This chapter introduces philosophy and its functions in our life. We learn different definitions of philosophy and its branches. Logic is one of the branches of philosophy. There is also a comparative study of logic with other sciences. This is only a very brief introduction to philosophy and logic.

**KEY CONCEPTS**

- Philosophy: Meaning and Definition
- Branches of Philosophy
- Logic: Meaning and Definition
- Laws of Thought
- Logic and Other Sciences
- Logic and Psychology
- Logic and Ethics
- Utility of Logic.
Philosophy: Meaning and Definition

Let us look at the write-ups about Socrates and Dr. S. Radhakrishnan. They are prepared by two higher secondary students for their school magazine.

Socrates was a famous Greek thinker. He was born in 470 BC. We know about him from the writings of his students. His method was his great contribution. He searched for solutions to problems in life. For that, he asked simple questions. He often found answers from the problems itself. This method is known as Socratic or dialectic method. His way of solving problems attracted people. But the rulers disliked him. He was accused of corrupting the youth. Finally, he was killed by giving poison.

Dr. S. Radhakrishnan was the second President of India. He was born on September 5, 1888. He came from Tirutani in Tamilnadu. He was a famous thinker as well as a great teacher. His birthday is celebrated as Teachers’ Day. 'The Ethics of Vedanta and its Material Presupposition' was his first book. His other major books are 'Indian Philosophy' and 'The Principles of Upanishad'.

Activity 1

Prepare a Profile of any one of the above personalities.

Include the following information.

Name of the personality

<table>
<thead>
<tr>
<th>Period of life</th>
<th>:</th>
<th>:</th>
<th>:</th>
<th>:</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Important Works</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Main Thoughts</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>A quote</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
</tbody>
</table>
What is the speciality of this profile?
Who is a philosopher?
What is philosophy?

These are interesting questions. But they are not ordinary questions. Philosophy is the study of ultimate reality. It also deals with the fundamental principles of existence. These principles try to unify and go beyond religions, faith and scientific knowledge. Philosophy differs from special sciences because it attempts to give a picture of human thought as a whole.

There are situations in our life that make us think philosophically. But we are not always aware of it. Most of us take this world for granted. But some are very thoughtful and reflective. They have questions like what the world itself is, how it came to be, what it is made of and what for. When their questions become serious and follow a systematic inquiry, they are philosophers.

Plato said that philosophy begins in wonder. He understood it to be the perception of ideas. Socrates defined philosopher as a seeker after wisdom. Philosophical thinking is different from ordinary thinking. Philosophy opens up new areas of study and new methods of enquiry.

Philosophy is related to everyday life. It is an attitude towards life. Philosophy helps one to lead a happy life. For this one needs a right attitude and high motivation.

The wisest of Greeks

The Oracle of Delphi said that Socrates was the wisest of Greeks. But Socrates replied, "I know only one thing: and that is that I know nothing".

How to become wise?

Friend: “Nasrudin, how does one become wise?”

Nasrudin: “Listen attentively to wise people when they speak. And when someone is listening to you, listen attentively to what you are saying!”

“Philosophy is that which grasps its own era in thought.”

Georg Wilhelm Friedrich Hegel (1770 –1831)
Openness, courage and caring are some aspects of the right attitude to lead a happy and fruitful life. These will promote a rational dialogue by exchanging, amending and evaluating our ideas. Hence, philosophy is a way of life, recognising others and the world as a whole.

*Philosophy can be defined as the rational systematic and critical inquiry into the basic principles of any dimension of reality or the reality as a whole.*

Look at the tree diagram and find out the relation between philosophy and other sciences.

"All Philosophy is like a tree, of which Metaphysics is the root, Physics the trunk, and all the other sciences the branches that grow out of this trunk..." *Rene Descartes*
The term philosophy is derived from two Greek words ‘philo’ and ‘sophia’. The word ‘philo’ means ‘love’ and ‘sophia’ means ‘wisdom’. Thus philosophy is ‘love of wisdom’. The word philosophy was first coined by the Greek philosopher Pythagoras. But the word ‘Philosopher’ was first introduced by Plato to distinguish his style from that of Sophists.

"Philosophers have interpreted the world, but the question is how to change it."

Karl Heinrich Marx (1818-1883)-

"Philosophy is not a theory but an activity."

Ludwig Josef Johann Wittgenstein (1889 -1951)

Philosophy was the first science until 1840. What we now call science was natural philosophy. In the beginning, mathematics, physics, logic, metaphysics, ethics etc, all belonged to the same family. Although many of her children have left home, some seem to be permanent residents.

Let us check

Don’t you have your own definition of philosophy when you say “this is not my philosophy” or “this is not his philosophy?”

Write down your definition of Philosophy.

.................................................................
.................................................................
Branches of Philosophy

Let us see some of the issues faced by all of us.
“Things come and go, then what are eternal things?”
“If there are such eternal things, how can we know them?”
“If this life is so precious, but uncertain, how can we live it?”

These three questions give rise to the ‘three big problems’ in philosophy, the problem of knowledge, the problem of value and the problem of reality. These three represent the three areas in philosophy.

They are:

A. **Metaphysics**
B. **Epistemology**
C. **Axiology**

**Activity 2**

Are you concerned about those that are not physical?

Is there anything outside the physical world?

List out those non-physical things you know.

- .................................................................
- .................................................................
- .................................................................

**A. Metaphysics**

The word “metaphysics” is derived from the Greek words *metá* (beyond, upon or after) and *physiká* (physics) Metaphysics can be defined as ‘a science beyond physics.’ It is concerned with the nature of ultimate reality. It deals with different questions. e.g. “What does truly exist? what is ultimately real? how reality is ordered and organised?” So metaphysics is the study of the most general features of reality, like existence, time, the relationship between mind and body, objects and their properties, whole and part, events, processes, and causation. Traditional branches of metaphysics include ontology and cosmology. Ontology is the study of *Being* while Cosmology is the study of *World.*
B. Epistemology

Activity 3

How do you acquire knowledge?

- Eyes bring us images, colours, shapes etc.
- ......................................................
- ......................................................
- ......................................................
- Mind .................................................

The word ‘epistemology’ means ‘science of knowledge’. It is derived from two Greek words ‘epistem’ meaning knowledge and ‘logos’ means science. The basic question asked in epistemology is “How do we know”? It studies about the sources and limits of knowledge and related concepts. It looks into the types of possible knowledge and the degree to which knowledge is certain. It also deals with the exact relation between the knower and the object known. Logic is part of epistemology. It provides the tools for distinguishing between truth and falsity of knowledge. Logic is the study of correct reasoning.

C. Axiology

Write a short story in a few words based on the picture.

Write about the picture in a single sentence.
Logic and Reasoning

The two images show the value of ‘a good action’ and ‘a beautiful thing’ respectively. Axiology is the science of values. It deals with questions like what is goodness?, what is right? and what is beauty? The science that deals with the value of goodness is Ethics and that of beauty is Aesthetics. Ethics investigates the concepts of ‘right’ and ‘good’ in individual and social conduct. Aesthetics studies the concepts of ‘beauty’ and ‘harmony’ in nature and arts.

![Logic and Reasoning Chart]

**Logic: Meaning and Definition**

Logic is the foundation of all philosophical thinking. Therefore the study of Logic is fundamental to philosophy.

**Activity 4**

- If Book is to Watch, Watch is to Bag, Bag is to Dictionary and Dictionary is to Window then what will you use to carry your books? (Dictionary, Book, Bag, Watch, None of these.)
- PSRQ: CFED :: MPON:.............
  (HKJI, HJKI, HIKJ, JHIK)
- Stephen was looking at a photo. Someone asked him, “whose picture are you looking at?” He replied, “I don’t have any brothers or sisters. But this man’s father is my father’s son.” Whose picture was Stephen looking at?

What faculty of your mind have you used to find out the solutions to the above problems? ‘Reasoning’ must be your response! Logic deals with this faculty of human beings. The word logic is derived from the Greek word ‘Logos’ which means ‘word, speech, reason or thought.’
THE DEVELOPMENT OF LOGIC

Logic was developed independently and brought to some degree of perfection in China (5th to 3rd century BC) and India (from the 5th century BC through the 17th century AD). Logic as it is known in the West comes from Greece. Aristotle worked out the first system of the logic in the 4th century BC. The logic of propositions comes from the work of Aristotle’s pupil Theophrastus, the 4th century Megarian school of logicians and the school of the Stoics. After the decline of Greek culture, logic re-emerged first among Arab scholars in the 10th century. The works of St. Anselm of Canterbury and Peter Abelard showed medieval interest in logic. Its high point was the 14th century. The Scholastics developed logic during this period, especially the analysis of propositions, well beyond what was known to the ancients. Rhetoric and natural science overshadowed logic during the Renaissance. Modern logic began to develop through the work of the philosopher and mathematician G.W. Leibniz. He attempted to create a universal calculus of reason. Great progress was made in the 19th century in the development of symbolic logic. It combined logic and mathematics in formal analysis.

Modern formal logic is the study of inference and propositional forms. Its simplest and most basic branch is propositional calculus. In this logic, propositions or sentences are treated as simple and unanalysable. Attention is focused on how they are related to other propositions by propositional connectives (such as "if... then," "and," "or," "it is not the case that," etc.) and formed into arguments. It is possible to study abstract characteristics of formal logic. It is done with the help of symbols and set of transformation rules.

According to Creighton ‘logic is a science that deals with the operations of the mind in its search for truth’.
Let us analyse the three constituents of logic from the above definition.

I. Logic is a science.
II. Logic deals with the operations of the human mind.
III. The aim of logic is the search for truth.

I. Logic is a Science

You have studied many sciences. They have certain common features.

Try to list them.

• ........................................
• ........................................
• ........................................

Science has a definite structure, aim and method. It is a systematic and exact body of knowledge about a particular part of the universe. Science should have the following three characteristics.

❖ It should deal with a part of the universe.
❖ It should be a systematic and organised body of knowledge.
❖ It should give us certain and correct knowledge.

Logic is a science because it has all these characteristics. There are two kinds of science. They are normative science and positive science. Positive science deals with things as they appear in nature. It is also known as natural science or descriptive science e.g. physics, chemistry, biology, economics, psychology, sociology etc.

a. Logic is a normative Science

Normative science deals with things as they ‘should be' or ‘ought to be'. It sets up a ‘norm’ or ‘standard’ or ‘ideal’ to evaluate their subject matter. It is also known as regulative or evaluative science.
Logic sets up ‘truth’ as its ideal. It teaches us how our thoughts ought to be to reach the truth. Thus logic is a normative science. The other normative sciences are Ethics and Aesthetics.

b. Logic is a formal science

Is there any object without form or shape? Think and share.

All objects in nature are made up of matter. They have a certain shape or form of that matter. In the same way our thought also has certain form and matter. By form we mean the way in which our mind thinks about something. Form is pattern, shape, design or structure. By matter we mean the things about which our mind thinks. Matter is the content of our thought. Logic is mainly concerned with the ways of thinking or forms of thought. Hence, logic is called a formal science.

II. Logic Deals with the Operations of Mind

What are the things that our mind do for us?
List them.

- .........................
- .........................
- .........................

All our mental activities can be classified into three categories. They are *thinking*, *feeling* and *willing*. Logic is concerned only with the thinking part of the mind.

The categories of thinking consist of three operations. They are:

a. Conception
b. Judgment
c. Reasoning.
a. Conception

Amal is looking at a camel.

He is forming an idea/image of the camel in his mind.

The mental image formed in the mind is conception. When we express an idea in language it is known as a term. Here the word ‘camel’ becomes a term.

b. Judgment

Amal and his friend Rahul look at the following picture.

Amal: Can you identify this animal.

Rahul: Of course. It's an anteater.

Amal: Is anteater a mammal or an oviparous?

Rahul: Anteater is a mammal. It is not an oviparous.
Rahul’s last exchange in the conversation is an act of judgment.

Making Judgment is another operation of mind. It should have at least two ideas. One idea is either affirmed or denied of another. When a judgment is expressed in words it is known as proposition. Example ‘Anteater is a mammal.’

c. Reasoning

Let us solve this problem.

Activity 7

Seena is taller than Baby but shorter than Jeenu. Sona is taller than Baby but shorter than Seena.

Who is the tallest among them?

..............................................

(Jeenu, Seena, Baby, Sona)

How did you reach this conclusion?

From the known facts you derived a conclusion. This is reasoning. **Reasoning** the mental process of passing from one or more known judgments to a new judgment. When reasoning is expressed in words it is called an **argument**.

---

**Let us check**

a. Make propositions and arguments out of the given terms.
   - Rafflesia
   - Mangalyan

b. Complete the flow chart.

```
Categories of thinking

Judgment

- Anteater
  - Anteater is a mammal.

- Anteater is a mammal.
  - All mammals are animals.
```

:: Anteater is an animal.
III. The Aim of Logic is Search for Truth

Look at the pictures.

Which is real and which is imaginary.

- ...........................................
- ...........................................

Truth is either material or formal or both. Material truth is confirmed by the consistancy between the statements and facts, which exist in the real world. So material truth can be recognised by sense perception.

Formal truth is concerned with the fact as it is stated i.e. in the form of a judgement. Looking at the pictures above we can make judgement/statement about them, e.g. 'the winged horse is flying' [A] and 'the waterfall is beautiful [B].’ Now you can find out which of these statements is materially true, formally true and both formally and materially true.

<table>
<thead>
<tr>
<th>Truth</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materialy true</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally true</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both formally and materially true.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

That part of logic which deals with formal truth is called **deduction**. The part of logic which deals with material truth is called **induction**.

Let us check

Write a few examples for formal truth and material truth.

..............................................................
The Laws of Thought

The aim of logic is search for truth. Truth is possible only through correct thinking. Correct thinking is based on certain principles. According to Aristotle, these principles are the fundamental Laws of Thought.

1) The Law of Identity
2) The Law of Contradiction
3) The Law of Excluded Middle.

Besides these three laws, Leibnitz had put forward a fourth law known as ‘the Law of Sufficient Reason’.

1) The Law of Identity
According to this law ‘if anything is A it is A or if any proposition is true it is true’. Everything is identical. Each object should be taken as it is. In short “that everything is the same with itself and different from another”. e.g. A kilogram is a kilogram and a pound is a pound.

2) The Law of Contradiction
This law expresses A cannot be B and not B at the same time. In other words a thing cannot both exist and non-exist at the same time. Nothing can have contradictory qualities in the same space and time. e.g. If you say that Ram is in the house, it cannot be said that he is not out of the house. One cannot assert that Ram is at the same time in the house and out of it. Hamilton has
called the law of contradiction as the law of non-contradiction. According to him correct thinking is non-contradicted. E.g. A thing cannot be white and non-white at the same time.

3) **The Law of Excluded Middle**
According to this law everything must be either True or False, i.e. A or not A. For example. A piece of toffee can either be sweet or not sweet. According to Jeevons, “the very name of the law expresses the fact that there is no third or middle ground; the answer must be YES or NO.” The given person is either Socrates or not Socrates.

4) **The Law of Sufficient Reason**
Everything must have a sufficient reason 'why it is so and not otherwise.' Leibnitz says that there must always be some sufficient reason why a thing is what it is. This Law is also known as Law of causation.

**Logic and other Sciences**
We have seen that logic is a science. Let us discuss how logic is related to other normative and positive sciences.

**Logic and Psychology**
Logic and psychology are sciences dealing with mental functions or consciousness. They study about what goes on in mind. Logic is a normative science. Psychology is a positive science. The word psychology comes from two Greek words ‘psycho’ and ‘logos’. The ‘psycho’ means mind and ‘logos’ means science. Thus psychology means science of mind. Psychology deals with the thought processes ‘as it is’ without any reference to ideals or the attainment. It deals with the actual structure of mental process. It is the science of behavior in general. This includes thinking, feeling and willing. It describes pleasure and pain, acts of will and association of ideas.

<table>
<thead>
<tr>
<th>Logic</th>
<th>Psychology</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

**Let us check**
Complete the following chart.
Logic and Ethics

Logic and ethics are normative sciences. Both these sciences deal with human mind and its various operations. Logic deals with norms of correct reasoning. But ethics focuses on norms of right conduct. The word ethics is derived from the Greek word ‘ethos’ which means custom or character. It is also known as moral philosophy. Human conduct is judged to be right or wrong against the standard of goodness. Goodness is the concern of ethics. Ethics is the science of the ideal in conduct, as logic is the science of the ideal in thinking. They agree in method but differ in scope.

Major areas of Ethics

- Meta-ethics: It is about the theoretical meaning and reference of moral propositions and how their truth values (if any) may be determined.
- Normative ethics: It is about the practical means of determining a moral course of action.
- Applied ethics: It is about how moral outcomes can be achieved in specific situations.
- Descriptive ethics: It is also known as comparative ethics. It is the study of people’s beliefs about morality.

Let us check

Complete the lists with their respective features.

<table>
<thead>
<tr>
<th>Logic</th>
<th>Ethics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Utility of Logic

Is there any field that does not involve thinking?
Is every thinking correct?
Can’t we identify the cause for errors in thinking?
Can we rectify those errors in thinking?
Do we have balanced mind?
How do we solve the problems in our daily life?

Application of logic involves solutions to all the above issues.
Logic is concerned with arguments, inference and reasoning. Such concerns are important to all of us in everyday life.
Let us discuss some of the applications of logic:

- Logic deals with the principles of valid reasoning. Truth can be obtained without errors. Logic teaches how to think clearly, systematically, consistently and precisely.
- Every discipline of science including mathematics uses logic for proving theorems.
- Information technology is another area where logic is used fruitfully.
- Logic corrects the confusion of ordinary language.
- Logic is applied in every professional field, like law, criminology, military intelligence, engineering, etc.
- Logic is a tool to manage day to day living. It is essential to solve life’s riddles.
- Some theologians used logic to prove the existence of God.
- Logic is an excellent intellectual discipline or mental gymnastics.

**Summary**

Philosophy is the mother of all sciences. It is broadly classified into metaphysics, axiology and epistemology. Logic is a part of epistemology. It is a normative science of reasoning. It is related to other sciences like ethics and psychology. Logic is applied in every field of life.

**I can**

- identify the meaning and definition of philosophy.
- develop my own definition of philosophy.
- classify philosophy into metaphysics, epistemology and axiology.
- identify the meaning of logic.
- analyse the operations of thinking such as conception, judgment and reasoning.
- explain the fundamental laws of thought.
- differentiate between logic and other sciences.
- analyse the advantages of studying logical reasoning.
Exercise 1

1. What should come next in the following letter series?

AABABCABCDABCDEABCDEF

a) B  b) G  c) D  d) A

2. ‘Paragraph’ is related to sentence. In the same way a sentence is related to …

a) Paragraph  b) Type  c) Word  d) Letter

3. In a certain code language PULSE is written as DRKTO and NEW is written as VDM. How will PROBES be written in that code language?

a) RDANQO  b) QSPCFT  c) TFCPSQ  d) OPNADR

4. Prakash walked 30 meters towards west, took a left turn and walked 20 meters. He again took a left turn and walked 30 meters. He then took a right turn and stopped. Towards which direction was he facing when he stopped?

a) South  b) North  c) East  d) West

5. Find the next digit.

3, 7, 15, 31, ____

a) 65  b) 63  c) 59  d) 48

6. LOGOS refers to LOGIC, ETHICS refers to ______.

7. Tick the odd one out…

Anthropology, Physics, Astronomy, Aesthetics.

8. Conception, judgment and ______ are the three operations of human mind.

9. Identify the materially true object from the given things.

a) Sky lotus  b) spider man  c) golden mountain  d) Taj Mahal.
10. Which of the following is the goal of logic?
    a) goodness  b) beauty  c) truth  d) none of these

**Exercise 2**

1. Write down the definition of logic given by Creighton. Analyse it.

2. Construct a flow chart using the following hints.

   Metaphysics – logic – philosophy – goodness – epistemology – what is reality?
   – Study of beings.

3. Logic and ethics are normative sciences. Identify the differences between them.

4. Logic and Psychology are complementary to each other even though there are many differences between them. Specify the differences.

5. In a group discussion Amal stated, “Logic is applied in all walks of life.”
   Do you agree with this statement? Substantiate.

6. Prepare a list of sciences and classify them in the following boxes.

<table>
<thead>
<tr>
<th>Sciences</th>
<th>Physical</th>
<th>Biological</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>