven cars be parked in a row?
(A) 2 (B) 8 (C) 7 (D) 5

20. If A parks his car to the immediate right of C's car, then which of the following cars can be parked at the left extreme end?
(A) Only E (B) Only F
(C) Only E or F (D) E or F or B

Directions for questions 21 to 24: These questions are based on the following information.

Ten persons are sitting in two rows facing each other. P, Q, R, S, and T sit in row I facing south. U, V, W, X and Y sit in row II facing north. (not necessarily in the same order). They work in five different companies. Exactly two persons work in each company. The companies in which they work are Samsung, Hutch, Nokia, Sonata and Mahindra. Persons working in the same company sit neither in the same row nor opposite each other. The following information is known about them.

- (1) The person working in Hutch, who sits in row - I sits opposite X and adjacent to R.
- (2) Y sits second to the right of X, who sits at the left end.
- (3) W sits to the immediate right of the person working in Hutch and sitting opposite T.
- (4) Neither T nor the person working in Mahindra sits at the ends.
- (5) Q, who works in Mahindra sits opposite the person who is to the immediate left of the person working in Sonata.
- (6) P and V sit opposite each other and one of them works in Sonata.

- (7) X and T work in the same company.
- (8) Neither V nor R works in Samsung.

21. Who among the following sits opposite R?
(A) Y
(B) the person working in Mahindra
(C) U
(D) Both (B) and (C)

22. Which among the following is definitely true?
(A) Y and T sit opposite each other.
(B) W works in Nokia and sits adjacent to V.
(C) U works in Mahindra and sits opposite Q.
(D) None of these.

23. Four 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) R – Hutch
(B) T – Nokia
(C) Q – Mahindra
(D) Y – Nokia

24. Who among the following are neighbours of Q?
(A) T and the person working in Nokia
(B) T and the person working in Hutch.
(C) R and the person working in Sonata.
(D) R and S

Directions for questions 25 to 27: These questions are based on the following information.

Seven persons J, K, L, M, N, Y and Z sit on a bench, in such a way that some of them face north and the remaining face south. The following information is known about them.

J sits third to the right of Y, who is second to the right of M. Y faces north. J and M face different directions. M sits at an end. N is second to the right of J. Neither K nor L sits at an end. K is second to the right of N. L is to the left of Z. No three persons sitting in consecutive positions face the same direction.

25. How many persons sit between K and L?
(A) One (B) Two
(C) Three (D) Four

26. Who sits second to the left of K?
(A) Y (B) L
(C) N (D) J

27. What is the ratio of the number of persons who face north to the number of persons who face south?
(A) 3 : 4 (B) 4 : 3
(C) 2 : 5 (D) 5 : 2

Directions for questions 28 to 30: These questions are based on the following information.

Four boys A, B, C and D sit in row-I, facing north (not necessarily in the same order). Four girls P, Q, R, and S sit in row-II, facing South(not necessarily in the same order). All are seated at equal distance from each other and each person in row-I faces the other person in row-II.

P and R do not sit adjacent to each other. A sits opposite neither P nor R. Q sits opposite the person who sits second to the left of B. P does not sit at any end. C does not sit between A and B. S is not adjacent to R.

28. Who sits opposite S?

- (A) C (B) B (C) A (D) D

29. Which of the following pairs of persons sit at the ends?

- (A) QA (B) SB (C) RA (D) PD

30. Four out of the following five are alike in a certain way and hence form a group. Find the one which does not belong to that group.

- (A) QD (B) SB (C) PD (D) QA

Exercise – 1(b)

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

Aksha, Bindu, Chandana, Deeksha Harsha and Lasya have different number of years of work experience. They worked between the years 1988 to 2000. Each person has at least one year experience. The following information is known about them.

- (i) Harsha started working in 1988 and has 8 years of experience.
- (ii) Aksha started working in 1991 and has 6 years of experience.
- (iii) Bindu has 7 or 6 years of experience and her experience is overlapped with Harsha.
- (iv) Chandana started working in 1988 and stopped in the same year when Deeksha started working.
- (v) Lasya started working in 1989 and has 1 year more experience than Chandana.
- (vi) No two persons stopped working in the same year.
- (vii) Deeksha has one year less experience than Chandana.

1. How many pairs of persons stopped working in the consecutive years?

- (A) 5 (B) 4 (C) 3 (D) 6

2. How many years are there in which more than three persons started working?

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

3. Lasya's work experience is ____ (in years).

- (A) 2
(B) 4
(C) 3
(D) Cannot be determined

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

Seven friends – Asha, Lata, Mahesh, Madhu, Mahima, Sandhya and Kavita are sitting in a row facing North. Lata is two places away to the left of Sandhya. Mahima has Kavita to her left and Madhu to her right. Asha is sitting to the immediate left of Madhu but not to the immediate right of Mahima. Mahesh is not sitting adjacent to Kavita.

4. If Madhu is not sitting at any of the ends, then how many people are sitting between Mahesh and Mahima?

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

5. Who among the following can be the one sitting to the left of Lata?

- (A) Kavita (B) Madhu
(C) Asha (D) Mahesh

6. If Sandhya is sitting at the middle of the row, then who is sitting at the left end?

- (A) Lata (B) Mahesh
(C) Kavita (D) Madhu

Directions for questions 7 to 9: These questions are based on the information given below.

Four friends Aravind, Bharat, Chandrapaul and Daniel went for an excursion with their wives Preeti, Revati, Sravani and Vanita, not necessarily in the same order. Each couple hails from a different city amongst Mumbai, Chennai, Kolkata and Hyderabad, not necessarily in that order. They went to Agra to visit the Taj Mahal, where they sat in a row. Each wife always sat to the immediate right of her husband.

- (i) Bharat sat to the immediate right of Preeti.
- (ii) Daniel is from Hyderabad and Preeti is not from Mumbai.
- (iii) Revati and her husband were sitting to the immediate right of the couple that hailed from Chennai.
- (iv) Chandrapaul and his wife were sitting to the immediate left of the couple from Kolkata and Chandrapaul was sitting to the immediate right of Sravani.
- (v) Aravind sat to the immediate right of Revati, who is not from Mumbai.

7. Who is Daniel's wife?

- (A) Sravani (B) Preeti
(C) Vanita (D) Revati

8. Which couple is from Chennai?

- (A) Vanita and Bharat
(B) Daniel and Revati
(C) Chandrapaul and Preeti
(D) Aravind and Sravani

9. Who is the husband in the couple, which is seated second in the row from left to right?

- (A) Aravind (B) Bharat
(C) Chandrapaul (D) Daniel

Directions for questions 10 to 12: These questions are based on the following information.

Seven persons A, B, C, D, E, F and G wearing seven different coloured shirts – Red, Blue, Green, Yellow, Pink, White and Violet are sitting in a row not necessarily in the same order facing North. We know the following additional information.

- (1) D is sitting as many places away to the right of the person wearing red coloured shirt as the person wearing white coloured shirt is sitting to the left of A.

- (2) The person wearing pink coloured shirt is four places away to the right of G.
- (3) The number of persons to the left of C is the same as the number of persons to the right of the person wearing white coloured shirt.
- (4) The person wearing blue coloured shirt is four places away to the left of the person wearing green coloured shirt.
- (5) The persons wearing violet coloured shirt and yellow coloured shirt are sitting at the second and seventh positions from the extreme left respectively.
- (6) F is sitting to the immediate left of E, who is adjacent to C.
10. Who is wearing green coloured shirt?
(A) A (B) C (C) B (D) D
11. Who is wearing pink coloured shirt?
(A) B (B) F (C) E (D) A
12. Who is sitting at the extreme right?
(A) D (B) A (C) C (D) B

Directions for questions 13 to 16: Read the information given below and then answer the questions that follow.

Seven boxes of colours White, Indigo, Blue, Red, Yellow, Green and Violet have to be arranged in a row on a shelf in such a way that the Blue box and the Indigo box have only four boxes in between them, whereas the White box is not in between the Blue and the Indigo boxes and the Yellow box is to the immediate left of the Indigo box.

13. If the White and the Red boxes have two boxes between them, then which of these would be exactly in the middle of the row of boxes?
(A) Yellow box (B) Red box
(C) Violet box (D) Green box
14. If the green box is placed to the immediate left of the violet box and next to the blue box, wherein the white box is the left extreme, then which of the following boxes will be the fourth from the right end?
(A) Red box
(B) Yellow box
(C) Green box
(D) Violet box
15. How many boxes are in between blue and yellow boxes?
(A) 1 (B) 2 (C) 3 (D) 4
16. Which of the following statements is definitely false?
(A) The violet box is exactly in the middle of the row.
(B) The white box is not at any of the extreme ends.
(C) The yellow box is in the third place from the right end.
(D) Each of the white and the indigo boxes are at the extreme ends.

Directions for questions 17 to 20: Read the data given below and then answer the questions that follow.

M, N, O, P, Q, R, S, T, U, V and W are eleven persons in a team. O is elected as their captain. O makes them sit in a row. P and R must sit together and V and W also sit together, whereas there are exactly four seats between

the two pairs P, R and V, W. T and U sit together and T is to the immediate right of S, who is next to Q. M and N sit in that order only at one extreme end and no one sits to the left of P.

17. Who sits exactly at the fourth place to the right of U?
(A) N (B) M (C) Q (D) P
18. How many persons sit between S and N?
(A) 4 (B) 3 (C) 5 (D) 6
19. How many ways of arrangements are possible in the row with the given conditions?
(A) 2 (B) 3 (C) 4 (D) 5
20. If P and R exchange their seats (with V and W respectively), then which of the following conditions will be violated?
(A) V and W sit together.
(B) Q and S sit together.
(C) M and N are at the extreme end.
(D) There is no one to the left of P.

Directions for questions 21 to 23: These questions are based on the following information.

Seven persons A through G sit in a row, not necessarily in the same order, some face north and the remaining face south. No two adjacent persons face the same direction. The following information is known about them.

Two persons sit between D and E, and E is at one of the ends. G is two places away to the right of E. B faces the same direction as C faces and is adjacent to both D and F. G faces north.

21. What is the position of D with respect to G?
(A) immediate right
(B) immediate left
(C) second to the left
(D) second to the right
22. Four of the following are alike in a certain way and so form a group. Find the one which does not belong to that group.
(A) E G (B) G C
(C) F D (D) A B
23. Which of the following is/are 'definitely true'?
(A) A sits adjacent to G.
(B) E and C are not at the ends.
(C) B is second to the left of C.
(D) More than one of the above.

Directions for questions 24 to 26: These questions are based on the following information.

Ten persons are sitting in two parallel rows, which have five persons each, in such a way that there is an equal distance between adjacent persons. In row I – A, B, C, D, E are seated (not necessarily in the same order) and all of them are facing north. In row II – P, Q, R, S, and T are seated facing south. Therefore, each member seated in row-I faces exactly one member of row-II.

R and T are not sitting at any end. S is sitting opposite the person who is not a neighbour of A or C. C is not sitting opposite S. Neither B nor E is sitting opposite T. Only one person is sitting between C and A, but neither of them is sitting at left end. T is not a neighbour of S or R. E is not sitting opposite S. A is not sitting opposite the person, who is sitting at the left end. At least one person sits to the left of Q.

24. Who is sitting opposite the person who is not a neighbour of either S or Q?

- (A) D (B) C (C) E (D) A

25. If R and T interchange their positions, who among the following will sit opposite T?

- (A) E (B) A (C) B (D) D

26. Which of the following statements is/are definitely true?

- (A) Q and A are sitting exactly in the middle of the rows.
(B) R and C are sitting opposite each other.
(C) P and C are sitting at the ends.
(D) Both (A) and (C)

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

Eight persons K, L, M, N, O, P, Q and R are sitting in two rows facing each other i.e., four persons in each row not necessarily in the same order. Principal, Beautician, Doctor and Teacher are facing south, whereas Architect, Politician, Singer and Scientist are facing north.

- (i) The doctor is sitting opposite the person, who is to the immediate right of Q, the politician.
(ii) Neither M nor O is a teacher.
(iii) Either R or K is the doctor.
(iv) The teacher and the scientist are sitting opposite each other at an end.
(v) Neither Q nor O sits at an end.
(vi) The politician and the architect are adjacent to each other.
(vii) L is the singer and is sitting to the immediate left of P, who is a scientist.
(viii) K is the principal and he is sitting opposite architect.

27. Who among the following is the teacher?

- (A) N (B) O (C) R (D) K

28. Four among the following are alike in a certain way and so form a group. Which is the one that does not belong to that group?

- (A) Architect, Teacher (B) Scientist, Teacher
(C) Architect, Principal (D) Principal, Singer

29. Which among the following is definitely true?

- (A) P is the scientist and sitting at left extreme.
(B) R is the doctor and sitting opposite the singer.
(C) N is the teacher and sitting to the immediate left of R.
(D) More than one of the above.

30. If Q interchanges his place with K, who sits to the immediate left of Q?

- (A) Architect (B) Singer
(C) Principal (D) Beautician

Key

Exercise – I(a)

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

Exercise – I(b)

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