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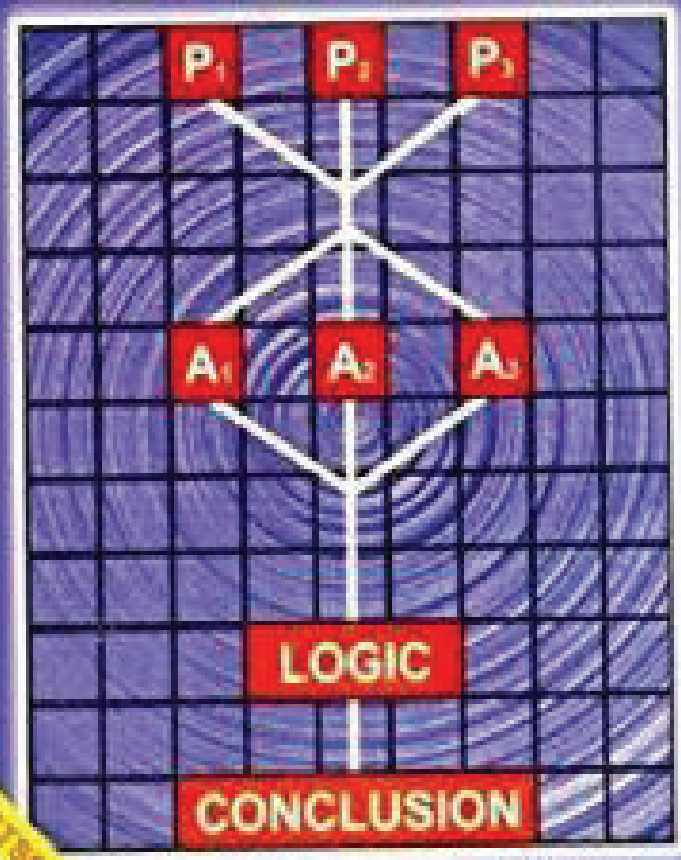

THE UNDISPUTED BESTSELLER

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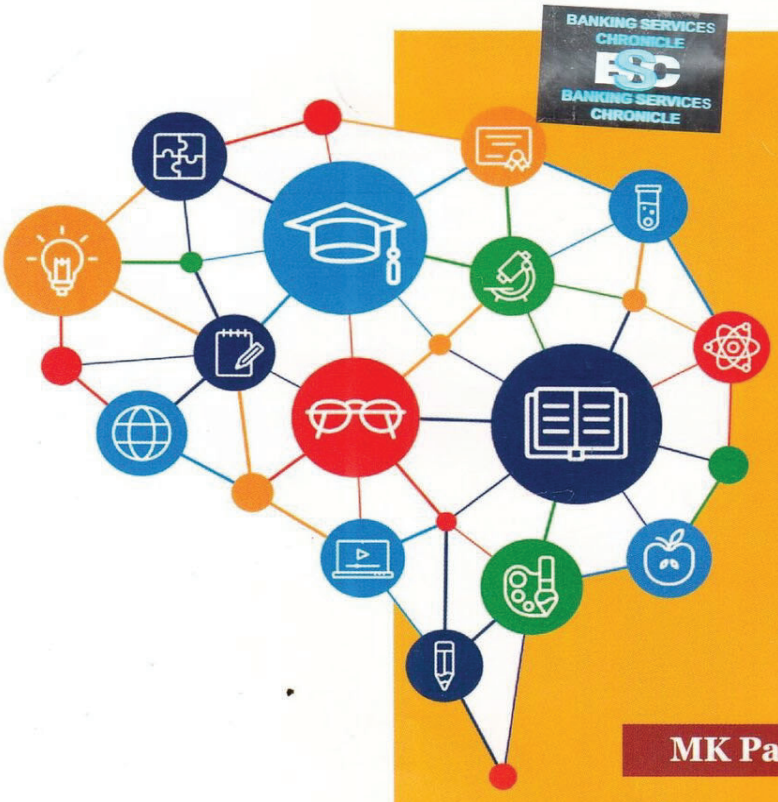

MK Panday

The Undisputed Bestseller

MAGICAL BOOK
SERIES

ANALYTICAL REASONING

AN IMPORTANT NOTE

The subject of **Analytical Reasoning** is also given the name of **Logical Reasoning** or **Critical Reasoning**. The author sticks to the title of **Analytical Reasoning** because it includes questions of logic as well as purely analytical questions (such as 'Problem-Solving') in its realm.

MAGICAL BOOK
SERIES

ANALYTICAL REASONING

For Bank PO, Reserve Bank Officers Grades A and B, RRBs, CAT, MAT, GRE, GMAT, XLRI, FMS, LLB Entrance and other competitive exams

MK PANDEY

Dedicated to

Shri Sheo Govind Pandey

(my father)

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Part II: Reasoning based on Rules

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Foreword

"To argue well is the end of logic." In an age of material prosperity one would hardly care for logic if it could not take one "beyond this end. We have moved centuries away from Descartes' "I think, therefore I am." In the global village, what others think is equally "important. What I assume may not be what others assume. If this be the case, it becomes imperative for me to know what is wrong with the way I think. Because to argue well is only the means. The end for which we argue or reason is making policy decisions — bureaucratic, "business, diplomatic or domestic — that fetch results.

In order to excel in today's world, it has therefore become necessary to have a sound reasoning. Exams like those for banking and management entrance consider your faculty of reasoning as the prerequisite for success. And for this you need not be a born genius. Not if you read *Analytical Reasoning*, the book in your hand, properly.

The book provides a systematic study and can therefore be read even by the uninitiated. The writer has a pragmatic approach "in mind. And a fine balance has been struck between theory and practice. The writer introduces you to a problem, analyses it in detail in all "its hues and variations, guides you through solved examples and offers you plenty of practice questions. And in case there is any confusion still felt, the answers are provided with explanations at the end of every chapter.

I concur with the writer on what he suggests you on page 12: "Take this book as a journey and if you take this journey as a dedicated, faithful tourist who follows his guide keenly, you will emerge as a master of analytical reasoning." What I would like to add is this: this book is in keeping with the concept of a *modern* journey.

Time was when journeys were inherently arduous. The traveller "had to be up before daybreak. He would get ready, pack his lunch in a *potli* (briefcases were unheard of) and set out at sunrise to make most of the daytime. He would walk and walk, hunger gnawing at his "entrails (the contents of the *potli* had to be sparingly used) and thirst goading him on towards mirages. The journey had to be ended at sunset if he loved life. And

how much had he travelled? Thirty to forty miles if he had a robust physique. Similarly, earlier "books" on Reasoning showed little achievement even for an intelligent person. "Besides, the reader had to undergo the travails of travel.

The book in your hand may be compared to hi-tech travel. Bombay to New York is only a matter of hours even for a person of frail physique. And that too comfortably in an airbus with smiling hostesses catering to your needs. The sun does not scorch the traveller. What is it that has made journey so easy? The understanding of the "basics — laws of nature — and their application — technology. In other words, for the reader of this book, concepts and practice exercises.

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The book can help anyone and everyone because at every step in life, one has to make up one's mind. For example, see why any reader would recommend the book to others.

Premise: The book has helped me solve questions on Analytical Reasoning correctly.

Assumptions: Like me (before reading the book), others too have more or less the same difficulties.

Inference: The book must help others too to solve questions on Analytical Reasoning correctly.

If a recommendation is based on such a solid inference, it would never go wrong. Once again, an assumption is being made: that the latter reader would be as devoted as the one who recommends. Well, it's time I stopped making assumptions. I *assume* I'll make none (punchline?!).

Foreword to Second Edition

Patterns change with the course of time. And good reasoning must keep in touch with the changing trends. The author has done a wonderful job in updating the book.

Chetananand Singh
Editor, *Banking Services Chronicle*

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Author's Preface

Analytical Reasoning is increasingly moving centrestage in today's competitive exams. Whether you plan to join the banking or the management sector, as an officer you will be expected to take decisions. You cannot take a proper course of action unless you can reason analytically. It is this faculty of yours that is judged through the paper of Analytical Reasoning. To score well then means a solid preparation in the paper. It is high time that a book solely devoted to Analytical Reasoning was published. The book, therefore, is intended to fill a long-felt void.

Although humility may not permit so, I would say that there are certain features of this book that make it unique and I would like to mention these features for the benefit of the readers.

First of all, I would like to complain that Reasoning has always been treated as a step-child of the publishing industry. Very few books treat Reasoning as a *subject*. There never was any attempt to familiarise the students with the theoretical aspects of Reasoning. This despite the fact that Logic is a subject offered in the curricula of many Indian universities!! This book seeks to rectify this error.

Secondly, very few authors recognise that the competitive exams of today demand *speed* as strongly as *accuracy*. Hence, an emphasis is needed to provide quicker techniques, wherever possible. This book places due emphasis on this aspect by providing quicker methods wherever possible. However, between *speed* and *conceptual clarity*, the latter has been given the priority.

Without claiming to be exhaustive, the following points make a list of certain special features of this book:

- Conceptual clarity for logical reasoning.
- A new, much quicker analytical method for Syllogism in addition to the method of Venn diagrams.
- Quicker methods for Analytical Decision-Making and Problem-"Solving.
- A complete chapter each on two recently-introduced topics:

`Punchlines' and 'Strengthening and Weakening Arguments'.

I sincerely hope that this book will prove immensely beneficial for students appearing in all types of competitive examinations.

Finally, I would like to add that an effort of more than three years has gone into the preparation of this book. Since my articles started appearing in *Banking Services Chronicle* three years ago, many readers have written to me offering some valuable suggestions. Every new suggestion proves to be an asset to the writer and thereby to the readers of the book he writes. I would like to offer my sincerest gratitude to them all. I would also like to thank Mr Manoj Kumar, publisher, Mr Nagendra K. Sinha and Mr Niranjan Bharti, members, Research Team, and Mr Chetananand Singh, editor, *Banking Services Chronicle*, for some valuable suggestions and help in the preparation of the manuscript. And special thanks to Mr Ashok Kumar for helping me with the computer.

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Preface to Second Edition

Over the years new topics have been introduced in the exams. There is always a speedier and better way to solve the problem if you look for it. I have made efforts to revise the old topics and simplify the new ones. Hope you continue to be benefited like the earlier readers. Rather, more benefited.

P.S.: No work is perfect. I would be obliged to those who point out the errors of this book. Advices and suggestions for the improvement of the book will be gratefully received.

Preface to the Fourth Edition

When I first wrote this book it was more than 20 years ago. Internet had just arrived in India. Majority of population was still writing handwritten letters to their loved ones.

This book was well received then and has continued to be received well. It became very popular in a very short span of time. After that I have done only one honest sincere revision of the book. Even that is old news as that revision took place around 15 years ago.

Since then, the publishers have continuously requested me to revise the book and I kept on resisting. Because I believe that classics are never to be retold. There are some books in chemistry, medical science, physics, trigonometry, elementary physics etc which were written more than 100 years ago and are considered Bibles in their own field even today.

By the way, is it correct to say that this book is some kind of classic on Analytical Reasoning? As an author I might be biased but there is some merit in the argument. This book was the first to attempt to "teach" the concept of Reasoning before jumping on to solve exercises. Every topic here has been covered using a general technique and a shortcut method as far as possible. This is the first and the only book in which complicated problems of syllogism have been attempted to be solved by four simple formulas.

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Well, then why did I agree to revise this book? There are two strong reasons for this. First, looking at the recent pattern of questions, a little bit of focus reallocation was required. This time I agreed with the publisher.

Secondly, there is some merit in the argument that good and clear concepts are a good thing but a little extra practice will never do any harm. So two major changes are there in this edition. Firstly, two new chapters have been added—one chapter builds the foundation of coding technique while the other deals with a special type of coding. Secondly, a lot of practice exercises have been added. The biggest volume has been added to the chapter on problem solving in which more than a hundred new problems have been added along with their detailed solutions.

On a personal level I do not like big, voluminous books. Brevity being the soul of wit, I have tried to maintain and preserve the soul of this classic without adding too much bulk and yet giving sufficient concept elucidation followed by a great deal of practice .

Hope the readers will bless this effort with their continued love and patronage.

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Part I
Reasoning Based on Logic

Chapter One
The Basics of Logic
(A Study of Argumentation)

1.1: Introduction

This chapter is a study of argumentation. Argumentation is fundamental to all logic. In logic, we advocate a certain point of view with the help of some evidences and certain assumptions. The whole thing may be called “arguing”, or simply “argumentation”. As you will see, arguments are the backbone of analytical reasoning and it is very important to understand the way they work. Almost all possible types of questions are in some way related to argumentation: “What is the inference of this argument?”, “What are the assumptions of this argument?”, “What are the strengthening points of this argument?”, “Whether this argument is weak or strong.” etc. Hence, I would advise you to go through this chapter very carefully before you move on to the deeper aspects of reasoning.

1.2: What is an argument?

An *argument* is a sequence of two or more phrases, clauses, sentences or statements which includes a claim or a conclusion. This conclusion is arrived at with the help of one or more than one statement which may be called *premise* or *proposition*. In addition, the argument also takes the help of some hidden premises which may be called *assumptions*. The following two examples will illustrate the concept.

Ex 1: The ground was slippery, it must have been raining.

Comments: In the foregoing example, the argument proposes a conclusion that "it must have been raining". This conclusion is arrived at with the help of the supporting evidence or premise that "The ground was slippery". The conclusion and the premise are connected by the assumption (which is not explicitly stated, it is hidden) that "The ground becomes slippery only when it rains."

Thus, a careful postmortem leads to the following break-up of its constituent parts.

Premise: The ground was slippery.

Assumption (hidden premise): The ground becomes slippery only when it rains.

Conclusion: It must have rained.

The foregoing example brings before us the basic characteristics of argumentation. It also leaves some doubts. For example, is the number of premises necessarily one? Is the assumption always present? The answer to both these questions is: NO. In an argument, the number of premises can be more than one as explained in Ex 2. Further, it is not necessary that every argument have an assumption. Remember, an assumption is the hidden premise — a missing link in the chain of logic — and if an argument is complete in itself and does not have missing links, it will not have any assumptions. For example, the following argument has no hidden assumptions:

"The ground was slippery. The ground cannot have become slippery without rains. So, it must have rained."

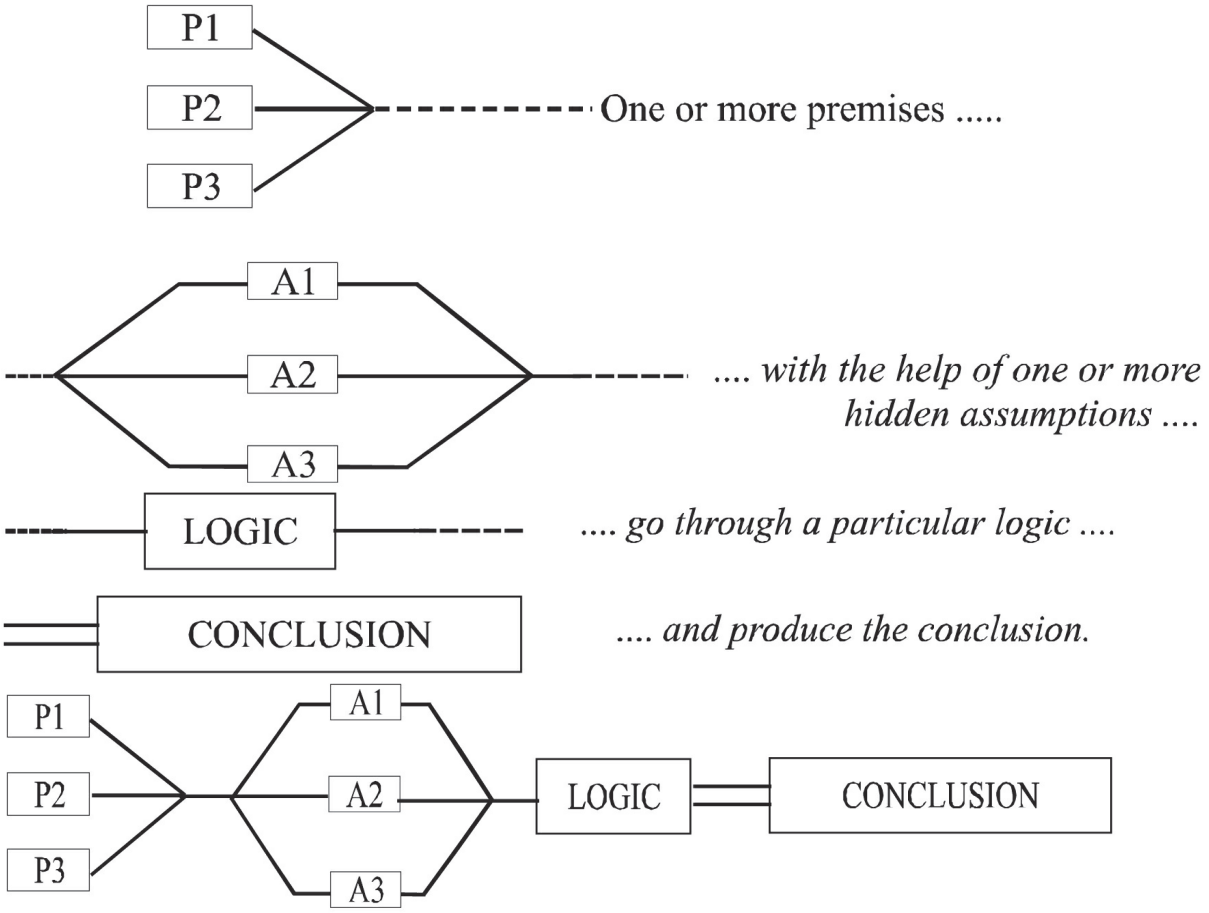
Ex 2: If Sudha eats rice, Ram also eats rice. If Ram eats rice, Shyam also eats rice. If Shyam eats rice. Manju also eats rice. If Manju eats rice, Madan also eats rice.

Sudha eats rice.

So, Madan also eats rice.

Comments: Here, the first five sentences provide premises. The last sentenceprovides the conclusion. Obviously, here, there is no hidden assumption as there are no missing links in the argument.

The following diagram clearly states how an argument works.



The complete process of argumentation

Thus, it is obvious that in order to gain mastery of argumentation-based reasoning, you will need to

- *differentiate between the premises and the conclusion*
- *identify the assumptions made*
- *understand the logic of the arguments*

Let us look at these aspects one by one.

1.2.1: Identifying the conclusion

A typical passage usually places its conclusion at the end. But this may not be true in many cases. Depending upon the style of the author, the conclusion can be found in the middle or even in the very beginning of the passage. This is illustrated by the following example.

Ex 3:

Format 1. A daily programme of Yoga is believed to increase the average lifeexpectancy and reduce stress of a common individual. Yet, people who want to make Yoga a part of their lives are hampered by lack of adequate information about Yoga training centres. Therefore, Doordarshan should give a priority-based, concessional advertisement for Yoga training centres.

Format 2. Doordarshan should give a priority-based, concessional advertise-ment for Yoga training centres. A daily programme of yoga is believed to increase the average life expectancy and reduce stress of a common individual. Yet, people who want to make Yoga a part of their lives are hampered by lack of adequate information about Yoga training centres.

Format 3. A daily programme of Yoga is believed to increase the average lifeexpectancy and reduce stress of a common individual. Doordarshan should give a priority-based, concessional advertisement for Yoga training centres. People who want to make Yoga a part of their lives are hampered by lack of adequate information about Yoga training centres.

This example illustrates how the same thing could be rewritten in different ways. If you go by the thumb-rule that a conclusion always appears at the end of a passage you will get different conclusions from the different formats of the same passage. In Format 1, the conclusion appears at the end. The first two lines provide a premise — a case is made out therein for the need for publicity of Yoga training centres. Then is placed the conclusion which says that Doordarshan should provide a concessional and priority-based advertisement for Yoga training centres. But in Format 2, the conclusion appears first and the supporting premises appear later. In Format 3, the conclusion appears in the middle.

This example, therefore, states that in a passage the conclusion can appear anywhere. How can we then identify a conclusion? How do we

differentiate a conclusion from a premise?

This is mostly a matter of skill and experience. If you go through passages regularly, your mind develops the ability to identify the conclusion without putting any conscious effort. However, to begin with, you can take the help of the following test:

"What is the author trying to prove here?" If you ask yourself this question, your answer will invariably point towards that portion of the paragraph which is the conclusion. For example, in the preceding example, if you ask yourself this question, what answer will you get? Obviously, what the author wants to prove (say) is that Doordarshan should give concessional advertising for Yoga-training centres. The other two sentences are only facts used by the author to support his conclusion.

There is also another way of testing as to which part of a given passage forms a conclusion. Because the conclusion of the argument can appear anywhere, the authors usually include signals for the reader. Here is a list of words and phrases that are often used to signal a conclusion.

therefore
thus
so
hence
consequently
as a result
it follows that
it can be inferred that
which shows that
which suggests that
which proves that
which means that

If you find one of these signal-words/phrases before any sentence, you can be sure that the sentence is the conclusion. At times, if the signal-words are absent, you can ask yourself this question: **"Before which of these sentences can I put one of these signal-words/phrases?"** The answer will be your conclusion. (Try this method on Ex 3.)

Let us take an example to understand the point.

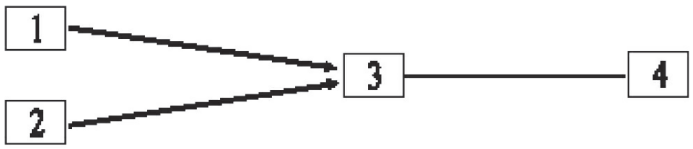
Ex 4: It is immoral to take something that one has not earned. Gambling winnings are not earned, so gambling is immoral. Therefore, a state

government that operates a lottery is acting immorally.

Comments: This argument consists of four propositions.

1. It is immoral to take something that one has not earned.
2. Gambling winnings are not earned.
3. Gambling is immoral.
4. State governments that operate lotteries are acting immorally.

If we try to identify the conclusion of this argument by the first method, i.e., by asking ourselves the question: "What is the author trying to prove here?", what answer do we get? The ultimate conclusion to be proved here is statement 4. Statement 3 is a premise of the conclusion. (However, statement 3 also functions as the conclusion of a sub-argument, of which statement 1 and 2 are the premises). If we attempt to draw a diagram of this argument it would look like this



However, if we apply the second method of identifying the conclu-sion of an argument, i.e., looking for a signal-word, we would readily find that statement 4 is the conclusion because it is preceded by the signal-word *'there-fore'*.

1.2.2: Identifying the assumptions

An assumption, as we have already defined it, is the hidden premise - the missing link [see the method of identifying the assumptions in an argument more clearly and more comprehensively in a separate chapter.] (See Chapter 3.)

1.2.3: Understanding the logic: Standard ways of arguing

An argument is usually made to make a point or to strengthen a point or in an effort to convince someone about something. Different people may resort to different techniques while arguing. Some of the commoner ways of arguing are presented below:

(i) Argument by Example

In certain instances, an author or speaker tries to come to a conclusion by

citing some example(s) as his premise(s). This is an illustration of arguing by example. The following arguments illustrate the concept:

Ex:- The Indian Union should declare a war on Pakistan because even theUnited States did so when Libya had resorted to international terrorism.

Ex:- We should follow the policy of non-violence because Gandhiji used to preach and practise it.

Ex:- Bradman was out for a duck in his last Test while Gavaskar scored four in his last one-day international. Therefore, Tendulkar too should be expected to put a dismal score in his last cricket match.

In the three examples mentioned above, three conclusions have been reached. These three conclusions are: "India should declare a war on Pakistan", "We should follow the policy of non-violence" and "Tendulkar will probably put a dismal score in his last test match". These three conclusions have been arrived at by using certain examples as premises. Thus, "India should declare war on Pakistan" has been inferred by taking the example of the United States, non-violence has been advised by citing Gandhi as an example, while Tendulkar's low score has been predicted by taking the examples of Don Bradman and Sunil Gavaskar.

Comments: You may yourself conclude that examples do not make strongarguments. Just because someone did something in the past, it cannot be concluded that someone else will also do a similar thing in future. *Generally, arguments based on examples are either weak or fallacious*.

(ii) Argument by Analogy

We often use the method of analogy to put forth our argument. Loosely speaking, **analogy is an inference from a resemblance between particular things, events or occasions (that are known) to a further (unknown) resemblance.** For example, if we find a fat man jovial and later meet another fat man, we expect him to be jovial too. If we find males more interested in mathematics than females are and if we find males more interested in Physics than females then we expect that males are more interested in astronomy than females. By noting certain resemblance between two or two sets of things we infer that they must resemble in other respects also. Schematically, where a, b, c and d are any entities and P, Q, R are any attributes, an analogical

argument may be represented by the form

a, b, c, d all have the attributes P and Q a, b, c have the attribute R So, d probably has the attribute R

Ex. A: Congress Party is in favour of privatisation of the economy and so is the BJP. Similarly, the Congress Party favours more autonomy for the States and so does the BJP. The Congress oppose Ram Temple constructed at disputed site. So, BJP will also oppose construction of Ram Temple at the site.

Ex. B: Pakistan and Bangladesh have both lost to India in cricket and kabaddi. So, India should defeat them in hockey also.

Ex. C: Shores of pharmaceutical industries had shot up last year when special package was announced for the pharmaceutical sector. This year special packages have been announced for the software sector. So, software shares should shoot.

In the above three example, a conclusion has been arrived at because of one (or more) similar things have taken place before. Thus, Congress and BJP are expected to have a similar stance on one more issue because they had identical stances on two previous issues, India is expected to do in Hockey what it did in Kabaddi and Cricket and software shores are expected to do.

(iii) Causal Argument

Causal arguments are one of the commonest ways of arguing. This type of argument tries to relate a cause with a result. It may have many forms. For example, it can have the form: " X is the cause of Y. X has occurred. So Y will occur." or " X is the only cause of Y. Y has occurred. So X must have occurred." or any other such variety of it.

Ex:- The city has been facing the problem of water-logging for ten days. Anoutbreak of cholera is being feared.

Ex:- The BJP should win the elections because it has an organised cadre.

Ex:- The cricket match has been abandoned. It must have rained.

In the foregoing examples, some effects have been related with some causes. For example, the effects "outbreak of cholera" and "victory in elections" are being expected because their causes, "water-logging" and "organised cadre", exist. In the last example, it is argued that since the effect (*abandoning of match*) has taken place, the cause (*rains*) must have occurred.

Comments: Arguments that are causal in nature may be strong arguments orweak arguments or fallacious arguments. This will depend solely on the degree of certainty that the cause-effect relationship (made in that argument) holds. In the three examples above, the first two are reasonably good arguments; the third one is fallacious. In the first two, it is seen that the cause does usually lead to the effect. In the last example, cause is being predicted because effect has occurred. But the point is that the effect may occur (a match may be abandoned) because of other reasons as well.

Note: Also see the chapter **"Cause and Effect"**.

(iv) Salesman's Argument

How does a salesman argue? Once a salesman was selling combs on a street. He wanted to convince every interested observer how strong was the stuff which the comb was made of. In his enthusiasm he ventured to demonstrate the unbreakability of the comb by bending it sharply. And then the impossible happened. The comb cracked into two pieces. The salesman looked at the comb for a couple of seconds and then hastily readdressed his audience "And now gentlemen! I would like you to see for yourself how strong and solid the comb is, **even from inside**".

So, that is how salesmen argue. They would speak of the advantages, the benefits of their stand. Hence, a salesman's argument is one where a conclusion is arrived at because of the advantages, positive points and the benefits that it leads to. Such arguments are the commonest in everyday life.

Ex :- Sports will help the students to keep in good health. So, it should be made compulsory for colleges.

Ex :- Religion and politics should be kept apart since religious inclinations will be violative of democratic principles.

Ex :- Strikes disrupt the normal life of the common man. There should be a banon strikes.

In the above-mentioned examples, some conclusion (or course of action) is advised (or prohibited) because of the advantages (or disadvantages) of pursuing that course of action. Thus, sports are to be made compulsory because it carries the advantage that it will help the students keep in good health. Strikes are being prohibited because they have the negative feature that they disrupt the normal life of the common man.

Comments: Arguments of this nature can be both weak or strong. It dependsupon many factors such as:

(i) Is the advantage (disadvantage) being talked about actually true?

(ii) Even if it is true, does the suggested course of action look a practicallypossible and reasonable policy to follow?

We would look at such arguments in greater detail when we discuss the forcefulness of arguments exclusively. Presently, I would only state that the first example is a weak argument while the remaining two are strong arguments.

(v) Argument based on Chronology

Sometimes a conclusion is arrived at solely on the basis of the chronological order of some events. Some examples are:

Ex:- "I arrived at the house at 10:30 AM. I rang the call-bell and waited. Thedoor opened. A lady welcomed me inside and made me sit on a sofa, taking off my hat and overcoat. I looked at my watch, it was 10:33. I read the newspaper for the next 15 minutes or so. And then I went inside to see if the lady had forgotten about me. It would be around 10:50 when I entered the room."

The murder was committed at about 10:55. Therefore, this man (whose statement is quoted above) must have either committed the murder or seen the act of murder.

Ex:- Television was invented many years after radio. Therefore, a televisionhas a technology superior to that of a radio.

Ex:- The song "Tamma Tamma Loge" was released two months earlier than"Jumma Chumma". So, the former could not be a copy of the latter.

In all the foregoing examples, the order of some events (their chronology) is made the basis of predicting something. Thus, I entered the room at 10:50, where a murder was committed at 10:55; so I must have been a part of the crime. Or, since TV came after radio, TV should be technologically advanced compared to the radio. Similarly, because the release of a song X preceded that of another song Y, X could not have been a copy of Y.

Comments: Unless elaborately detailed and minutely justified, arguments ofthis type are usually unconvincing and weak. All the three argu-ments above are weak. The second argument could have

been strong if it had been added that technology always develops towards more complex objects.

For example, in the first example above, it is assumed that if the man entered the room at 10:50 and if the murder took place at 10:55, then he must have some vital information about the murder. But, what about the possibility that he entered the room at 10:50, left at 10:52, came back to the drawing room and was sitting in the drawing room at 10:55 when the murder took place in the lady's room? Similarly, in example 2, it is assumed that a techno-logically superior object **always** comes **after** an inferior object. This may be true 99% of the times, but not always. So, the inference could be questioned here. In the last example, the dates of release of two songs is made the basis of the conclusion that one could not have been the copy of the other. But what about the date of recording? It might have happened that "Jumma Chumma" was recorded earlier although released later than the number "Tamma Tamma". In this case, a possibility of copying cannot be ruled out.

The above, then, is a detailed study of the standard ways of argumentation. Although, there are many more ways in which arguments are made, these are one of the commonest types of arguments. [Some other ways of argumentation include **argument by negation**, **argument by force, argument using trapping questions** etc. All these are fallacious ways of arguing and should be discussed for fun and nothing more. There must be some friends of yours who prefer these ways of argumentation during discussions. Look at some examples:

Argument by negation: He is not guilty because this is impossible.

Argument by force: He is not guilty. Accept it or I will break your head. (!!)

Argument using trapping questions: Suppose I tell you that I always lie, will you accept this as true or false? Therefore, believe me if I told you that he is not guilty.

Arguments by challenge: He is not guilty. Accept it or prove that he is guilty.

Thus, in this chapter we have seen how an argument works. We have seen that there are three essential constituents of an argument: premises, assumptions and conclusion; and these three are related in a particular

fashion or logic. **Questions on analytical reasoning seek to test your understanding of all these aspects. Thus, some common questions are worded as:**

Type I: Is this conclusion true or false? (Is this conclusion probably or definitely true/probably or definitely false?)

Type II: Is this an assumption of the argument?

Type III: Is it a strong (forceful) argument?

Type IV: Does this premise strengthen (or weaken) the main argument?

We shall study each of these problems separately in subsequent chapters. The realms of analytical reasoning are very wide and very interesting: take this book as a journey and if you take this journey as a dedicated, faithful tourist who follows his guide keenly, you will emerge as a master of analytical reasoning. The journey - by the way - has *already begun*.

Summary

- Arguments are the fundamental units of logic.
- An argument contains two explicit constituents: supporting **premises** and **conclusion**. There is also an implicit (hidden) constituent called **assumption**.
- It is important that you are able to identify each of these constituents. Further, it is also important that you understand the logic with which the conclusion is reached.
- To identify a conclusion you can follow either of the two methods. In the first method, you should ask yourself this question: **"What is the author trying to prove?"** In the second method, you should look for certain signal-words/phrases such as

  therefore
  thus
  so
  hence
  consequently
  as a result
  if follows that
  it can be inferred that
  which shows that
  which suggests that

which proves that
which means that

If there are no signal-words, you may ask yourself this question: **"Before which of the sentences can I put one of these signal-words?".**

- In order to identify an assumption you must identify the missing link in the logical chain. These methods are comprehensively covered in Chapter 3.
- There are many ways of arguing. Some of these include: argument by example, argument by analogy, argument by causal relationships, argument by chronology, argument by blind advocacy (salesman's arguments), etc.

Chapter Two

Some Informal Tips

2.1: Introduction

Questions on reasoning are not very difficult. In fact, they are very easy. Usually, the examiner tries to frame questions which are difficult - this is true. But remember that the examiner must take that answer as correct which looks obvious. **When the examiner is framing choices, he knows that he has to frame one correct choice and all the other three (or four) choices must be wrong.** Therefore, he has to face the responsibility of ensuring that the wrong choices are not very close to the correct choice. This means that it will be very difficult for him to frame a very difficult question which has very close choices. This makes the examiner look for some other tactics. **These tactics include saying something obliquely, highlighting some unimportant information, underplaying a vital information, using complicated language** etc.

We can have a look at some of these tactics by looking at some of the following examples:

(i) "Raman is the most intelligent person of the class." may be said as "No one in the class has as much intelligence as Raman." (Here, the matter is told obliquely.)

(ii) "He over-ate" can be said as "He partook of more food than what could be considered wholesome for his constitution". (Here, complicated language tries to confuse you.)

(iii) "Madan is Sohan's father" may be told as "Madan is the only son of Soni's mother's father-in-law". (Here, again, complicated language tries to confuse you.)

You must pardon the examiner for taking to such tactics because, as I have already pointed out, it is very difficult for him to frame questions where the wrong answers can be differentiated from the correct ones but still they be very close.

2.2: Strategy

In this chapter, we will see some of these tactics. We shall also see how to defeat the purpose of the examiner, i.e., how not to be misled. The last

chapter gave you a solid concept of argumentation - something that could work as a foundation for you in later chapters. In this chapter, we will look at some informal aspects of the same.

1. Read like a detective

As I have already pointed out, the examiner - in his desperate attempt to frame a tough problem - uses evasive language. **He will use a language that would create one impression but would have another meaning.** In order to defeat this tactic, you should think of yourself as Sherlock Holmes, the greatest detective. Try to develop a "mental magnifying glass" and just as a detective studies the scene of crime in minute details with the help of a magnifying glass, you should also develop the ability to read a question (or a passage) like a detective. Read carefully, read in the most minute details, read with a smile on your face, read while telling yourself:

Dear examiner, you cannot fool me.

The following few examples will illustrate how a careful reading can give a different meaning to a passage that gives a different impression on the first reading.

Ex. 1: "Eat only Brand X low-sugar chocolates. Four out of five doctors surveyed recommend Brand X low-sugar chocolates for their patients who eat chocolates." — an advertisement

Comments: This is an advertisement and you may have seen a similar advertisement somewhere or the other. This is a classic example of how words can be used to highlight the non-significant aspects, underplay the important information and, overall, create a wrong impression.

On a first and casual reading: On a first and casual reading the advertisement may give the impression that 80 per cent of all doctors recommend that people eat Brand X sugarless chocolates.

On a careful, microscopic reading: On a closer examination, however, it will be revealed that the claim is much less ambitious. There are many shortcomings in the advertisement. These are:

1. *Why only Brand X?*: First of all, the advertisement says that you should eat*only* Brand X chocolates. But the subsequent premise does not say that the doctors do not recommend any other brand of sugarless chocolates. They do recommend Brand X, but it is not said that they recommend only Brand X.
2. **Recommendation only for those who eat chocolates:** Second, the adver-

tisement does not claim that the doctors recommend that people should eat chocolates. They recommend Brand X sugarless chocolates but only to *those who eat chocolates*. The claim is that the doctors recommend that patients who eat chocolates should eat sugarless chocolates. Actually, the doctors surveyed might be universally opposed to all chocolate-eating but regard the eating of sugarless chocolates as the lesser of the two evils.

3. **Recommendation only by a section of (and not all) doctors:** Finally, theadvertisement does not make a claim about all doctors. Notice that the advertisement takes the support of four out of five doctors *surveyed*. The ad does not state how many doctors were in the survey. Was their number large enough to reach an unbiased conclusion? It may happen that only five doctors were surveyed and by some stroke of luck, four of them recom-mended brand X. Naturally, a small sample of doctors cannot be said to represent the "true opinion of doctors" in general.

Thus, you may see how clever words can create one impression and mean something else. Once you understand the clever way in which the claim in the example above is qualified, you can see that the claim does not provide any really good reason for eating Brand X sugarless chocolates. Let us look at another example to understand why you should - as I have already pointed out - *read like a detective*.

Ex 2: "Only Good-fight mosquito repellants can give you twenty-four-hourprotection from mosquitoes and that special Good-fight scent" — an advertisement

Comments: On a first casual reading, this advertisement gives an impression that only Good-fight mosquito repellant can give 24-hour protec-tion against mosquitoes. It also means that only Good-fight mos-quito-repellants can give that special Good-fight scent. But, in standard terms, there is a vast difference between 'and' and 'or'. Notice the "and" in the advertisement. See how this "and" gives it a different meaning from what an "or" would have given it. Because of this "and" the meaning of the advertisement can be broken up as:

(1) twenty-four hour protection from mosquitoes,

(2) the special Good-fight s*cent.*

Only a Good-fight mosquito repellant can give **both**(1) **and** (2).

But, this is hardly surprising because no other brand can give the scent of the Good-fight brand. So, other brands can give 24-hour protection from

mosqitoes but cannot provide the Good-fight scent. So, the advertisement uses this fact (which is not false) and words it in a language that gives a meaning that only Good-fight brand can provide 24-hour protection against mosquitoes.

2. Keep the question at the back of your mind

This is a book of analytical reasoning and it omits the general intelligence-testing questions. In this book, those questions are covered that come in a set of five or may be ten. Usually, before you begin to tackle each of the questions independently, you will come across certain directions. These directions will tell you what to do. It would be a good thing if you keep the question for each set at the back of your mind. Whenever you read the direction prepare your mind accordingly for what you are going to do. For example, if you come across a set of questions on assumptions, tell your mind - *"These are questions on assumptions; assumptions are statements taken for granted or assumed; and therefore, I am going to read each statement carefully and wherever I find anything presupposed or taken for granted I am immediately going to notice that."*

This kind of approach prepares you with just the right kind of mindset and you will be more likely to solve a question correctly.

3. Learn to identify key words

In the first tip, I asked you to "read like a detective". This is a reaffirmation of the same advice. Key words or signal-words are very important and they play a decisive role in logical reasoning. Some frequently used key words are

all
always
at least
at most
but can be
cannot be
consecutive
directly
each
every
exactly
except

if
immediately
impossible
must be
never
no fewer than
no more than
none
only once
perfectly
possible
certain
sure
probably
same
some
the least
the most
unless
in spite of
despite
because of

Thus, you can see how the following pairs of sentences create different meanings.

Ex 3: I. *All* history teachers have been guided by archaeological evidences.

II. *Some* history teachers have been guided by archaeological evidences.

Ex 4: I. The history lecture should be held *immediately before* the Physics lecture.

II. The history lecture should be held *before* the Physics lecture.

Ex 5: I. *Although* Indian army was trained in USA, it lost.

II. *Because* the Indian army was trained in USA, it lost.

Ex 6: I. With the rising prices and cuts in subsidies, the small farmers are *certain* to overthrow the ruling party.

II. With the rising prices and cuts in subsidies, the small farmers are *likely* to overthrow the ruling party.

Ex 7: I. Indian political pundits do not have the moral conviction to take sucha strong decision; *at most*, they *can* agree on a national government.

II. Indian political pundits do not have the moral conviction to take sucha strong decision, *yet* they *will* agree on a national government.

4. Do not make unwarranted assumptions

Sometimes, a student misreads some facts or information and this makes him solve the entire problem incorrectly. For example, consider the following illustration.

Ex. 8: In an office, there are five persons A, B, C, D, E - one a peon, one a clerk,one a head clerk, one a manager and one a chief manager. The peon is 18 years old and he is 12 years younger than B, the manager. The clerk is four years younger than the head clerk. The chief manager is 53 years old.

Comments: In the above example, which is a question (I have given an incomplete question because only this much will serve our purpose) of problem-solving, there are two dimensions to the problem. One is the ages of various persons and the other is their designations (ranks). Now, you may notice that wherever both age and rank are given, the person of a lower rank is usually the younger person. This may create an impression in your mind that the clerk and the head clerk are both younger than the manager. But, do the facts point to any such case? No. It may happen that the clerk is 53 years old and the head clerk is 57.

Similarly, some students tend to read too much into an information. Consider the following examples.

Ex 9: If the government is able to contain inflation, the fiscal deficit will alsocome down.... History stands witness to how the government brought down fiscal deficit in the seventies....

Inference: The government had succeeded in containing inflation in the seventies.

Comments: You may take the inference to be true which may not be correct.Or, if such an inference is not given, you may form the same opinion in your mind. This would again be a case of making an unwarranted assumption. The statement says that containing

in-flation is a way of cutting down fiscal deficit. But, it does not say that it works in the reverse as well, i.e., if fiscal deficit is brought down, inflation must have been contained. This would have been true if the statement had said that containing inflation is the *only*way of bringing down fiscal deficit. The inference given is, at best, 'probably true' but not 'definitely true'.

Note I:

In logical terms, this is a case of what is called **hypothetical reaso-ning**. The general format is

Case I : **If p then q.**
p.
Therefore, q.
(correct inference)

Ex (i): If inflation is controlled, fiscal deficit will be controlled.
Inflation is controlled.
Inference: Fiscal deficit will be controlled.
Remark: Correct inference.

Some other variations are:

Case II : **If p then q.**
Not p.
Therefore, not q.
(incorrect inference)

Ex (ii): If inflation is controlled, fiscal deficit will be brought down.
Inflation is not controlled.
Inference: Fiscal deficit will not be controlled.
Remark: Incorrect inference. At best, it is *probably true*.

Case III : **If p then q.**

q.
Therefore, p.
(incorrect inference)

Ex (iii): If inflation is controlled, fiscal deficit will be controlled.
Fiscal deficit is controlled.
Inference: Inflation must have been controlled.
Remark: Incorrect inference. At best, it is *probably true*.

Case IV : **If p then q.**
Not q.
Therefore, not p.
(correct inference)

Ex (iv): If inflation is controlled, fiscal deficit will be controlled.
Fiscal deficit is not controlled.
Inference: Inflation was not controlled.
Remark: Correct inference.

- You must understand that Ex 8 was an example of Case III above.

Note II:

It would be prudent to mention another class of arguments called **disjunctive arguments**. Their formats are:

Case I: **Either p or q.**
Not p.
Therefore, q.
(correct inference)

Ex. (v): Either the government should accept the workers' demands or it should take steps to tackle the strike.
The government has decided not to accept the workers' demands.
Inference: The government should take steps to tackle the strike.
Remark: Correct inference.

Case II: **Either p or q.**
p.
Therefore, not q.
(incorrect inference)

Ex. (vi): Either the government should accept the workers' demands or it should take steps to tackle the strike.
The government has accepted the workers' demands.
Inference: The government need not take any steps to tackle the strike.
Remark: Incorrect inference.

Case III: **Either p or q.**
q.

Therefore, not p.
(incorrect inference)

Ex. (vii): Either I will go or she will come.
She has come.

Inference: *I will not go*.

Remark: Incorrect inference.

Case IV: **Either p or q.**
Not q.
Therefore p.
(correct inference)

Ex. (viii): Either I'll go or she will come. She has not come.
Inference: I'll go.

Remark: Correct inference.]

Ex 10: A is 200 m from B and B is 300 m from C. Therefore, A is 500 m from C.

Comments: This is a very easy fact to tackle but students get misled in it. They make an unwarranted assumption that A, B and C lie on a straight line and that B lies between A and C. And, thus, they conclude that A is 500 m from C. But, this will be wrong if A was not in a straight line with B and C or if A and C were both on the same side of B.

Summary

- Usually examiners try to put some difficulty in a question by using tactics such as highlighting unimportant facts, downplaying the important facts, using evasive language etc.
- To beat these tactics you should

  (1) read as if you were a detective, i.e., read the facts very carefully.
  (2) keep the question-type at the back of your mind.
  (3) learn to identify key words.
  (4) not make any unwarranted assumptions.

Chapter Three

Assumptions

3.1: Introduction

We have seen in chapter 1 that an assumption is the hidden part of an argument. In many examinations we come across questions wherein the candidate is asked to identify an assumption. In this chapter, we will see how to identify an assumption. Let us begin by looking at the common format of the question. (There are other formats too of asking the question as seen in Exercises 3B and 3C.)

3. 2: Format of the problem (What is the problem like?)

Directions: In each question below a statement (or a passage) is followed by two assumptions numbered I and II. An assumption is some-thing supposed or taken for granted. You have to consider the statement and the following assumptions and then decide which of the assumptions is implicit in the statement. Give answer:

1) if only assumption I is implicit.
2) if only assumption II is implicit.
3) if either assumption I or assumption II is implicit.
4) if neither of the assumptions is implicit.
5) if both the assumptions are implicit.

Statement: "Take our reasoning-improvement courses and brighten your chances of success.'' — an advertisement

Assumptions: I. Good reasoning ability will help to succeed.

II. The courses offered are of good quality.

3.3: Theoretical discussion

The above is a sample of such problems. The given statement may be a passage, a single line, an advertisement, a notice, an appeal or any such thing. These days, more advertisements/appeals/advices/notices are seen than simple statements/passages. Anyway, first of all, we should see: what does an assumption mean and how can it be detected?

3.3.1: What is an assumption?

An assumption is something which is assumed, supposed and taken for granted. When somebody says something he does not put every thing, every aspect of his idea into words. There is a lot which he leaves unsaid. *That which he leaves unsaid, that which he takes for granted, may be defined as an assumption.* Do you remember your childhood days when you used to describe every detail, every subsequent step, not omitting even the rough work, whenyou used to solve your arithmetic questions? You still solve many such questions (for your Quantitative Aptitude paper), don't you? But do you incorporate every step even now? No. Now you jump over the easier steps (ad-dition, substraction, etc., for example). This is because you assume that the one who reads your solution will know these elementary operations, that he will also assume that you know these operations. This is an example of assumption. Take another example from your everyday life. Suppose an exciting one-day international cricket match is going on. The other country has piled up a good total and India, in reply, have lost two quick wickets. Now, Tendulkar comes to bat. You are a die-hard fan of Tendulkar and, despite the odds, you are so excited that you can't help exclaiming - "Tendulkar is a fine batsman. India shall win this match." Now, in this statement of yours, you co-relate two facts: one, that Tendulkar is a fine batsman and, two, that India shall win. How do you relate the two? Obviously, by assuming that a fine batsman may help his team win a match. This is, therefore, another example of assumption.

Ideal way of arguing	**Actual way of arguing**
1. Tendulkar is a fine batsman.	1. Tendulkar is a fine batsman.
2. A fine batsman is likely to help his team win the match. [This statement is left unsaid because it is taken for granted.	2. So, India should win the match.

Hence it is an assumption.] 3. So, India may win the match.	

3.4: Some simple cases of assumption

Let us solve a few examples now to develop a better idea of the subject matter.

Ex.1

Statement: "According to me, you should get your child examined by a specialist doctor."

Assumption: Specialist doctors are able to diagnose better than ordinary doctors.

Explanation: The assumption is valid. One is advising (perhaps his friend) toget his child examined by a specialist doctor. Obviously, he must be assuming that specialist doctors diagnose better than ordinary ones, otherwise he would not have advised thus.

Ex. 2

Statement: The book is intended to guide the layman to study yoga in the absence of a teacher.

Assumptions: **I.** A teacher of yoga may not be available to everyone.

II. Yoga can be learnt with the help of a book.

Explanation : Both assumptions are correct. The book is intended to teach yoga in the absence of a teacher. This means that the absence of teachers is a possibility: hence I is valid. That the book intends to teach yoga implies that II is also valid.

Ex. 3

Statement: The next meeting of the Governing Body of the institute will be held after one year.

Assumption: The institute will remain in function after one year.

Explanation: The assumption is valid. The common practice is to hold meetings of only those bodies that are functional. So, if it is being announced that the next meeting will be held after one year, the announcers must be assuming that the institute will remain functional after one year.

Ex. 4
Statement: The girl is too clever to fail in the examination.
Assumption: Very clever girls do not fail in the examination.
Explanation: The assumption is correct. The statement says that the girl won't fail (effect) because she is very clever (cause). Obviously, it is assumed that very clever girls do not fail.

Ex. 5
Statement : Of all the TV sets manufactured in India, X brand has the largest sale.
Assumption: The sale of all the TV sets manufactured in India is known.
Explanation: The assumption is valid. Here, it is claimed that *of all* the TV sets manufactured, X brand has the largest sale. No such claim could be made if the sale figures *of all* brands was not known. Hence, it must have been implicitly assumed in the statement that the sale figures of all brands is known.

3.5: More on Assumptions

The difference that a single word/phrase can make

(i) Definitive Words

The task of determining the validity of an assumption, as the foregoing examples suggest, is not very difficult. Yet, it is delicate enough to demand an alert and cautious approach on your part. You must, therefore, develop an awareness of the difference that can be created by the use of different words.

There are some words that lend a greater degree of emphasis — more weight — on the sentence than some others. These words impart a kind of exclusiveness to the sentence and, thereby, reduce the range or scope of the sentence. Some of these key words are: '**only**', '**best**', '**strongest**', '**all**', '**definitely', 'certainly'** etc. All these words have some kind of certainty associated with them and you should be able to understand it. Consider the following examples.

Ex. 6

Statement: The BoP crisis has worsened and the government should make every effort to boost exports.

Assumptions: **I.** Exports are the best solution to avert the BoP crisis.

II. Exports are a reasonably good solution to the BoP crisis.

III. Exports are the only solution to overcome the BoP crisis.

IV. The BoP crisis will definitely be averted by boosting exports.

V. The BoP crisis will probably be averted by boosting exports.

Explanation: In the above example, II and V are valid assumptions while I, III and IV are not. The reason is that I, III and IV use definitive words such as 'best', 'only' and 'definitely'. The statement in the question mentions a fact that the BoP crisis has worsened and then makes a suggestion that exports should be boosted. Undoubtedly, the author of the advice is assuming that exports should help the country overcome the BoP crisis or that exports are a good (or, say, 'reasonably good') solution to BoP crisis. But there is no hint whatsoever that exports are the **only** solution or the **best** solution or a **definitely** effective solution.

The above example illustrates how the use of definitive words may lend a different '*tone*' to a sentence and how one should be careful about them.

(ii) Conjunctions

When a statement consists of two clauses and the clauses are connected by a conjunction, the nature of the conjunction used goes a long way in detecting the assumption that the author must have made. Some significant conjunctions are: 'because', 'so', 'therefore', 'despite', 'in spite of', 'even after', 'although', 'as', 'as a result of'. When one clause of the sentence mentions an event / fact / suggestion called **A** (let us say) and the other clause

of the sentence mentions another event/fact/suggestion called **B,** then, depending upon the conjunction, the following assumptions can be concluded.

(a) A (because / as a result of) B ⇒ It is assumed that B leads to A.

Ex. 7

Statement: The literacy scenario will improve after the national awareness drive.

Valid Assumption: National awareness drive on literacy is a good means of improving the literacy rate.

(b) A (therefore / hence) B ⇒ It is assumed that A leads to B.

Ex. 8

Statement: The record has been broken by an Indian, therefore all Indians must be feeling very proud.

Valid Assumption: Breaking of a record by a fellow countryman makes other citizens proud.

(c) A (even after / in spite of / despite) B ⇒ It is assumed that usually A does not occur when B occurs.

Ex. 9

Statement: There was a murder last night even after the police had arranged for maximum security around the area.

Valid Assumption: Arrangement of maximum security is usually sufficient to prevent murders.

(d) not A (even after/in spite of/despite) B ⇒ It is assumed that usually A occurs when B does.

Ex. 10

Statement: There was no outbreak of cholera this year in spite of the continuous deposition of rain water for four days.

Valid Assumption: Deposition of rain water usually leads to cholera.

(iii) Connotive phrases

Sometimes it so happens that an author would say what he wants to say but you may miss that he has said any such thing because the words that the author uses to say it are slightly indirect, slightly unconventional. We shall call these *connotative* or *connotive phrases*. For example, "It is true that ..." can be written as

(a) It would be correct to say that...

(b) Even the most sceptic of men would agree that...

(c) It can be claimed with reasonable degree of truth that...

Similarly, "It is false" can be written as:

(a) It would be highly misleading to say that ...

(b) Nothing could be farther from truth than....

(c) It is baseless to say that ....

Although, the role of connotative phrases in the type of questions that are asked these days is very limited, they have been mentioned so they do not escape your eyes whenever you come across them.

3.6 : Some standard categories of assumptions

In the section titled ‘some simple cases of assumption’ we have seen diverse examples of statements and evaluated their assumptions. Although, it is not very difficult to detect or evaluate an assumption, it would be better if we categorise the statements into some standard types so that a deeper understanding of the subject-matter could be achieved. Some of these standard categories are:

(a) Existence / Non-existence of the subject

This category makes a very simple assumption that what is being talked about must be existing. Similarly, if its absence is being talked about, it must not be existing.

Ex. 11

Statement: Love marriages mostly end in divorce.

Valid Assumptions: **I.** Love marriages do take place.

II. There are cases of divorce.

Note: Above was an example where we assume existence of what is being talked about.

Ex. 12

Statement: The company will not go into profit unless a foreign-trained manager is brought.

Valid Assumption: At present, there are no foreign-trained managers in the company.

Note: Above was an example where we assume non-existence of something whose absence is being discussed.

(b) Adjectives

We know that an adjective is something which denotes a quality of the subject. Naturally then, if an adjective is attached (unconditionally) to any subject, it must be assumed that "the subject does have the quality as denoted by the adjective". For example:

Ex. 13

Statement: The social nature of man leads to cooperation and coordination within the society.

Valid Assumption: Man is social.

Ex 14

Statement: The bright-red sky looked beautiful enough to bring out the poet in him.

Valid Assumption: The sky appears bright-red sometimes.

(c) Cause-effect

Some statements mention a cause-and-effect relationship. The conjunctions between the clauses are usually 'therefore', 'as', 'hence', 'thus' etc. In all such cases it would be a valid assumption to say that " this cause leads to this effect". There may be different versions of the question: sometimes the cause-effect relationship may be explicitly stated (see Ex 15),

sometimes it may be in the form of "because no cause, hence no effect"(see Ex 16) and sometimes in the form of " Although cause, yet no effect" (see Ex 17).

Ex 15

Statement: It rained last night. The grounds must have become wet.

Valid Assumption: When it rains, grounds become wet.

Ex 16

Statement: As you do not have the expertise, you cannot be selected.

Valid Assumption: Expertise is essential for selectiion.

Ex 17

Statement: Although the city was under knee-deep water for four days in this monsoon, there was no outbreak of cholera.

Valid Assumption: Water-logging usually leads to cholera.

(d) Course of action

Sometimes a fact / report / observation/ study / data is given followed by a suggested course of action. Let us call the given fact / data etc. X and the suggested course of action Y. Then, either some negative aspect of X is mentioned and a course of action Y is suggested or some positive aspect of X is mentioned and a course of action Y is suggested. In the former case, i.e., when some negative aspect of X is mentioned, the following assumptions will be valid:

(i) X needs improvement. (see Asmp I, Ex 18) [Asmp stands for Assumption)

(ii) The negative aspects of X (if mentioned) are undesirable/harmful. (see Asmp. II, Ex 18)

(iii) Y will improve X. (see Asmp III, Ex 18)

(iv) The advantages of adopting Y far outweigh the disadvantages (if any)of not adopting it.(see Asmp IV, Ex 18)

Ex 18

Statement: The working atmosphere in our public sector units can only be described as indisciplined and uncoordinated. Therefore, some harsh disciplinary actions need to be taken.

Valid Assumptions:

I. The working atmosphere of our public sector units is not ideal / needs improvement.

II. Indiscipline and lack of coordination are undesirable in any industry.

III. Taking harsh disciplinary action would improve the working atmosphere of our public sectors.

IV. The benefits outweigh the disadvantages (if any) of taking harsh disciplinary actions.

Similarly, you may contemplate and evaluate the assumptions if any positive aspect of X is mentioned and a course of action Y is suggested. The

logic will be exactly on the same lines.

(e) Analogy

In some cases it is concluded that, because a cause leads to some effect in one type of objects, it will also lead to the same effect in another type of objects. This is an example of reasoning by analogy. In such cases, it is assumed that " The effect of the cause on both the species is similar".

Ex 19

Statement: Properly-fed and starved monkeys were made to run through a maze (puzzle). It was seen that starved monkeys could not make their way fast. This proves that the lower intelligence of people in poor countries is the result of malnutrition.

Valid Assumption: The effect of malnutrition on the intelligence of the monkeys is parallel to those on human beings.

(f) Advertisements/notices/appeals

In the examinations of today, the statements are usually in the form of an advertisement or an official notice or a notice issued in public interest or an appeal.

I assume that you can appreciate that advertisements (see Ex 20) are usually given by firms / companies, official notices (see Ex 21) within an office, appeals (see Ex 22) by governments or voluntary organisations and public interest notices by government or government bodies (see Ex 23). In all these cases the following assumptions will be considered valid:

(i) An advertisement / appeal / notice does have some effect (see Asmp I, Ex 20, 21, 22, 23).

(ii) In case of an advertisement, that which is being highlighted is looked for and expected by the people (see Asmp II, Ex 20).

(iii) In case of a public-interest notice, it is the duty of those who issue it, to issue such notices (see Asmp II, Ex 23).

(iv) In case of a public-interest notice, what is being advised must be beneficial for people and its non-practice harmful in some way (see Asmp III, IV, Ex 23).

(v) In case of an appeal, the reason for issuing it exists (you can determine the reason using your common sense) (see Asmp II, Ex 22).

(vi) In case of an official notice, the effect of its implementation will be