ONLY BOOK WITH GRADED EXERCISES

The Hand on Guide to

ANALYTICAL REASONING & LOGICAL REASONING

For CAT, MAT, CMAT, IIFT, BANK (PO/CLERK), SSC (CGL/CPO)
UPSC (CSAT) & Other State PSC Exams, etc.

PEEYUSH BHARDWAJ

arihant

The Hand on Guide to

ANALYTICAL REASONING & LOGICAL REASONING

ONLY BOOK WITH GRADED EXERCISES

The Hand on Guide to

ANALYTICAL REASONING & LOGICAL REASONING

For CAT, MAT, IIFT, BANK (PO & CLERK), SSC (CGL & CPO)
UPSC (CSAT) & Other State PCS Exams etc.

PEEYUSH BHARDWAJ

ARIHANT PUBLICATIONS (INDIA) LTD.

ARIHANT PUBLICATIONS (INDIA) LTD.

All rights reserved

© Publishers

No part of this publication may be re-produced, stored in a retrieval system or distributed in any form or by any means, electronic, mechanical, photocopying, recording, scanning, web or otherwise without the written permission of the publisher. Arihant has obtained all the information in this book from the sources believed to be reliable and true. However, Arihant or its editors or authors or illustrators dont take any responsibility for the absolute accuracy of any information published, and the damages or loss suffered thereupon.

Administrative & Production Offices

Corporate Office: 'Ramchhaya' 4577/15, Agarwal Road, Darya Ganj, New Delhi -110002
Tele: 011- 47630600, 43518550; Fax: 011- 23280316

Head Office: Kalindi, TP Nagar, Meerut (UP) - 250002
Tele: 0121-2401479, 2512970, 4004199; Fax: 0121-2401648

All disputes subject to Meerut (UP) jurisdiction only.

Sales & Support Offices

Agra, Ahmedabad, Bengaluru, Bhubaneswar, Bareilly, Chennai, Delhi, Guwahati, Haldwani Hyderabad, Jaipur, Jalandhar, Jhansi, Kolkata, Kota, Lucknow, Meerut, Nagpur & Pune

ISBN **978-93-5203-854-1**

Price : ₹ **310**

Typeset by Arihant DTP Unit at Meerut

PRINTED & BOUND BY
ARIHANT PUBLICATIONS (I) LTD. (PRESS UNIT)

For further information about the products from Arihant
log on to **www.arihantbooks.com** or email to **info@arihantbooks.com**

PREFACE

Books play an important role in the preparation of any examination and one cannot prepare or score well without the help of books in any competitive exam. This book of Analytical Reasoning and Logical Reasoning will help you score better in any competitive exam. As Reasoning basically tests one's thinking power and mind applicability skills. Books for Analytical Resigning and Logical Reasoning can be the source to get the concepts related to various topics which will help in going through the examination.

Importance of reasoning is increasingly moving centre stage in today's competitive examinations. The questions that are asked in different examinations are not easy to solve and one cannot solve these problems without having a better practice, once you know the basic concept behind it, you can solve it in least time.

The Hand on Guide Analytical Reasoning & Logical Reasoning has been prepared after a comprehensive research.

This book covered all the types of question patterns which are generally faced by the students in different competitive examinations. The value point incorporated in this book make it stand far apart from others books available in the market.

However, I have put my best efforts in preparing this book, but if any error or whatsoever has been skipped out, I will by heart welcome your suggestions. Apart from all those, who helped in the compilation of this book a special note of thanks goes to Mr Amogh Goel without their support, the book could not have come to its shape.

Ravi Shankar and Ravindar Rawat have given their expertise in the layout of the book. The contribution of Mr Sachin Kumar and Ms Gaura Sharma for this book is also very special worthy of great applause.

Peeyush Bhardwaj

Features of this Book

- Each chapter begins with a brief introduction that will make the student clearly and completely understand different concepts.
- Clear indication of the Types of Questions along with proper guidelines to solve them. Each type has its specific and detailed solution.
- The Exercises of each chapter have been graded as per the type of questions and at the end, cumulative exercises have been given which are divided into two parts Base and Advance level.
- Base level and Advance level exercise covers all types of questions i.e. asked in previous years examinations.
- Questions of different competitive examinations like CAT, MAT, XAT, IIFT, SNAP, MHT-CET, Bank (PO & Clerk) Railways, UPSC, SSC (CGL & CPO) etc, upto 2015 have been covered.

CONTENTS

Analytical Reasoning

1. Seating Arrangement 3-36
2. Complex Arrangement 37-76
3. Ranking and Time sequence Test 77-101
4. Blood Relations 102-132
5. Direction Sense Test 133-163
6. Conditions and Grouping 164-192
7. Simple and Coded Inequality 193-222

Logical Reasoning

1. Syllogism 225-282
2. Statement and Assumptions 283-315
3. Statement and Arguments 316-337
4. Passage and Conclusion 338-361
5. Statement and Course of Action 362-387
6. Decision Making 388-438
7. Assertion and Reason 439-447
8. Cause and Effect 448-461
9. Input-Output 462-482

Understanding
Analytical Reasoning & **Logical Reasoning**

An Introduction

In any general, competitive or entrance exam, the section **'Analytical and Logical Reasoning'** tests your **decision making** ability and **speed** using limited input and time. It measures a candidate's ability to analyse a given structure of arbitrary relationship and to deduce new information from that structure. It represents judgements made upon statements that are based on own content. No particular experience, beyond an understanding of the meanings of word used, is necessary for analytical reasoning.

The problem from this topic basically tests two attributes
1. You will be required to think logically, on the basis of a set of rules.
2. You will be asked to analyse the situations using your common sense.

The Logical Reasoning test items will be intended to measure your ability to understand, analyse and evaluate the arguments. Your strategy would consist in determining, what has been specifically stated and drawing inferences, on the basis of the facts stated.

First of all, determine the assumptions made by the author when jumping from evidence to conclusion.

On the other hand, Analytical Reasoning questions would be testing your ability to understand a given structure of arbitrary relationships among fictitious persons, places, things or events and deducing new information from the relationships given. Regular practice is required for tackling such questions. Don't make undue haste in tackling these questions.

Types of Problem

From this topic, usually, two types of problems are asked.

FIRST one in which problems are usually **all-or-nothing** type, in the sense that, if you crack the problem you will have answers to all the questions that follow and if you don't, you will not be able to answer even a single question. This is because, if the logic to the problem is apparent to you, the questions that follow are trivial. Hence, proper selection of problems to tackle is crucial.

The most important and first step to solve a reasoning problem is to write down all of the information given in a box, table or diagram e.g. if the problem involves seating arrangements at a round table, always draw the table first and then try various permutations and combinations of people seated around it. Once you have drawn the figure for the problem, you are free to think with an uncluttered mind.

SECOND type of problems, questions are **not given in the form of a set *i.e.*, they are separate**. These are statement based questions and based on real life situations. To understand and to solve these type of questions, one should have the proper knowledge of definitions and terms used in logical reasoning.

As this section is clear to you, you will find that it is one of the high scoring sections. So, you can look to it for help in improving your overall score, if you had a good proportion of practice time to it. In such questions, the accuracy can be highest and time spent on solving them can be quite less, if one has done a heavy amount of practice.

HOW TO PREPARE
Analytical Reasoning & Logical Reasoning

Hence, we are going to tell you, how to tackle and crack this section in any exam and what points should be remembered for it. Usually the students make the strategy, plan their way of practice and then follow it. Even then they forget some points, which can be considered as their weak points. So, you are advised to follow some points.

Point 1 : Do the Perfect Practice

As in all other sections, the most important part of preparation is practice, you are advised to practice seriously and regularly. For it, you should take tests but remember, that taking untimed tests holds no value, that means taking test without looking at the watch will only hamper your preparation.

For practicing, start with topical tests in the initial stage of preparation. When you gain confidence in all it's areas, start taking full-length tests. Always analyse your performance after every test you took and use tests as a valuable feedback mechanism. If you feel that you require more work in one or more topics, keep going back and take 1-2 more specific tests at that topic.

An important thing you need to work on is the judicious selection of questions. Use practice sets for this purpose.

Point 2 : Don't Take Questions as Difficult

Most students perceived that this section is difficult but it is not so. Infact, they are very easy. Actually, the questions are framed in such a way that they seems difficult, but if you are able to understand it's language, it will be easy for you. *e.g.*, 'Rohan is the most intelligent person of the class' may be written as' No one in the class has as much intelligence as Rohan Here, both of the statements are same.

Point 3 : Real Life and Your Views

Analytical reasoning is the primary tool used in solving problems of every kind, which we face in real life situations. Mostly some situations from the real life experience would put forward and options would provided to check clarity of thought, decision making and problem solving abilities of the candidates. So, try to construct as much situational examples as possible from real life happenings. e.g., when you read a newspaper thoroughly, try to put yourself in same situations underlying the occured events. Also, construct some options yourself and try to find out that option that comes high unbiased and morals.

Before starting any **Logical Reasoning** problem, it is advised to keep some point in your mind. Normally, all the candidates know these points but sometimes, they don't use them or we can say that they don't know their importance. It's not enough to know the point only but to understand and use them is also necessary. These points are given below

1. Study the question carefully.
2. Don't assume any information that the question fails to give you.
3. Read all the response choices carefully before choosing one.
4. Pay special attention to words like all, some, none, unless, other than, only etc. These words play an important role in precisely specifying the facts to be used in LR.

Logical Reasoning skills find its importance in a variety of settings and have many applications. A correct approach and regular practice would make you gradually develop and deepen these skills. Each of us has these skills and we use them in all aspects of daily life without consciously being aware of it.

ANALYTICAL REASONING

1

Seating Arrangement

The process of making a group of people to sit as per a prefixed manner is called ***Seating Arrangement****.*

These type of questions are the most common in various examinations like CAT, XAT, IIFT, FMS and Bank PO. These questions generally involve five to eight individuals arranged in a certain pattern. They may have to be arranged in a row or in a circle.

In some questions we will also deal with other arrangements like, square, pentagonal, hexagonal etc.

Sometimes these questions are made more difficult by allowing an individual to a particular position with some conditions.

General Guidelines to Solve 'Seating Arrangement' Questions

***Guideline* 1** First of all take a quick glance on the given information. After performing this step, you would get an idea of the situation of people or objects.

***Guideline* 2** Next, determine the usefullness of each information and classify them accordingly into 'definite information', 'comparative informaton' and 'negative information'.

***Guideline* 3** When the place of any person or object is definitely mentioned then we say that it is a **definite information.**

e.g. A is sitting on the right end of the bench.

These persons or objects are placed directly at the mentioned position.

***Guideline* 4** When the place of any person or object is not mentioned definitely but mentioned only in the comparison of another person or object, then we say that it is a **comparative information.**

e.g. A is sitting second to the right of E. This type of information can be helpful when we can get the definite information about E.

And the persons or objects are placed according to the person or object whose position is definite.

***Guideline* 5** A part of definite information may consist of **negative information.** A negative information does not tell us anything definitely but it gives an idea to eliminate a possibility.

e.g. C is not sitting on the immediate left of A.

According to this information, we find the remaining possible places where the person or object may be placed.

Case **Five friends A, B, C, D and E are sitting on a bench facing North.**

(i) C is sitting next to the right of D. (Comparative information)
(ii) D is sitting at extreme left position. (Definite information)
(iii) A is sitting to the left of B. (Comparative information)
(iv) B is not at the extreme right position. (Negative information)

Here, first of all we will consider the statement (ii)

D _ _ _ _

Now, from statement (i)

D C _ _ _ _

From statements (iii) and (iv)

D C A B _

Now, the remaining person, i.e. E will sit at remaining position.

D C A B E

Types of Questions Asked in Different Examinations

There are multiple types of questions which are asked from the chapter 'Seating Arrangement', so it is quite difficult to predict exact type of questions that are asked, but on the basis of **Observation, Analysis** and **Experience.** Here, we are giving different types of questions that are usually asked in the examination. Almost all the questions in this chapter can be categorised into these types. Also, this description of type will make your study easy and streamlined.

Type 1 Linear Arrangement

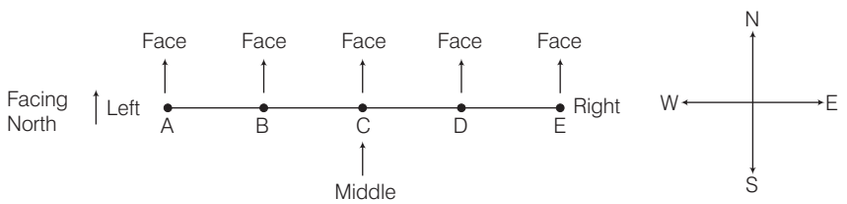
In this type of arrangement, we arrange people or objects in a line or row. The arrangement is done only on one 'axis' and hence, the position of people or objects assumes importance in terms of order like first position, second position... last position. In this type of arrangement, we take directions according to our left and right.

There are few words which must be paid adequate attention, i.e. 'between' means sandwiched, **'immediate left' is different from 'to the left'.**

To understand it, let us see some pictorial representation.

One Row Sequence

(A) When direction of face is not clear, then we take ourself as base and then the diagram will be as follows

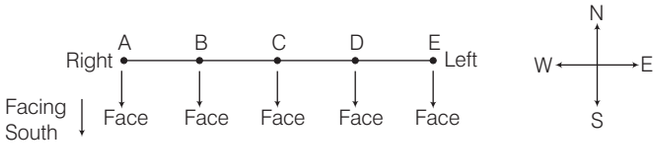


From the above diagram, it is clear that

(i) B, C, D, E are **right** of A but **only** B is to the **immediate right** of A.
(ii) D, C, B, A are **left** of E but **only** D is to the **immediate left** of E.
(iii) C, D, E are **right** of B but **only** C is to the **immediate right** of B.
(iv) C, B, A are **left** of D but **only** C is to the **immediate left** of D.
(v) D and E are **right** of C but **only** D is to the **immediate right** of C.
(vi) B and A are **left** of C but **only** B is to the **immediate left** of C.
(vii) A is the **immediate left** of B **while** E is to the **immediate right** of D.

➘ The correct form is 'B is to the to immediate right of A'.

(B) When direction of face is towards you, then the diagram will be as follows



From the above diagram, it is clear that

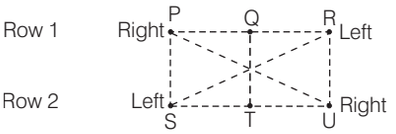
(i) Left of A = B, C, D and E (ii) Right of E = D, C, B and A

(iii) B is immediate left of A; C is immediate left of B; D is immediate left of C and E is immediate left of D.

(iv) D is immediate right of E; C is immediate right of D; B is immediate right of C; and A is immediate right of B.

Two Rows Sequence

Let us see 6 persons seating in two rows



From the above diagram, it is clear that

(i) P is sitting opposite S. (ii) Q is sitting opposite T.

(iii) R is sitting opposite U. (iv) P and U are sitting at diagonally opposite positions.

(v) S and R are sitting at diagonally opposite positions.

Examples Based on Type 1

***Ex* 1.** A, B, C, D, E, F, G and H are sitting in a row facing North.

I. A is fourth to the right of E II. H is fourth to the left of D

III. C and F, which are not at the ends, are neighbours of B and E respectively.

IV. H is next to the left of A and A is the neighbour of B,

Who are sitting at the extreme ends?

(a) E and D (b) F and B (c) B and D (d) None of these

Sol. (*a*) From information I, we get that there are three persons between A and E.

E __ __ __ A

In the information IV, it is given that H is next to the left of A and B is the neighbour of A. Using the information with (i), we get E __ __ H A B

By the information II, E __ __ H A B __ D

By the information III,

So, E and D are sitting at the extreme ends.

***Ex* 2.** Four children are sitting in a row. A is occupying the seat next to B but not next to C. If C is not sitting next to D, who is/are occupying seat/seats adjacent to D? **CSAT 2014**

(a) B (b) A (c) B and A (d) Impossible to tell

Sol. (*b*) The arrangement, as per the given information, is possible only if C is sitting next to B and D is sitting next to A.

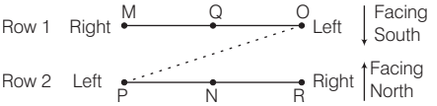
∵ Two possible arrangements are D A B C or C B A D

Clearly, only A is sitting adjacent to D.

***Ex* 3.** Six persons M, N, O, P, Q and R are sitting in two rows with three persons in each row. Both the rows are in front of each other. Q is not at the end of any row. P is second to the left of R. O is the neighbour of Q and diagonally opposite to P. N is the neighbour of R. Who is in front of N?

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

Sol. (*b*) Arrangement according to the question is as follows



The dotted line in the above figure shows that P is diagonally opposite to O. Clearly, Q is sitting opposite to N.

Direction (Examples 4-7) *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. C is 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.

***Ex* 4.** 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

***Ex* 5.** Who is sitting at the centre?
(a) A (b) B (c) C (d) D

***Ex* 6.** What is the position of B?
(a) Second from right (b) Centre (c) Extreme left (d) Second from left

***Ex* 7.** What is the position of D?
(a) Extreme left (b) Extreme right (c) Third from left (d) Second from left

SOLUTION (Examples 4-7) Arrangement according to the information is as follows

4. (*a*) A is sitting between B and C.
5. (*a*) A is sitting at the centre.
6. (*d*) B is sitting second from left.
7. (*b*) D is at the extreme right

Direction (Examples 8-11) *Study the following information carefully to answer the given questions.*

Twelve persons are sitting in two parallel rows containing six persons each, in such a way that there is an equal distance between adjacent persons. In row— 1, A, B, C, D, E and F are seated (but not necessarily in the same order) and all of them are facing South. In row— 2, P, Q, R, S, T and V are seated (but not necessarily in the same order) and all of them are facing North. Therefore, in the given seating arrangement each person seated in a row faces another person of the other row.

A sits third to the left of E. The person facing A sits second to the left of T. Two persons are sitting between T and P. C and D are immediate neighbours. C and D do not sit at any of the extreme ends of the line. Only one person sits between B and C. The person facing D is an immediate neighbour of Q. V is not an immediate neighbour of P. S does not face A.

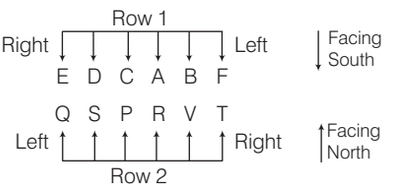
***Ex* 8.** Who amongst the following sits second to the right of the person who faces R?
(a) C (b) D (c) B (d) E
(e) Cannot be determined

***Ex* 9.** Which of the following statements regarding B is true?
(a) B sits second to the left of C
(b) A sits to immediate left of B
(c) T faces B
(d) D is an immediate neighbour of B
(e) The person who faces B is an immediate neighbour of S

***Ex* 10.** Who amongst the following faces P?
(a) A (b) D (c) C (d) E
(e) Cannot be determined

***Ex* 11.** Four of the following five are alike in a certain way based on the given seating arrangement and thus form a group. Which is the one that does not belong to the group?
(a) F (b) Q (c) T (d) C
(e) E

SOLUTION (Examples 8-11) On the basis of given information, the sitting arrangement of twelve persons in two parallel rows is shown below



8. (*b*) A faces R. D sits second to the right of A.
9. (*a*) B sits second to the left of C. A sits to the immediate right of B.
V faces B.
A and F are immediate neighbours of B.
V faces B. R and T are immediate neighbours of V.
10. (*c*) C faces P.
11. (*d*) Except C, all others are seated at extreme ends of the lines.