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SYLLABUS COVERED

Objective Logical Reasoning

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Preface

Welcome to the world of logical reasoning, a vital component of various competitive examinations. This book ***'Objective Logical Reasoning'*** has been meticulously crafted to help you master the art of logical & Analytical reasoning and ace your exams with confidence.

In today's dynamic and competitive world, the ability to reason effectively stands as a fundamental skill. Whether you're preparing for competitive exams, aiming to enhance your cognitive abilities, or simply seeking to sharpen your logical thinking, this book is designed to be your trusted companion.

The Logical reasoning sections delve into the intricacies of language, testing your ability to decipher complex information, draw inferences, and discern patterns within the context of words and sentences. On the other hand, the non-verbal reasoning sections challenge your visual acumen, spatial awareness, and logical thinking through an assortment of figures, diagrams, and patterns.

Some unique features of this book are:

- **Crisp Revision:** Concepts Review & Mind Maps offer bite-sized and just-in-time revision tools.
- **Extensive Practice:** With More than 700 Previous year questions from various competitive exams segregated based on difficulty level.
- **Concept Clarity:** Easy to Grasp theory complemented by Solved examples.
- **Expert Tips:** Helps you get expert knowledge to master the Reasoning & Analytical Ability on your first attempt.
- **Learning Objectives:** Outlines what aspirant should understand or be able to achieve after the course
- **To-the-point theory:** The book provides concise and clear explanations of Logical & Analytical Reasoning concepts without overwhelming readers with too much information.
- **Quick and easy techniques:** The book offers shortcuts and easy-to-follow techniques to help readers solve typical exam questions quickly and efficiently.

In conclusion, this book aims to provide a one-stop solution for all the aspirants who are preparing for competitive exams.

Our books have always been well received by our readers and this is a testament to our research-oriented approach. Our learning pedagogy supplements our editorial research and makes our book current and relevant. We hope our resources will help students to supplement their examination preparation strategy and help them secure high scores.

We wish our readers great success ahead!

Happy learning!

Team Oswaal

Deciphering Logical Reasoning

In competitive examinations, a balanced proficiency in Logical reasoning is essential. These tests aim to gauge an individual's overall cognitive aptitude, including analytical skills, logical reasoning, problem-solving abilities, and adaptability to various question formats.

1. **Logical Reasoning:**
   - **Reading Comprehension:** Understand and analyze passages, extracting key information, and inferring implied meanings.
   - **Critical Reasoning:** Evaluate arguments, identify assumptions, draw conclusions, and assess the validity of statements.
   - **Syllogisms and Logical Deductions:** Apply logical rules to assess the validity of conclusions drawn from given statements.
   - **Analogies and Relationships:** Recognize patterns, similarities, and relationships between words or concepts.
   - **Coding-Decoding:** Decipher coded language or symbols based on given patterns or rules.
   - **Word Problems:** Solve problems involving verbal statements, equations, and logical deductions.
2. **Strategies for Preparation:**
   - **Practice Regularly:** Solve a variety of problems regularly to improve speed and accuracy.
   - **Understand Concepts:** Grasp the underlying principles and rules governing different types of reasoning problems.
   - **Time Management:** Practice time-bound solving to manage the limited time available in exams effectively.
   - **Review Mistakes:** Learn from errors to understand the reasoning behind correct solutions.
   - **Mock Tests:** Take simulated exams to simulate real test conditions and assess your readiness.
3. **Effective Techniques:**
   - **Elimination Method:** Eliminate improbable choices to increase the probability of selecting the correct answer.
   - **Backtracking:** Revisit questions if time permits, but avoid excessive dwelling on a single problem.
   - **Visualization:** Develop visual methods or mental imagery to tackle non-verbal reasoning problems effectively.
   - **Keyword Analysis:** Pay attention to keywords or cues in verbal reasoning questions to derive accurate answers.
   - **Relate to Real Life:** Relate problems to real-life scenarios to understand and solve them efficiently.
   - Understanding and practicing both verbal and non-verbal reasoning concepts extensively can significantly enhance performance in competitive examinations.

Importance of Logical Reasoning

Logical & Analytical reasoning play crucial roles in various competitive examinations by assessing different cognitive abilities:

- **Critical Thinking:** Verbal reasoning assesses your ability to comprehend and evaluate written information, draw conclusions, and think critically about the presented material.
- **Language Skills:** It evaluates vocabulary, grammar, and reading comprehension, which are fundamental in most competitive exams.
- **Logical Deduction:** Tests often include questions related to syllogisms, logical reasoning, and argument analysis, checking your ability to follow and draw logical conclusions from written information.
- **Visual-Spatial Skills:** This section assesses your ability to understand and analyze visual information, such as patterns, sequences, and relationships between shapes or objects.
- **Abstract Thinking:** Non-verbal reasoning evaluates your capability to recognize and manipulate abstract concepts and patterns.
- **Problem-Solving:** Questions may involve series completion, analogies, classifications, and spatial reasoning, which are crucial for problem-solving skills.

In competitive examinations, Logical & Analytical reasoning sections aim to gauge different aspects of intelligence and cognitive abilities. They help examiners assess candidates' logical thinking, problem-solving capabilities, and ability to interpret information accurately, making them significant parts of such assessments. Strong performances in these sections often indicate a candidate's adaptability, quick thinking, and overall intellectual aptitude, which are valued across various professions and academic pursuits.

Tips to Crack Logical Reasoning in the First Attempt

The Reasoning Ability is a crucial section in many competitive exams in India, such as bank exams, UPSC, SSC, CAT, and other MBA entrance exams. Reasoning Ability has a major role in competitive exams in India as it tests essential knowledge and skills required for various fields & evaluates analytical and logical thinking skills. Cracking the Reasoning Ability section of a competitive exam in the first attempt requires hard work, dedication, and a strategic approach. Here are some tips that can help you achieve success in your first attempt:

1

Think Right

Calming yourself and thinking positive is the first and the best course of action that one is required to take. Think and believe that the exam goal is achievable if worked upon smartly.

2

Start studying from the beginning

All the aspirants are aware of how vast, comprehensive and detailed the syllabus of the Reasoning Ability Section is. To crack the exam in the first attempt you have to start preparing for the exam from the beginning of your 12th class. It is only then that you will be able to complete the entire syllabus. Following this approach will also allow you plenty of time to revise.

3

Respect the syllabus and arrange the materials accordingly

While preparing for the Reasoning Ability nothing can be labelled as less important. Questions can come from the most unexpected topics too. Laying down your whole syllabus in front of you will help you to decide on the study material you require.

4

Get the right tools and study material

Gathering and preparing from the appropriate study material is something you cannot be ignorant towards. You can refer to Oswaal 'Objective Logical Reasoning to enhance your preparation. the is on the lines of the current syllabus and can be entrusted upon before the examination.

5

Schedule total time for each subject

Creating a schedule which gives due time to all the subjects is a must. Giving proper time to all the subjects daily will help you cover the syllabus on time, giving you enough time for revision.

6

Understand the concepts

No one can crack the Reasoning Ability exam just by mugging up all the concepts and topics. The syllabus of the exam is in-depth such that you need to understand every concept.

7

Practice a lot of Sample Papers

Oswaal 'Objective Logical Reasoning' will not only help you in understanding the examination pattern, but they will also help you in figuring out the questons that come up every year and this might give you an edge over other students. The includes all the typologies of Questons asked in the Examination, Previous Years Papers with solutions, Mind Maps, etc. Referring to various sample papers might also help you in comprehending the areas which require more work.

8

Revise whenever you get me

Make sure you revise as much as possible. The revision will help you in keeping the concepts fresh in your mind.

9

Analysing your performance

While you are solving papers, make sure you keep a track of time i.e. how much time does it take to solve one section or one question? Make a report of the sections and type of questions which take minimum and maximum time.

Exam-wise Weightage Analysis

Chapters	SSC-CHSL	SSC-CGL	IBPO PO	IBPS Clerk	CAT	LIC AAO	RRB	Airforce Group X & Y
Logical Deduction	2-4	2-3				3-5	4-6	6-8
Statements and Arguments	2-4	2-3	3-5	2-4	1-2		3-5	4-6
Statements and Assumptions	1-3	1-2					2-4	4-6
Courses of Action	2-4	2-3	3-5	3-5		2-3	3-5	4-6
Statements and Conclusions	1-3	1-2	3-5	2-4		2-4	2-4	2-4
Deriving Conclusions and Passages	2-3		5-10	5-10		5-7		
Theme Detection								
Cause and Effect Reasoning	1-2	1-2	3-5	1-3		2-3	1-3	2-4
Assertion and Reason	1-2	1-2						2-4
Syllogism		1						
Decision Making								
Critical Reasoning		1-2						

Statements and Arguments

Definitions

- **Statement:** A claim, assertion or proposition made about a topic or an issue
- **Argument:** Reasons or justifications given in support of or against a statement
- **Assumption**

Strategies

- Read statements carefully
- Analyze logical connections
- Consider alternative perspectives
- Identify gaps in reasoning
- Avoid stereotypes and biases

Type of Questions

- Identify assumptions
- Assess arguments
- Draw conclusions
- Evaluate inferences

Common Errors

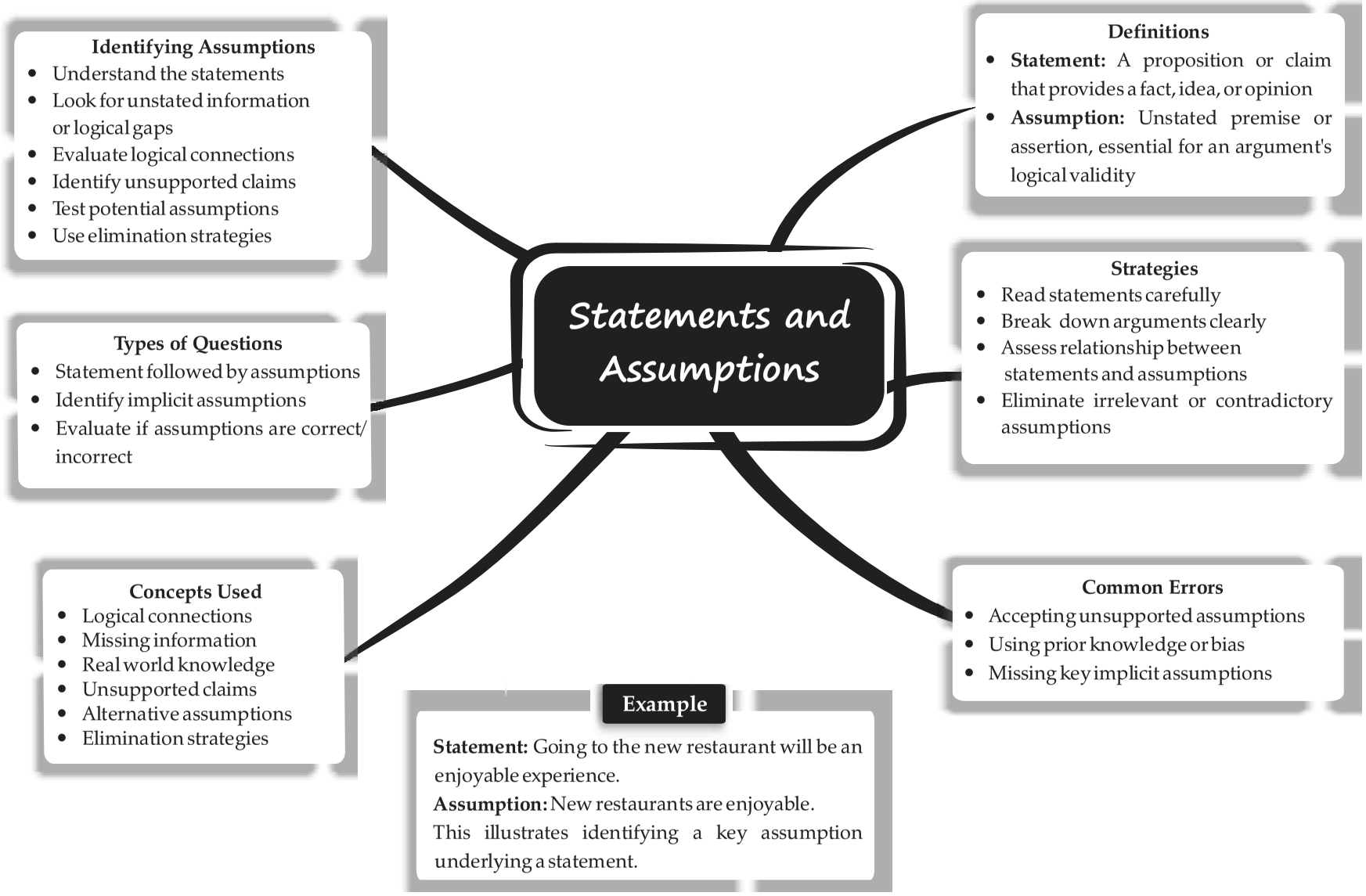
- Jumping to conclusions
- Missing key assumptions
- Illogical inferences

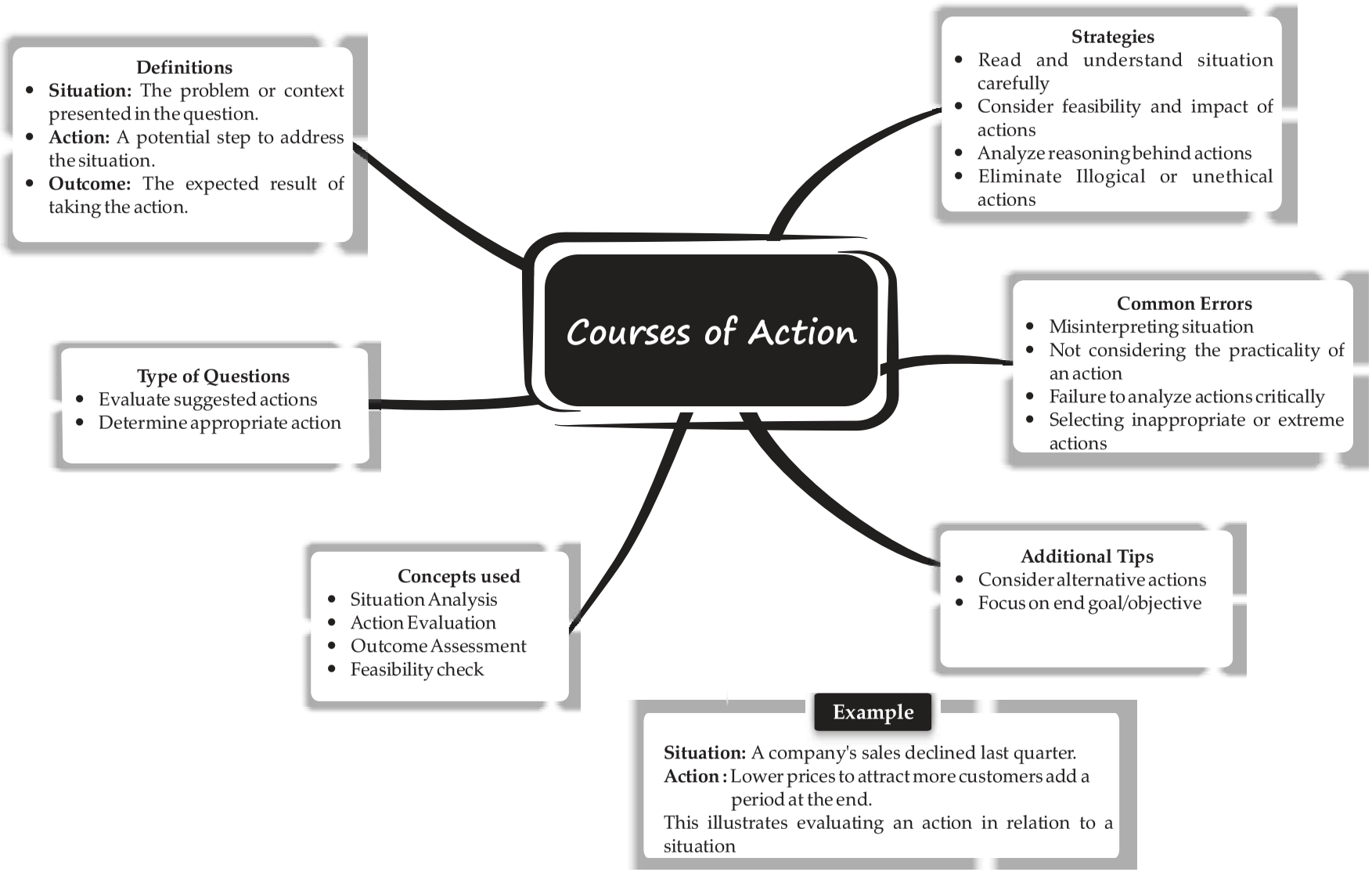
Concepts used

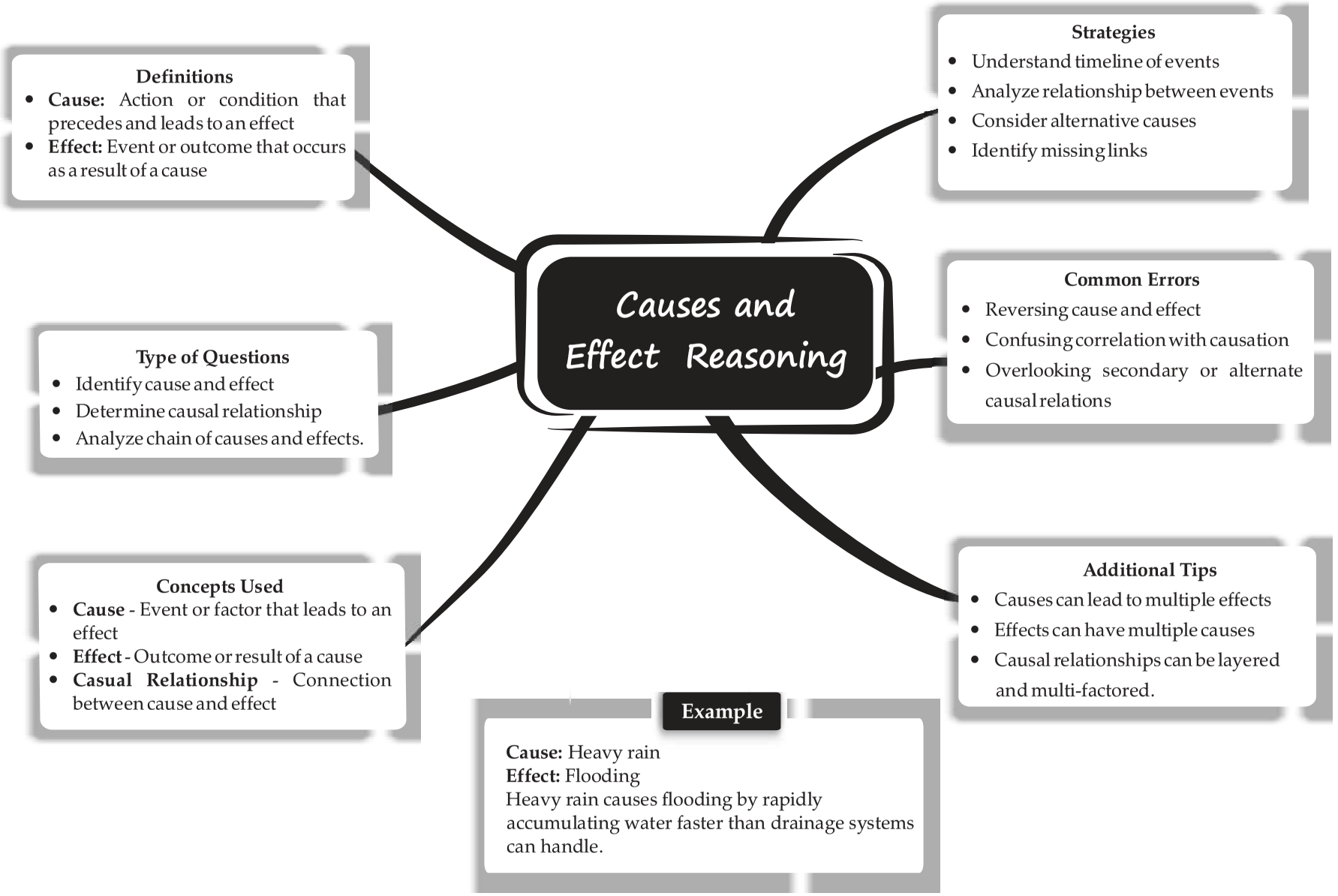
- **Logical Flaw:** A central loophole in the reasoning to arrive at the argument
- **Scope of an argument:** The logical validity of an argument depends on the scope of the given statements.
- **Conclusions:** Inferences or interpretations drawn from the statements
- **Inferences:** Deductions made based on the statements and assumptions

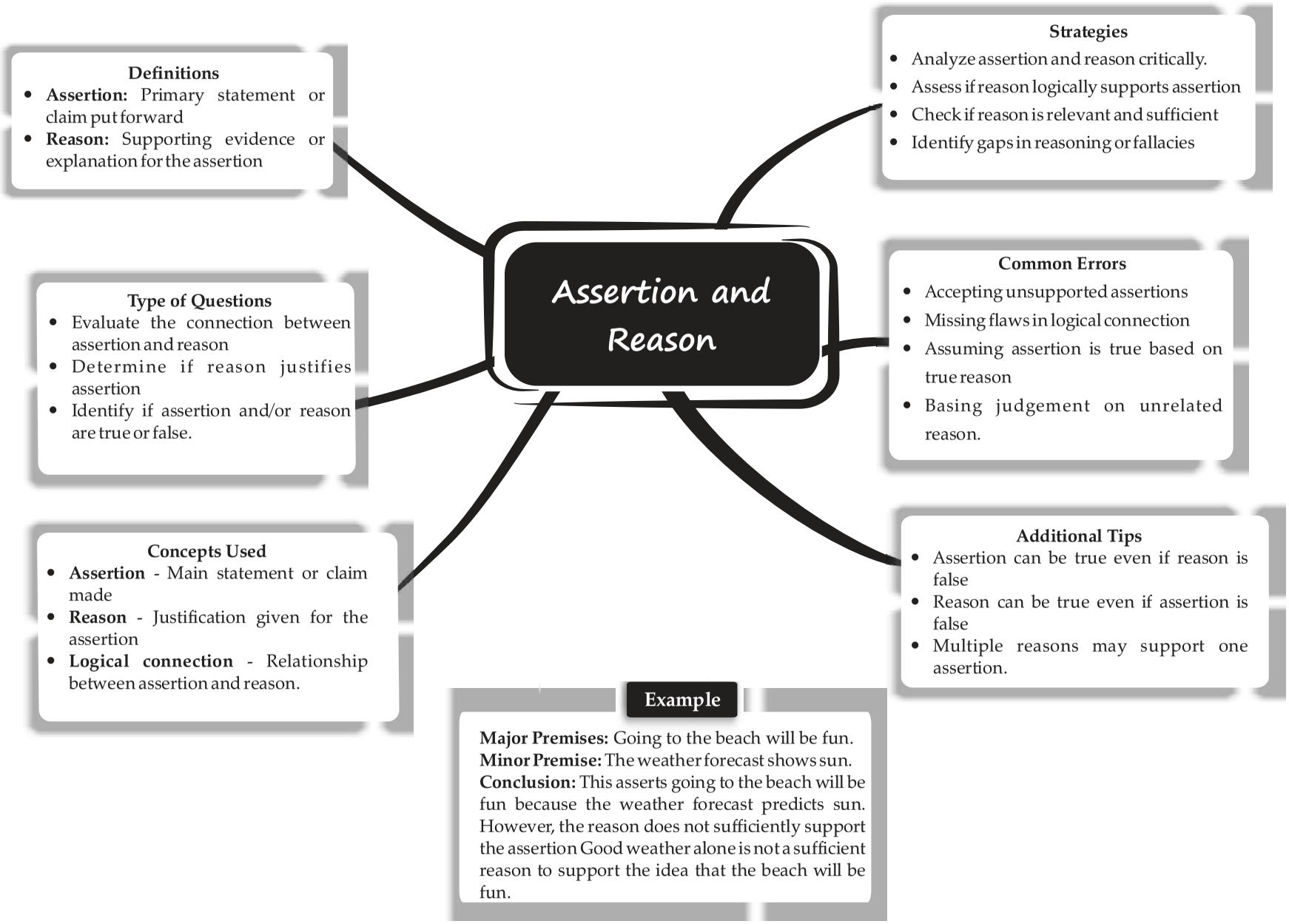
Example

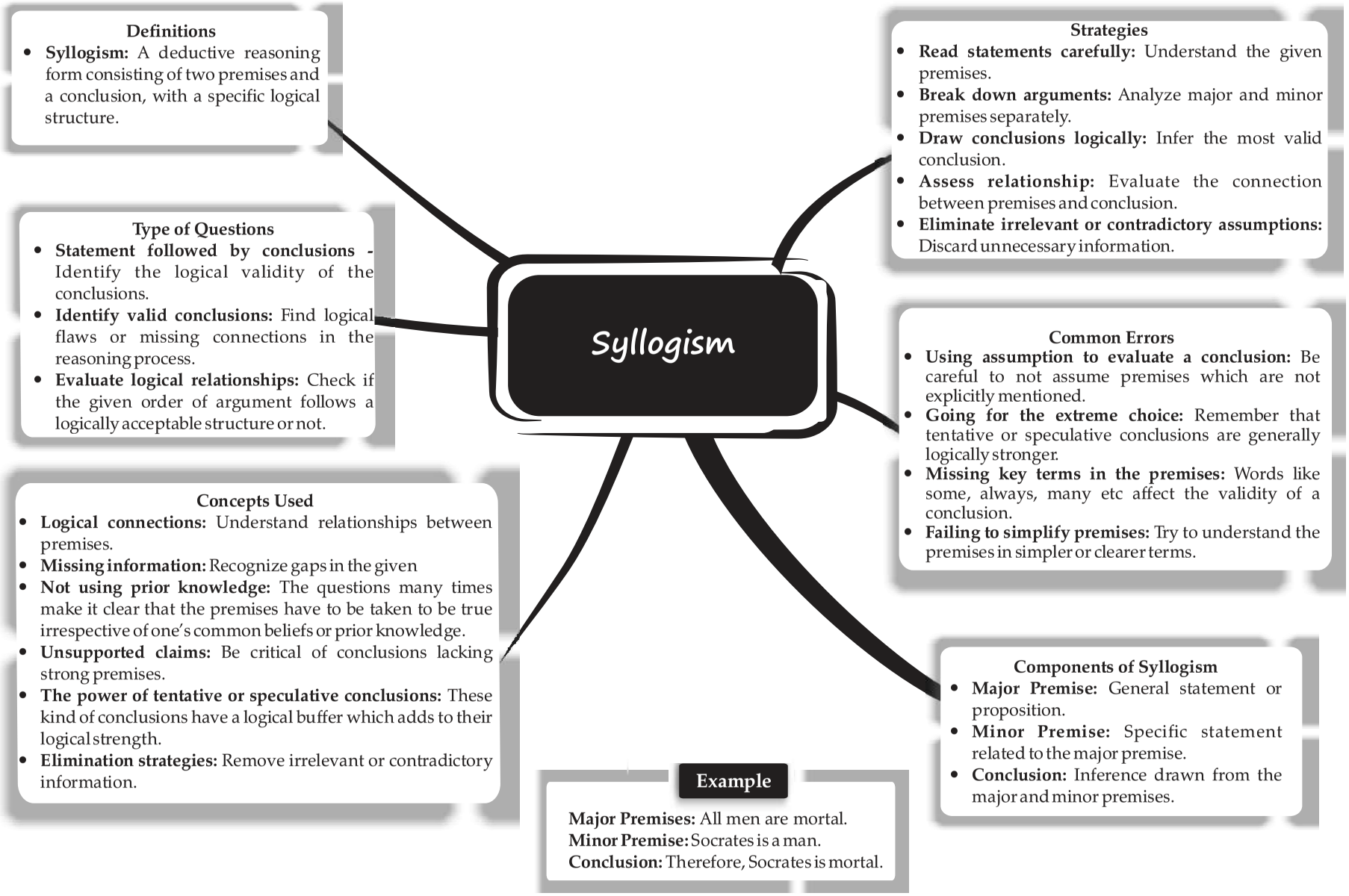
Statement : The new phone is the best in the market.
Argument : It has the most advanced features.
This illustrates analyzing a statement and a related argument.

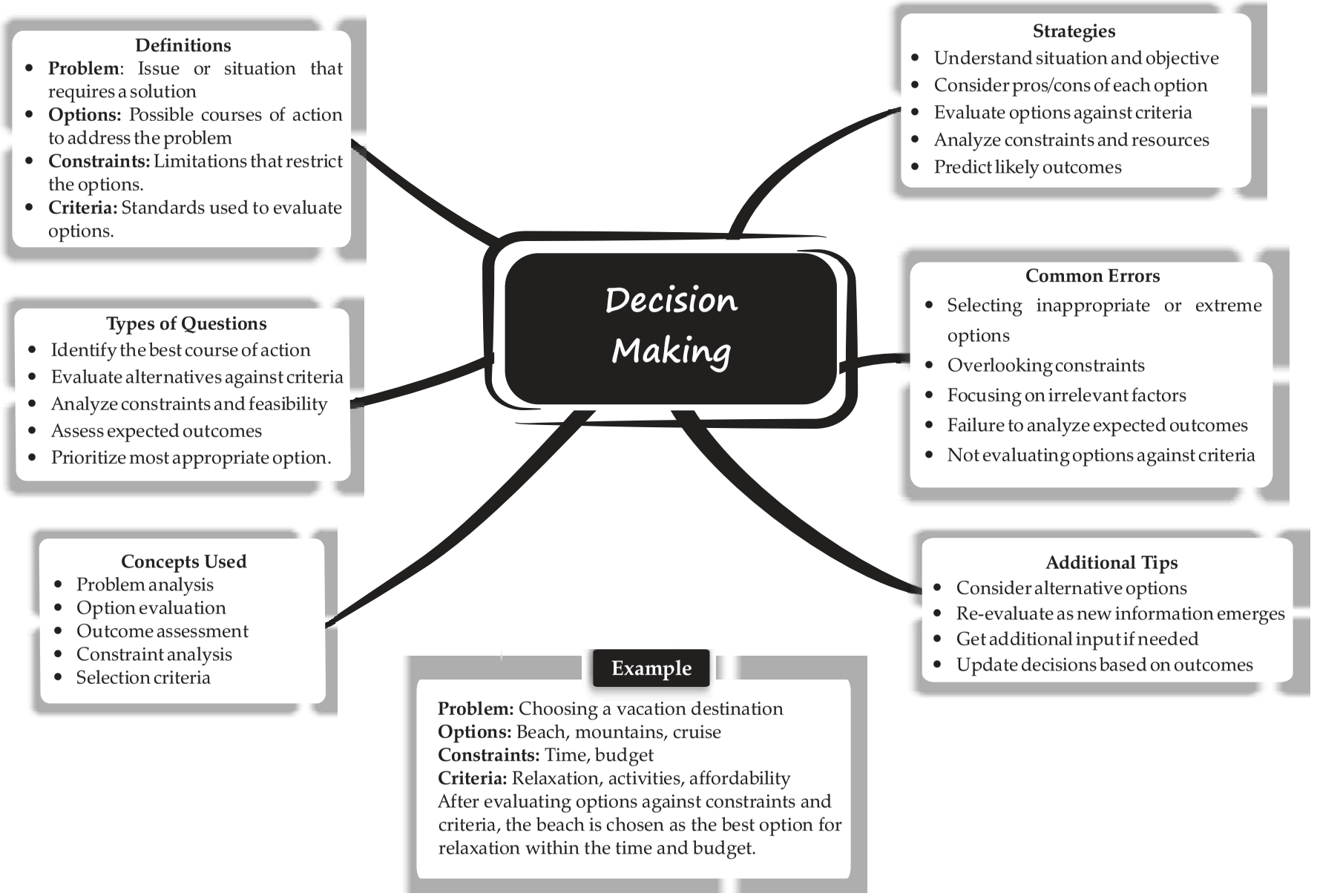

Statements and Assumptions
Identifying Assumptions
Understand the statements
Look for unstated information or logical gaps
Evaluate logical connections
Identify unsupported claims
Test potential assumptions
Use elimination strategies
Types of Questions
Statement followed by assumptions
Identify implicit assumptions
Evaluate if assumptions are correct/ incorrect
Concepts Used
Logical connections
Missing information
Real world knowledge
Unsupported claims
Alternative assumptions
Elimination strategies
Definitions
Statement: A proposition or claim that provides a fact, idea, or opinion
Assumption: Unstated premise or assertion, essential for an argument's logical validity
Strategies
Read statements carefully
Break down arguments clearly
Assess relationship between statements and assumptions
Eliminate irrelevant or contradictory assumptions
Common Errors
Accepting unsupported assumptions
Using prior knowledge or bias
Missing key implicit assumptions
Example
Statement: Going to the new restaurant will be an enjoyable experience.
Assumption: New restaurants are enjoyable.
This illustrates identifying a key assumption underlying a statement.

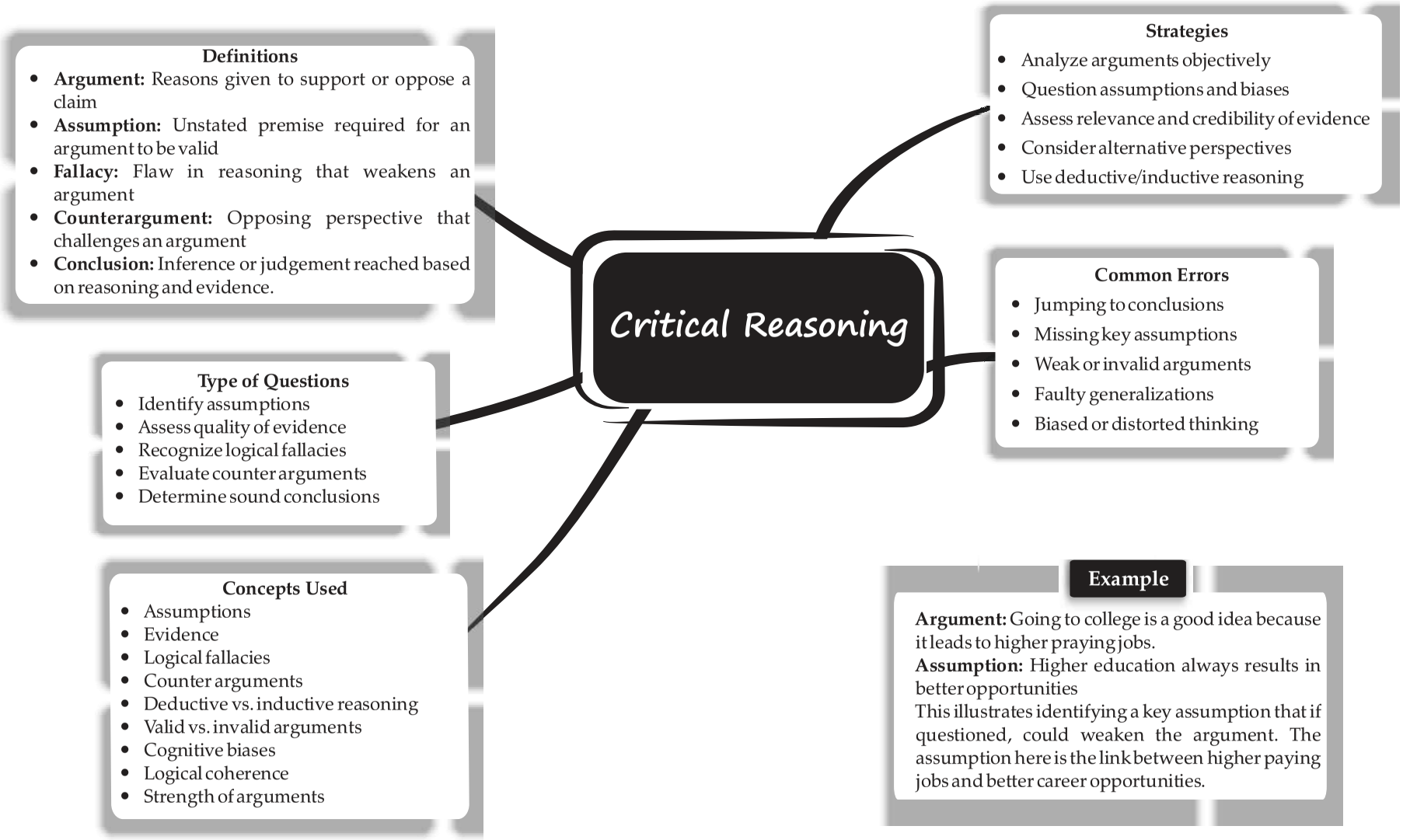

Courses of Action
Definitions
Situation: The problem or context presented in the question.
Action: A potential step to address the situation.
Outcome: The expected result of taking the action.
Strategies
Read and understand situation carefully
Consider feasibility and impact of actions
Analyze reasoning behind actions
Eliminate Illogical or unethical actions
Type of Questions
Evaluate suggested actions
Determine appropriate action
Common Errors
Misinterpreting situation
Not considering the practicality of an action
Failure to analyze actions critically
Selecting inappropriate or extreme actions
Concepts used
Situation Analysis
Action Evaluation
Outcome Assessment
Feasibility check
Additional Tips
Consider alternative actions
Focus on end goal/objective
Example
Situation: A company's sales declined last quarter.
Action : Lower prices to attract more customers add a period at the end.
This illustrates evaluating an action in relation to a situation


Causes and Effect Reasoning
Definitions
Cause: Action or condition that precedes and leads to an effect
Effect: Event or outcome that occurs as a result of a cause
Strategies
Understand timeline of events
Analyze relationship between events
Consider alternative causes
Identify missing links
Type of Questions
Identify cause and effect
Determine causal relationship
Analyze chain of causes and effects.
Common Errors
Reversing cause and effect
Confusing correlation with causation
Overlooking secondary or alternate causal relations
Concepts Used
Cause - Event or factor that leads to an effect
Effect - Outcome or result of a cause
Casual Relationship - Connection between cause and effect
Additional Tips
Causes can lead to multiple effects
Effects can have multiple causes
Causal relationships can be layered and multi-factored.
Example
Cause: Heavy rain
Effect: Flooding
Heavy rain causes flooding by rapidly accumulating water faster than drainage systems can handle.


Assertion and Reason
Definitions
Assertion: Primary statement or claim put forward
Reason: Supporting evidence or explanation for the assertion
Strategies
Analyze assertion and reason critically.
Assess if reason logically supports assertion
Check if reason is relevant and sufficient
Identify gaps in reasoning or fallacies
Type of Questions
Evaluate the connection between assertion and reason
Determine if reason justifies assertion
Identify if assertion and/or reason are true or false.
Common Errors
Accepting unsupported assertions
Missing flaws in logical connection
Assuming assertion is true based on true reason
Basing judgement on unrelated reason.
Concepts Used
Assertion - Main statement or claim made
Reason - Justification given for the assertion
Logical connection - Relationship between assertion and reason.
Additional Tips
Assertion can be true even if reason is false
Reason can be true even if assertion is false
Multiple reasons may support one assertion.
Example
Major Premises: Going to the beach will be fun.
Minor Premise: The weather forecast shows sun.
Conclusion: This asserts going to the beach will be fun because the weather forecast predicts sun. However, the reason does not sufficiently support the assertion Good weather alone is not a sufficient reason to support the idea that the beach will be fun.


Syllogism
Definitions
Syllogism: A deductive reasoning form consisting of two premises and a conclusion, with a specific logical structure.
Type of Questions
Statement followed by conclusions - Identify the logical validity of the conclusions.
Identify valid conclusions: Find logical flaws or missing connections in the reasoning process.
Evaluate logical relationships: Check if the given order of argument follows a logically acceptable structure or not.
Concepts Used
Logical connections: Understand relationships between premises.
Missing information: Recognize gaps in the given
Not using prior knowledge: The questions many times make it clear that the premises have to be taken to be true irrespective of one's common beliefs or prior knowledge.
Unsupported claims: Be critical of conclusions lacking strong premises.
The power of tentative or speculative conclusions: These kind of conclusions have a logical buffer which adds to their logical strength.
Elimination strategies: Remove irrelevant or contradictory information.
Strategies
Read statements carefully: Understand the given premises.
Break down arguments: Analyze major and minor premises separately.
Draw conclusions logically: Infer the most valid conclusion.
Assess relationship: Evaluate the connection between premises and conclusion.
Eliminate irrelevant or contradictory assumptions: Discard unnecessary information.
Common Errors
Using assumption to evaluate a conclusion: Be careful to not assume premises which are not explicitly mentioned.
Going for the extreme choice: Remember that tentative or speculative conclusions are generally logically stronger.
Missing key terms in the premises: Words like some, always, many etc affect the validity of a conclusion.
Failing to simplify premises: Try to understand the premises in simpler or clearer terms.
Components of Syllogism
Major Premise: General statement or proposition.
Minor Premise: Specific statement related to the major premise.
Conclusion: Inference drawn from the major and minor premises.
Example
Major Premises: All men are mortal.
Minor Premise: Socrates is a man.
Conclusion: Therefore, Socrates is mortal.


Decision Making
Definitions
Problem: Issue or situation that requires a solution
Options: Possible courses of action to address the problem
Constraints: Limitations that restrict the options.
Criteria: Standards used to evaluate options.
Strategies
Understand situation and objective
Consider pros/cons of each option
Evaluate options against criteria
Analyze constraints and resources
Predict likely outcomes
Types of Questions
Identify the best course of action
Evaluate alternatives against criteria
Analyze constraints and feasibility
Assess expected outcomes
Prioritize most appropriate option.
Common Errors
Selecting inappropriate or extreme options
Overlooking constraints
Focusing on irrelevant factors
Failure to analyze expected outcomes
Not evaluating options against criteria
Concepts Used
Problem analysis
Option evaluation
Outcome assessment
Constraint analysis
Selection criteria
Additional Tips
Consider alternative options
Re-evaluate as new information emerges
Get additional input if needed
Update decisions based on outcomes
Example
Problem: Choosing a vacation destination
Options: Beach, mountains, cruise
Constraints: Time, budget
Criteria: Relaxation, activities, affordability
After evaluating options against constraints and criteria, the beach is chosen as the best option for relaxation within the time and budget.


Critical Reasoning
Definitions
Argument: Reasons given to support or oppose a claim
Assumption: Unstated premise required for an argument to be valid
Fallacy: Flaw in reasoning that weakens an argument
Counterargument: Opposing perspective that challenges an argument
Conclusion: Inference or judgement reached based on reasoning and evidence.
Strategies
Analyze arguments objectively
Question assumptions and biases
Assess relevance and credibility of evidence
Consider alternative perspectives
Use deductive/inductive reasoning
Common Errors
Jumping to conclusions
Missing key assumptions
Weak or invalid arguments
Faulty generalizations
Biased or distorted thinking
Type of Questions
Identify assumptions
Assess quality of evidence
Recognize logical fallacies
Evaluate counter arguments
Determine sound conclusions
Concepts Used
Assumptions
Evidence
Logical fallacies
Counter arguments
Deductive vs. inductive reasoning
Valid vs. invalid arguments
Cognitive biases
Logical coherence
Strength of arguments
Example
Argument: Going to college is a good idea because it leads to higher praying jobs.
Assumption: Higher education always results in better opportunities
This illustrates identifying a key assumption that if questioned, could weaken the argument. The assumption here is the link between higher paying jobs and better career opportunities.

Chapter

1

Logical Deduction

LEARNING OBJECTIVES:

- To understand the Concept of Logical Deduction
- The Categorization of Deductive Arguments
- Types of Standard forms of Propositions and its parts
- The Four-Fold Classification of Propositions
- Two inferential process of deductions
- Rules for deriving the conclusion from given two premises

Logical Deduction is a type of reasoning which constructs or evaluates deductive arguments. Deductive Arguments are attempts to show that a conclusion necessarily follows from a set of premises or hypotheses. A deductive argument is valid if the conclusion necessarily follows from them; in other words, the conclusion must be true if the premises are true. A deductive argument is sound if it is valid and its premises are true. Deductive arguments can be categorised as valid or invalid, sound or unsound. Deductive reasoning is a method of gaining knowledge. An example of a deductive argument:

Premise 1: All men are mortal.

Premise 2: Socrates is a man.

Conclusion: Therefore, Socrates is mortal.

The first premise states that all objects classified as "men" have the attribute of being "mortal". The second premise states that "Socrates" is classified, belonging to the set of "men". The conclusion states that "Socrates" must be mortal because he inherits this attribute from his classification as a man.

One way to solve logical deduction is the Venn-diagram method. But the problem is that it is tedious, lengthy and complicated too.

A proposition is a statement that asserts that either a part of, or the whole of, one set of objects – the set identified by the subject term in the sentence expressing that statement – either is included in, or is excluded from, another set – the set identified by the predicate term in that sentence.

The standard form of a proposition is:

Quantifier + Subject + Copula + Predicate

Thus, the proposition consists of four parts:

- **Quantifier:** The words 'all', 'no' and 'some' are called quantifiers because they specify a quantity 'All' and 'no' are universal quantifiers because they refer to every object in a certain set, while the quantifier 'some' is a particular quantifier because it refers to at least one existing object in a certain set.

1. **Quantifier:** All, No, Some, Atleast, Atmost, etc.
2. **All/No:** Universal quantifiers (as it refers to every object in a certain set).
3. **Some/Atleast/Atmost:** Particular quantifiers (as it refers to atleast one existing object in a certain set).
4. **Subject (denoted by 'S'):** The subject is that about which something is said.
5. **Predicate (denoted by 'P'):** The predicate is the part of the proposition that denotes what is affirmed or denied about the subject.
6. **Copula:** The copula is that part of the proposition that denotes the relation between the subject and the predicate.

Example

All/Some etc. – Quantifier
Men – Subject
Are – Copula
Animals – Predicate

FOUR-FOLD CLASSIFICATION OF PROPOSITIONS:

A proposition is said to have a universal quantity if it begins with a universal quantifier, and a particular quantity if it begins with a particular quantifier. Besides, propositions which assert something about the inclusion of the whole or a part of one set in the other are said to have affirmative quality, while those which deny the inclusion of the whole or a part of one set in the other are said to have a negative quality. Also, a term is distributed in a proposition if it refers to all members of the set of objects denoted by that term. Otherwise, it is said to be undistributed. Based on the above facts, propositions can be classified into four types :

1. **Universal Affirmative Proposition (denoted by A):** It distributes only the subject, i.e., the predicate is not interchangeable with the subject while maintaining the validity of the proposition.
   For example: All snakes are reptiles. This is proposition A since we cannot say 'All reptiles are snakes'.
2. **Universal Negative Proposition (denoted by E):** It distributes both the subject and the predicate, i.e., an entire class of predicate term is denied to the entire class of the subject term, as in the proposition.
   For example: No boy is intelligent.
3. **Particular Affirmative Proposition (denoted by I):** It distributes neither the subject nor the predicate.
   For example: Some men are foolish. Here, the subject term 'men' is used not for all but only for some men and similarly the predicate term 'foolish' is affirmed for a part of subject class. So, both are undistributed.
4. **Particular Negative Proposition (denoted by O):** It distributes only the predicate.
   For example: Some animals are not wild. Here, the subject term 'animals' is used only for a part of its class and hence is undistributed while the predicate term 'wild' is denied in entirety to the subject term and hence is distributed.
   These facts can be summarised as follows:

Statement Form	Quantity	Quality	Distributed
(A): All S is P.	Universal	Affirmative	S only
(E): No S is P.	Universal	Negative	Both S and P
(I): Some S is P.	Particular	Affirmative	Neither S nor P
(O): Some S is not P	Particular	Negative	P only

The phenomenon of deriving a conclusion from a single proposition or a set of given propositions, is known as logical deduction. The given propositions are also referred to as the premises.

TWO INFERENTIAL PROCESSES OF DEDUCTION:

I. **Immediate Deductive Inference:** Here, the conclusion is deduced from one of the given propositions, by any of the three ways– conversion, obversion and contraposition.

1. **Conversion:** The conversion proceeds by interchanging the subject term and the predicate term, i.e., the subject term of the premise becomes the predicate term of the conclusion and the predicate term of the premise becomes the subject of the conclusion. The given proposition is called convertend, whereas the conclusion drawn from it is called its converse.

Table of Valid Conversions

Convertend	Converse
A: All S is P Ex: All pins are tops.	I: Some P is S Ex: Some tops are pins.
E: No S is P. Ex: No fish is whale.	E: No P is S. Ex: No whale is fish.
I: Some S is P. Ex: Some boys are poets.	I: Some P is S. Ex: Some poets are boys.
O: Some S is not P.	No valid conversion

Note: In a conversion, the quality remains the same and the quantity may change.

2. **Obversion:** In obversion, we change the quality of the proposition and replace the predicate term by its complement.

Table of Valid Obversions

Obvertend	Obverse
A: All birds are mammals.	E: No birds are non-mammals.
E: No poets are singers.	A: All poets are non-singers.
I: Some nurses are doctors.	O: Some nurses are not non-doctors.
O: Some politicians are not statesmen.	I: Some politicians are non-statesmen.

3. **Contraposition:** To obtain the contrapositive of a statement, we first replace the subject and predicate terms in the proposition and then exchange both these terms with their complements.

Proposition	Contrapositive
A: All birds are mammals.	A: All non-mammals are non-birds.
I: Some birds are mammals.	I: Some non-mammals are non-birds.

Note: The valid converse, obverse or contrapositive of a given proposition always logically follows from the proposition.

II. **Mediate Deductive Inference (SYLLOGISM):** Syllogism is a deductive argument in which conclusion has to be drawn from two propositions referred to as the premises. It was introduced by Aristotle.

Example:

1. All lotus are flowers.
2. All flowers are beautiful.
3. All lotus are beautiful.

Clearly, the propositions 1 and 2 are the premises and the proposition 3, which follows from the first two propositions, is called the conclusion.

Term: In logic, a term is a word or a combination of words, which by itself can be used as a subject or predicate of a proposition.

Syllogism is concerned with three terms:

1. **Major Term :** It is the predicate of the conclusion and is denoted by P (first letter of 'Predicate').
2. **Minor Term:** It is the subject of the conclusion and is denoted by S (first letter of 'Subject').
3. **Middle Term:** It is the term common to both the premises and is denoted by M (first letter of 'Middle').

Example:
Premises:
1. All dogs are animals.
2. All tigers are dogs.

Conclusion :
All tigers are animals.
Here 'animals' is the predicate of the conclusion and so, it is the major term, P.
'Tigers' is the subject of the conclusion and so, it is the minor term, S.
'Dogs' is the term common to both the premises and so, it is the middle term, M.
Major and Minor Premises: Of the two premises, the major premise is the one in which the middle term serves as the subject, while the minor premise is the one in which the middle term serves as the predicate.

RULES FOR DERIVING THE CONCLUSION FROM TWO GIVEN PREMISES

Example 1: The conclusion should not contain the middle term.
Statements:
1. All men are girls.
2. Some girls are students.

Conclusion:
1. Some girls are men.
2. All girls are men.

Explanation: In the above example neither of the conclusion is valid, as the middle term, i.e., "girls" is present in both the conclusions.

Example 2: No term can be distributed in the conclusion unless it is distributed in the premises.
Statements:
1. Some dogs are goats.
2. All goats are cows.

Conclusions:
1. All cows are dogs.
2. Some dogs are cows.

Explanation: Here, in conclusion 1, the term "cows" is distributed but it is not distributed in the premise, i.e., premise-2. Since it is a A-type proposition and the term "cows" to be distributed must be the "subject" of the proposition.
So, conclusion 1 cannot follow whereas only conclusion 2 follows.

Example 3: The middle term (M) should be distributed at least once in the premises, otherwise no conclusion follows:

Statement Type	Distribution Condition
A	"M" must be Subject
E	"M" must be Subject/Predicate
O	"M" must be Predicate
I	Cannot be distributed/ Not distributed

Statements:
1. All fans are watches.
2. Some watches are black.

Conclusions:
1. All watches are fans.
2. Some fans are black.

Explanation: In the above premises, the middle term is "watches". Since it is not distributed in both premises, no conclusion can be drawn except the conversions of the premises.

Example 4: No conclusion follows:
(a) If both premises are particular, i.e., I type.
Statements:
1. Some books are pens.
2. Some pens are erasers.

Conclusions:
1. All books are erasers.
2. Some erasers are books.

Since both premises are particular, so no definite conclusion follows.
(b) If both premises are negative, i.e., E-type.
Statements:
1. No flower is mango.
2. No mango is cherry.

Conclusions:
1. No flower is cherry.
2. Some cherries are mangoes.

Since both premises are negative, neither conclusion follows.

Example 5: If the middle term is distributed twice, the conclusion cannot be universal.
Statements:
1. All fans are chairs.
2. No tables are fans.

Conclusions:
1. No tables are chairs.
2. Some tables are chairs.

Here, the first premise is an A proposition and so, the middle term 'fans' forming the subject is distributed. The second premise is an E proposition and so, the middle term 'fans' forming the predicate is distributed. Since the middle term is distributed twice, so the conclusion cannot be universal.

Example 6: If one premise is negative, the conclusion must be negative.
Statements:
1. All grasses are trees.
2. No tree is shrub.

Conclusions:
1. No grasses are shrubs.
2. Some shrubs are grasses.

Since one premise is negative, the conclusion must be negative. So, conclusion 2 cannot follow.

Example 7: If one premise is particular, the conclusion must be particular.
Statements:
1. Some boys are thieves.
2. All thieves are dacoits.

Conclusions:
1. Some boys are dacoits.
2. All dacoits are boys.

Since one premise is particular, the conclusion must be particular. So, conclusion 2 cannot follow.

Example 8: If both premises are affirmative, the conclusion must be affirmative.
Statements:
1. All women are mothers.
2. All mothers are sisters.