

CAT Notes

Sanchay Joshi

2 March 2024

Contents

I	Logical Reasoning and Data Interpretation	7
1	Arrangements	9
1.1	Basics	9
1.2	Linear arrangement : Tricky statements	9
1.2.1	If A and B interchange their positions then each of them gets exactly one new neighbour. . .	9
1.2.2	Number of persons to the left of A is equal to the number of persons to right of B / Number of floors below B is equal to number of floors above C	10
1.2.3	C is between A and B – AND – C is exactly between A and B	10
1.2.4	E is 2 places away from F	10
1.3	Linear and Circular Arrangement	11
1.4	Problem Solving Tips	11

Introduction

This is a series of notes that I am making to learn \LaTeX as well as makes notes for CAT and any aptitude exam preparation. The youtube channels and resources I am using are as follows

- [Rodha Youtube Channel](#)
- [Free CAT Question Bank](#) : This contains question for each topic.

Part I

Logical Reasoning and Data Interpretation

Chapter 1

Arrangements

1.1 Basics

Remember these points while solving the questions

- In circular arrangement, people are distributed equally and unless otherwise mentioned, face each other
- In linear arrangement unless mentioned otherwise, all are facing same direction
- Calculating "left" and "right" from the direction you are facing can be tricky. Try to visualise yourself standing and looking at that direction. This will give a better sense of right and left

1.2 Linear arrangement : Tricky statements

Once we know what these statements imply, we can use it to reject options and create constraints which our possible solutions must satisfy

1.2.1 If A and B interchange their positions then each of them gets exactly one new neighbour.

The verdict is that as long as for any two positions, there is one common neighbour before swapping, the swap is possible. For 7 people linearly arranged ,we can have the following cases

1, 2, 3, 4, 5, 6, 7

- Ends : Swapping the end positions satisfy the above condition as there is one common neighbour. Therefore, swap of (1,7)
- Adjacent elements : Any adjacement elements will have one common neighbour. Therefore, these are possible

– (1,2)	– (4,5)
– (2,3)	– (5,6)
– (3,4)	– (6,7)

- Gaps : With a gap of 1, there will be a common neighbour as well. Thus

– (1,3)	– (3,5)
– (2,4)	– (5,7)

1.2.2 Number of persons to the left of A is equal to the number of persons to right of B / Number of floors below B is equal to number of floors above C

The verdict is that if the sum of those positions is $n + 1$ where n stands for number of seats / floors.

For 7 people linearly arranged, we can have the following possibilities

1, 2, 3, 4, 5, 6, 7

- (1,7)
- (2,6)
- (3,5)

For 8 people linearly arranged, we can have the following possibilities

1, 2, 3, 4, 5, 6, 7, 8

- (1,8)
- (2,7)
- (3,6)
- (4,5)

Similar situation for floors.

1.2.3 C is between A and B – AND – C is exactly between A and B

- **C is between A and B** : This simply implies that C is between A and B. This can be any arbitrary position
- **C is exactly between A and B** : This implies that C is **exactly** between A and B \implies mid point. For example, if A is at 3 and B is at 7, then C will be at $\frac{7+3}{2} = 5$ position

1.2.4 E is 2 places away from F

This can be a little tricky. Simplest method is to assume 1-based index and count. For example

1	2	3	4	5	6	7
A	B	C	D	E	H	F

- | | |
|---|---|
| <ul style="list-style-type: none"> • B is 1 place away from A ($2 - 1 = 1$) • C is 2 places away from A ($3 - 1 = 2$) • D is 2 places away from B ($4 - 2 = 2$) | <ul style="list-style-type: none"> • F is 2 places away from E ($7 - 5 = 2$) • F is 4 places away from C ($7 - 3 = 4$) • E is one place away from D ($5 - 4 = 1$) |
|---|---|

1.3 Linear and Circular Arrangement

There are statements that apply to both linear and circular arrangements but their meaning is entirely different. Refer to the table below

Statement	Linear	Circular
A is to left of B	A can be anywhere left to B	A is exactly left to B
A is immediate to left of B	A is exactly left to B	A is exactly left to B
C is to right of D	C can be anywhere right to D	C is exactly right to D
C is immediate right of D	C is exactly right to D	C is exactly right to D
C is between A and B	C can be anywhere between A and B	C is exactly between A and B
C is exactly between A and B	C is exactly between A and B	C is exactly between A and B

In circular arrangement, "right" is ambiguous as we are in a "circle". Therefore, it is assumed that "right" is "immediate right".

1.4 Problem Solving Tips

- While solving questions with linear arrangement and less number of parameters, try dealing with two conditions at one time. The second condition becomes a constraint which limits choices
- While solving questions of linear arrangement with multiple parameters, read the question once and do the following
 - Create a table where you can store "direct" information that is, things that are explicitly stated in question
 - Create short notes of relations and indirect information. Instead of re reading the question again, we will simply focus on these conditions. When these conditions are created, we can see the one or two things that other things depend on
- When dealing with direction, visually make a diagram of what is left and right

