

# **PHILOSOPHY TEXT BOOK SERIES-I**



## **INTRODUCTION TO SCIENTIFIC METHOD AND LOGICAL REASONING**

**Class XI**

**Editor : S.R. BHATT**



**CENTRAL BOARD OF SECONDARY EDUCATION  
PREET VIHAR, DELHI - 110092**

## **Philosophy Text Book Series-I : Class - XI**

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# THE CONSTITUTION OF INDIA

## PREAMBLE

**WE, THE PEOPLE OF INDIA**, having solemnly resolved to constitute India into a **SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens :

**JUSTICE**, social, economic and political;

**LIBERTY** of thought, expression, belief, faith and worship;

**EQUALITY** of status and of opportunity; and to promote among them all

**FRATERNITY** assuring the dignity of the individual and the <sup>2</sup> [unity and integrity of the Nation];

**IN OUR CONSTITUENT ASSEMBLY** this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

1. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic (w.e.f. 3.1.1977)
2. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation (w.e.f. 3.1.1977)

# THE CONSTITUTION OF INDIA

## Chapter IV A

### Fundamental Duties

## ARTICLE 51A

### Fundamental Duties - It shall be the duty of every citizen of India-

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

# भारत का संविधान

## उद्देशिका

हम, भारत के लोग, भारत को एक '[ सम्पूर्ण प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य ] बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,  
विचार, अभिव्यक्ति, विश्वास, धर्म  
और उपासना की स्वतंत्रता,  
प्रतिष्ठा और अवसर की समता

प्राप्त कराने के लिए, तथा उन सब में, व्यक्ति की गरिमा और '[ राष्ट्र की एकता और अखण्डता ] सुनिश्चित करने वाली बंधुता बढ़ाने के लिए दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई० को एतद्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

1. संविधान ( बयालीसवां संशोधन ) अधिनियम, 1976 की धारा 2 द्वारा ( 3.1.1977 ) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान ( बयालीसवां संशोधन ) अधिनियम, 1976 की धारा 2 द्वारा ( 3.1.1977 से ), "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

## भाग 4 क मूल कर्तव्य

51 क. मूल कर्तव्य - भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह -

- (क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;
- (ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;
- (ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;
- (घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;
- (ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;
- (च) हमारी सामाजिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परीक्षण करे;
- (छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणिमात्र के प्रति दयाभाव रखे;
- (ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;
- (झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;
- (ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले।

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# Foreword

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*P*hilosophy is a systematic reflection on our lived experiences with a view to be profited from it. This systematization consists in critical and regulated reasoning. For this purpose the science of logic has been evolved both in Indian and Western traditions. Of course, the capacity to reason is innate in a child but with proper education it can be refined. That is why study of logic has been prescribed. Since logic is foundational to critical thinking, its study forms a part of the syllabus for class XI. The present book has been prepared keeping that in view.

I express my heartfelt gratitude to Prof. S.R. Bhatt, Convener of the CBSE course committee in Philosophy for taking up the lead in developing the textbook and guiding his team members. My sincere thanks are due for Dr. Krishna Jain, Shri Ashwani Kumar, Dr. Manju Pandit, Dr. Sneha Khosala & Dr. Anita Khosala for writing different chapters for the book.

Ms Sugandh Sharma, Education Officer, CBSE deserves special mention for initiating the work and bringing out the textbook in present shape.

The Hindi version of the textbook will also be shortly brought out by the Board. The principals are requested to bring this book to the notice of concerned students and teachers.

**VINEET JOSHI**  
CHAIRMAN

# Preface

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The present book is written in conformity with the Philosophy syllabus of class XI of Central Board of Secondary Education.

Science has influenced and affected our entire worldly life. It has made tremendous contributions to make life easy, smooth and comfortable. Its positive uses have proved to be boon and blessings. All scientific discoveries and achievements are based on methodical and planned enterprise which is known as scientific method. This method is based on inductive reasoning and discovery of causal connections regulating the cosmic processes. In this introductory book, basic elements of scientific method and inductive reasoning are worked out by the learned contributors in Part I.

Part II deals with logical reasoning. For a ratiocinative human mind the importance of Logic as a science and art of correct reasoning need not be stated. All of us carry out critical thinking and encounter arguments in our day-to-day experience. Of course a child learns critical thinking and valid reasoning naturally but a systematic cultivation of these processes is desirable. To construct sound arguments of one's own and to evaluate arguments of others are needed for a smooth and successful living. For this Logic is helpful. Among the benefits of study of logic is to acquire competence and thereby confidence in constructing and adducing our own arguments for any particular cause and also in evaluating arguments of others, in being mindful of the possible intrusion of fallacies and the deterrent methods to avoid them. Logic helps in every walk of life and in every domain of knowledge and action. It is particularly used in all intellectual activities.

To realize the benefits of Logic one must thoroughly understand the basic concepts and processes of correct reasoning and be able to apply them to concrete life situations. This requires a study of Logic and its central principles. To promote this objective this text presents a simple and foundational account of the different types of reasoning processes for a beginner. So it is intended to be a primer of elementary Logic.

The material is arranged here in keeping with the CBSE syllabus for class XI. By getting the feedback from the students and teachers it should be possible to revise it. If need be the syllabus can be revised and accordingly the text can be improved to make it more useful. It is hoped that this book will initiate the young minds in the study of the concerned subject.



The text deals with western and Indian modes of doing Logic in deductive and inductive patterns. There is scope for enlargement of Indian content which can be done later on. In Indian mode there is a definite ontological commitment, direct or indirect, but the process of formalization is undertaken in both Indian and western modes. Logic is a developing science and various new forms of Logic have come up. The science of Logic has undergone many developments and great advances. Their nature and scope have also changed considerably. It should be possible to incorporate them in subsequent editions of this text after suitable revision of the syllabus. At present only syllogistic, propositional (sentential), and predicate forms have been taken up in the western context. In Indian thought inductive mode of thinking has been given threadbare analysis and that may also be considered in detail when enlargement is undertaken.

The present work is a collective enterprise. It has been a pleasure for me to work with Dr. Krishna Jain, Shri Ashwani Kumar, Dr. Manju Pandit, Dr. Sneha Khosla and Dr. Anita Khosla for writing different chapters. All of them are seasoned teachers of Logic and Philosophy in Delhi University. On behalf of CBSE and on my own behalf I express our gratefulness to them for sparing their valuable time in spite of their busy schedule in their academic work. I wish to express my gratitude to Ms Sugandh Sharma, Education Officer of CBSE, for initiation to write and for encouragement and assistance. Without her motivation and kind support this text would not have seen the light of the day. Special thanks are due to Mr. Sanjay Sharma of Multigraphics for nice printing

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