SELF LEARNING MATERIAL
UNIT-5
Seating Arrangements

5.0   OBJECTIVES:

After reading this unit, you will be able to:

• Linear Arrangement

• Circular Arrangement

• Pentagonal Arrangement

5.1   INTRODUCTION:

Questions based on 'Sitting Arrangement' involve arranging the persons/objects according to the conditions given in the question.

Sitting arrangement questions are based on the sitting sequence pattern, direction, facing outside or inside etc. The candidate is required to understand all the conditions given in the question as the given information may be in jumbled form. The candidate has to segregate this information and make the arrangement as per the given conditions.

Arrangement may be along a straight line (row) or along shapes like circle, triangle, rectangle etc.

5.2 Linear Arrangement

In linear arrangement, persons/objects are required to be placed in proper order in a straight line.

One is required to identify the exact position of the objects and their positions with respect to one another based on the information given.

Steps to Solve Linear Arrangement Problems

(i)   Identify the number of objects and their names.
(ii)   Use a pictorial method to represent the objects and their positions.
(iii)   Filter the information to come up with relevant facts about other positions and try to come up with a unique solution.
(iv)   Answer the questions based on the arrangement determined above.

The linear arrangement can further be of two types, based on the number of rows

1. One Row Sequence In such an arrangement, objects/persons are placed in a single row

Example 5.1: 6 persons are sitting in a row. They are A, B, C, D, E and F. C is not sitting beside D who is sitting on the extreme right. E is between A and C. A is not sitting beside F and D. B is between F and D. Who is immediate right of A?

(a) B   (b) C   (c) D   (d) E

Solution:

Left •——•——•——•——•——• Right
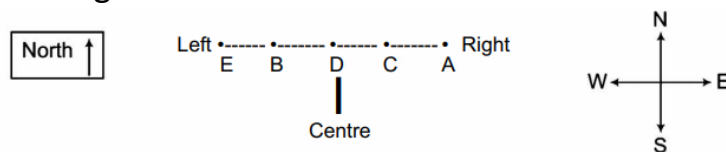   A   E   C   F   B   D

Clearly, E is sitting to the immediate right of A

Example 5.2: 5 persons A, B, C, D and E are sitting in a row facing North such that D is on the left of C and B is on the right of E. A is on the right of C and B is on the left of D. If E occupies a corner position, then who is sitting in the centre?

(a) A (b)B (c)C (d)D

Solution:
Clearly, D is sitting in the centre.

North ↑

Left •-----•-----•-----•-----• Right
    E   B   D   C   A
                |
             Centre

        N
        ↑
W ←——+——→ E
        ↓
        S

2. **Two Row Sequence** In such arrangement, objects/persons are arranged in two different rows facing each other

Example 5.3: 8 persons A, B, C, D, E, F, G and H are sitting in two rows opposite to each other. Each row has 4 persons. B and C are sitting in front of each other. C is between D and E. H is sitting to the immediate left of E. H and Fare diagonally opposite. G and B are not near to each other. Who is in front of A?

(a) E (b)D (c)C (d)B

Solution:
Clearly, E is in front of A.


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      G A B F
   •——•——•——•

   •——•——•——•
   H E C D
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CHECK YOUR PROGRESS 5.1:

1. 5 friends are sitting on a bench. A is to the left of B but on the right of C. D is to the right of B but on the left of E. Who are at the extremes?

(a)A, B (b)A,D (c) B, D (d)C,E

2. In a college party, 5 girls are sitting in a row. P is to the left of M and to the right of 0. R is sitting to the right of N but to the left of 0, Who is sitting in the middle?

(a)O (b)R (c) P (d)M

3. Five boys A, B, C, D and E are standing in a row. D is on the right of E. B is on the left of E but on the right of A. D is on the left of C, who is standing on the extreme right. Who is standing in the middle?

(a) B (b)C (c)D (d)E

4. Five boys A, B, C, D and E are sitting in a row. A is to the right of B and E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end?
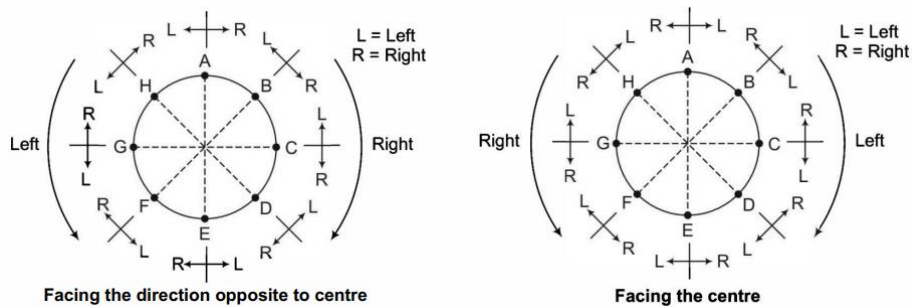
(a) D (b)A (c)E (d)B

5. There are five different houses, A to E, in a row. A is to the right of B and E is to the left of C and right of A, B is to the right of D. Which of the houses is in the middle?

(a) A (b)B (c)C (d)D

 # # Answers are given at the end of the document.

5.3 Circular Arrangement

In this type of arrangement, objects/persons are placed around a circle either facing the centre or facing the direction opposite to centre. The left and right of each person/object in both the cases can be understood with the help of following diagrams.

Facing the direction opposite to centre   Facing the centre

Example 5.4: Study the following information carefully and answer the given questions.

Four ladies A, B, C and D and four gentlemen E, F, G and H are sitting in a circle around a table facing each other.

I.   No two ladies or two gentlemen are sitting side-by-side.
II.   C, who is sitting between G and E, is facing D.
III. F is between D and A and is facing G.
IV.   H is to the right of B.

1) Who is sitting to the left of A?
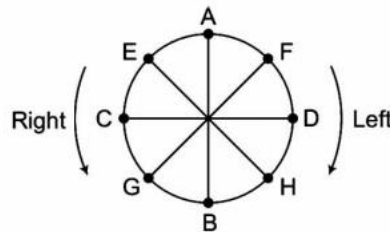
(a) E (b) F (c)G (d)H

2) E is facing whom?

(a) F (b) B (c)G (d)H

3) Who are immediate neighbours of B?

(a) G and H (b) E and F (c) E and H (d) F and H

Solution:

1. (b) Clearly, F is sitting to the left of A.
2. (d) Clearly, E is facing H.
3. (a) G and H are immediate neighbours of B.

CHECK YOUR PROGRESS 5.2:

1. Five persons are sitting facing centre of a circle. Pramod is sitting to the right of Ranjan. Raju is sitting between Brejesh and Naveen. Raju is to the left of Brejesh and Ranjan is to right of Brejesh. Who is sitting to the left of Naveen?

   (a) Pramod (b) Raju (c) Brejesh (d) Rajan

2. Six persons are sitting in a circle facing the centre of the circle. Parikh is between Babita and Narendra. Asha is between Chitra and Pankaj. Chitra is to the immediate left of Babita. Who is to the immediate right of Babita?

   (a) Parikh (b) Pankaj (c) Narendra (d) Chitra

3. Four girls A, B, C and D are sitting around a circle facing the centre. B and C are in front of each other, which of the following is definitely true?

   (a)A and D are in front of each other
   (b) A is not between B and C
   (c) Dis to the left of C
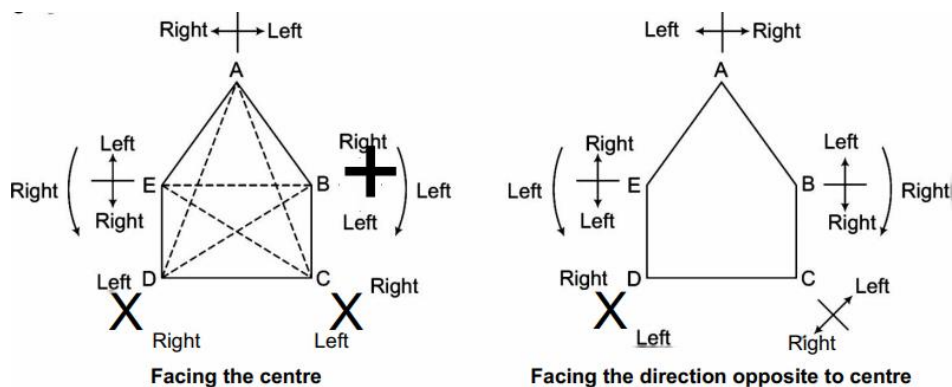   (d) A is to the left ofC

4. Six persons are sitting around a circular table. Ajay is facing Hemant who is sitting to the left of Arvind and right of Sanjay. Suman is to the right of Arvind. Manoj is facing Arvind. If Hemant and Manoj, Arvind and Sanjay mutually exchange their positions, who is now sitting to the right of Manoj?

(a) Arvind (b) Ajay (c) Suman (d) None of these

 # # Answers are given at the end of the document.

5.4 . Pentagonal Arrangement

In this arrangement, five persons/objects are placed around a pentagonal plane facing either the centre or the direction opposite to the centre. The left and right of each person in both the cases can be understood with the help of the following diagrams.
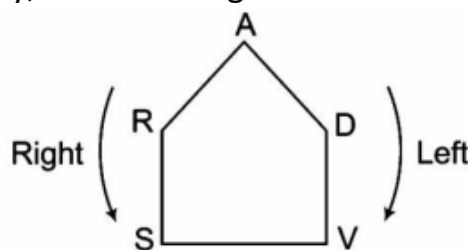

Facing the centre   Facing the direction opposite to centre

Example 5.5:
5 girls A, R, D, S and V are sitting around a pentagonal table. A is between R and D. S is to the left of V. R is to the left of S. Who is to the right of A?

(a) S (b) D (c) R (d) V

Solution: Clearly, R is to the right of A.

1. Four boys and four girls are sitting around a square facing the centre. One person is sitting at each corner and at the mid-point of each side of the square. Madhu is sitting diagonally opposite to Usha who is to the right of Geeta. Ram who is to the left of Geeta is diagonally opposite to Gopi who is to the left of Bose. Position of Suma is not to the right of Madhu but in front of Prema. Who is sitting opposite to Bose?

   (a) Geeta (b) Prema (c) Suma (d) Madhu

2. Three friends Ravi, Deepak and Mohit are sitting along the corners of a triangular field facing the centre. Ravi is to the left of Mohit. Who is sitting to right of Mohit?

   (a) Ravi (b) Deepak (c) Mohit (d) None of these

3. Five children A, B, C, D and E are sitting along the corners of a pentagonal table facing the centre. B is between E and C. D is to the right of E. Who is to the left of C?

   (a) B (b) A (c)D (d)C

   # # Answers are given at the end of the document.

SUMMARY:

• Concept & Process of Linear Arrangement

• Concept & Process of Circular Arrangement

• Concept & Process of Pentagonal Arrangement

5.5 Glossary:

Linear   : arranged in or extending along a straight or nearly straight line
Circular : having the form of a circle
Pentagon: a plane figure with five straight sides and five angles.

5.6 Suggested Readings:

- Quantitative Aptitude for Competitive Examinations by R.S.Agarwal. Published by S. CHAND
- Study material for CAT, SAT, GRE, GMAT by TIME, CareerLauncher and IMS etc.
- Quantitative Aptitude by Pearson Publications

5.7 Practice exercise:

1. There are six houses in a row. Mr Lal has Mr Bhasin and Mr Sachdeva as neighbours. Mr Bhatia has Mr Gupta and Mr Sharma as neighbours. Mr Gupta's house is not next to Mr Bhasin or Mr Sachedava and Mr Sharma does not live next to Mr Sachedeva. Who are Mr Bhasin's next door neighbours?

(a) Mr Lal and Mr Bhasin
(b) Mr Lal and Mr Sachdeva
(c) Mr Sharma and Mr Lal
(d) Only Mr Lal

2. Six friends A, B, C, D, E and F are sitting in a row facing towards North. C is sitting between A and E, D is not at the end, B is sitting at immediate right of E, F is not at the right end, but D is sitting at 3rd left of E. Which of the following is sitting to the left of D?

 (a) A (b)F (b)E (d)C

3. Five girls are sitting in a row. Kalpita is to the left of Mridula. Megha is to the right of Arpana. Sangeeta is in the middle of Megha and Kalpita. Who among the following is to the extreme right of the row?

(a) Mridula (b) Arpana (c) Kalpita (d) Cannot be determined

4. There are five books A, B, C, D and E. Book C lies above D. Book E is below A, D is above A and B is below E. Which book is at the bottom?

 (a)E (b)B (c)A (d)C

5. Six friends A, B, C, D, E and F are sitting in a row facing East. 'C' is between 'A' and 'E'. 'B' is just to the right of 'E' but left of 'D'. T is not at the right end. How many persons are to the right of 'E'?

(a) 1 (b)2 (c)3 (d)4

6. Seven children A, B, C, D, E, F and G are standing in a row. G is to the right of D and to the left of B. A is on the right of C, A and D have one child between them. E and B have two children between them. D and F have also two children between them. Who is exactly in the middle?

(a) A (b) C (c) D (d) G

7. Six persons are playing a card game. Suresh is facing Raghubir who is to the left of Ajay and to the right of Pramod. Ajay is to the left of Dhiraj. Yogendra is to the left of Pramod. If Dhiraj exchanges his seat with Yogendra and Pramod exchanges with Raghubir, who will be sitting to the left of Dhiraj?

 (a) Yogendra (b) Raghubir (c) Suresh (d) Ajay Directions

(Q. Nos. 8-9) Read the following information carefully and then answer the questions given below. Seven boys A, B, C, D, E, F and G are standing in a line.
I. G is between A and E.
II. Fand A have one boy between them.
III. E and C have two boys between them.
IV. D is to the immediate right of F.
V. C and B have three boys between them.

8. Who is second from left?

(a) C (b) G (c) E (d) A

9. C is standing between

(a) A and F (c) A and D (b) D and G (d) F and G Directions

(Q. Nos. 10-13) Read the following information carefully and then answer the questions given below it.

Five friends A, B, C, D and E are sitting on a bench.
    I.   A is sitting next to B.
    II.   Cis sitting next to D.
    III.   D is not sitting with E.
    IV.   E is on the left end of the bench,
    V.   C is on second position from right.
    VI.   A is on the right side of B and to the right side of E.
    VII. A and C are sitting together.

10. At what position is A sitting?

(a) Between B and C
(b) Between D and C
(c) Between E and D
(d) Between C and E

11. Who is sitting at the centre?

(a) A (b)B (c)C

12. What is the position of B?

(a) Second from right (b) Centre
(c) Extreme left   (d) Second from left

13. What is the position of D?

(a) Extreme left   (b) Extreme right
(c) Third from left   (d) Second from left

Directions (Q. Nos. 14-18) Read the following information and answer the questions given below
    I.   A, B, C, D, E, F, G and H are sitting in a row facing North.
    II.   A is fourth to the right of E.

III.   H is fourth to the left of D.
IV.   C and F, who are not at the ends, are neighbours of B and E, respectively.
V.   H is next to the left of A and A is the neighbour of B.

14. What is the position of F?

(a) Next to the right of E
(b) Next to the right of G
(c) Sixth to the right of D
(d) Between G and H

15. Which of the following statements is not true?

(a) G is the neighbour of H and F
(b) B is next to the right of A
(c) E is at left end
(d) D is next to the right of B

16. Who is/are the neighbour/(s) of D?

(a) F alone
(b) C alone
(c) B and C
(d) Cannot be determined

17. Which of the following statements is not true?

(a) H is second to the right of F
(b) E is fourth to the left of A
(c) D is fourth to the right of H
(d) None of the above

18. Who are sitting at the ends?

(a) E and C
(b) F and D

(c)GandB

(d) None of these Directions

(Q. Nos. 19-20) Study the following information carefully to answer the questions below.

Five persons are standing in a queue. One of the two persons at the extreme ends is a professor and the other is a businessman. An advocate is standing to the right of a student. An author is to the left of the businessman. The student is between the professor and the advocate.

19. Counting from the left, the author is at which place?

(a) First (b) Second (c) Third (d) Fourth

20. Which of the following is in the middle of the queue?

(a) Professor (b) Advocate (c) Student (d) Businessman

ANSWERS:

CHECK YOUR PROGRESS 5.1

1. d
2. a
3. c
4. c
5. a

CHECK YOUR PROGRESS 5.2

1. a
2. a
3. a
4. d

CHECK YOUR PROGRESS 5.3

1. a
2. b
3. b

Practice exercise 5.7

1. c
2. b
3. a
4. b
5. b
6. c
7. c
8. c
9. a
10. a
11. a
12. d
13. b
14. a
15. d
16. b
17. a
18. d
19. a
20. b