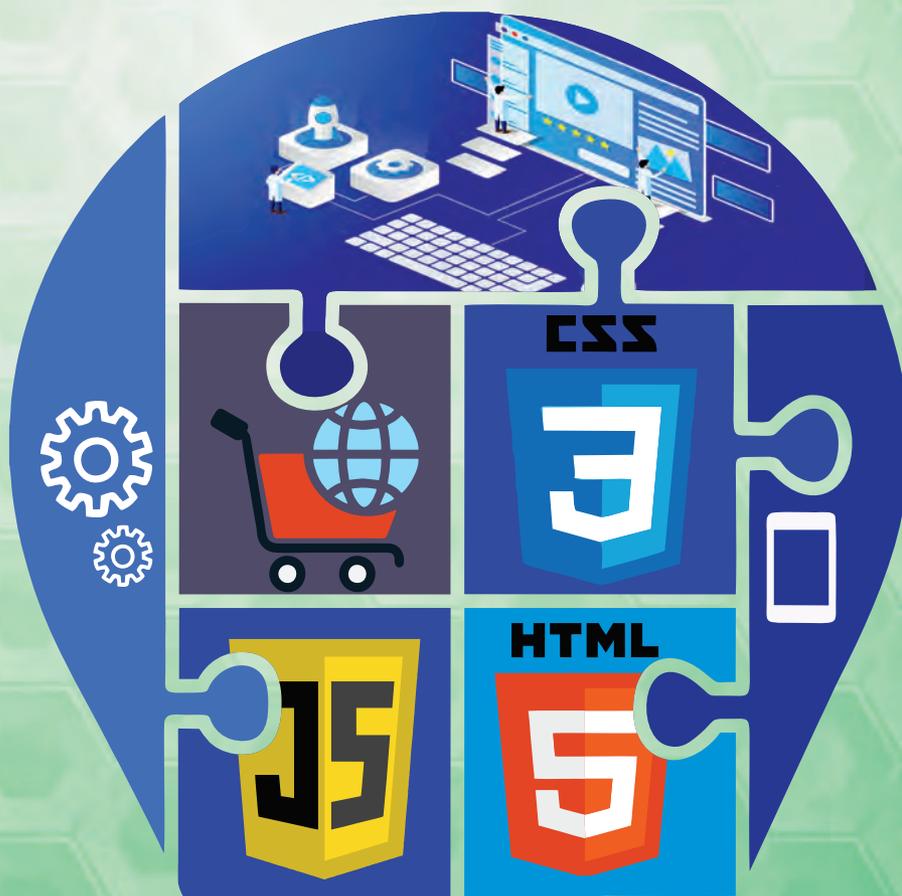




# INFORMATION TECHNOLOGY

Standard Twelve  
Science



# 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 and 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;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

The Coordination Committee formed by GR No. Abhyas - 2116/(Pra.Kra.43/16) SD - 4  
Dated 25.4.2016 has given approval to prescribe this textbook in its meeting held on  
30.01.2020 and it has been decided to implement it from academic year 2020-21.

# INFORMATION TECHNOLOGY

## STANDARD - TWELVE (Science)



Maharashtra State Bureau of Textbook Production and  
Curriculum Research, Pune.



The digital textbook can be obtained through  
DIKSHA App on smart phone by using the Q.R.  
Code given on title page of the textbook and useful  
audio-visual teaching-learning material of the  
relevant lesson.

First Edition: 2020 ©  
Reprint: 2021

**Maharashtra State Bureau of Textbook Production and Curriculum Research, Pune- 411004.**

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### **Paper**

70 GSM Creamwove

### **Print Order**

N/PB/2021-22/35,000

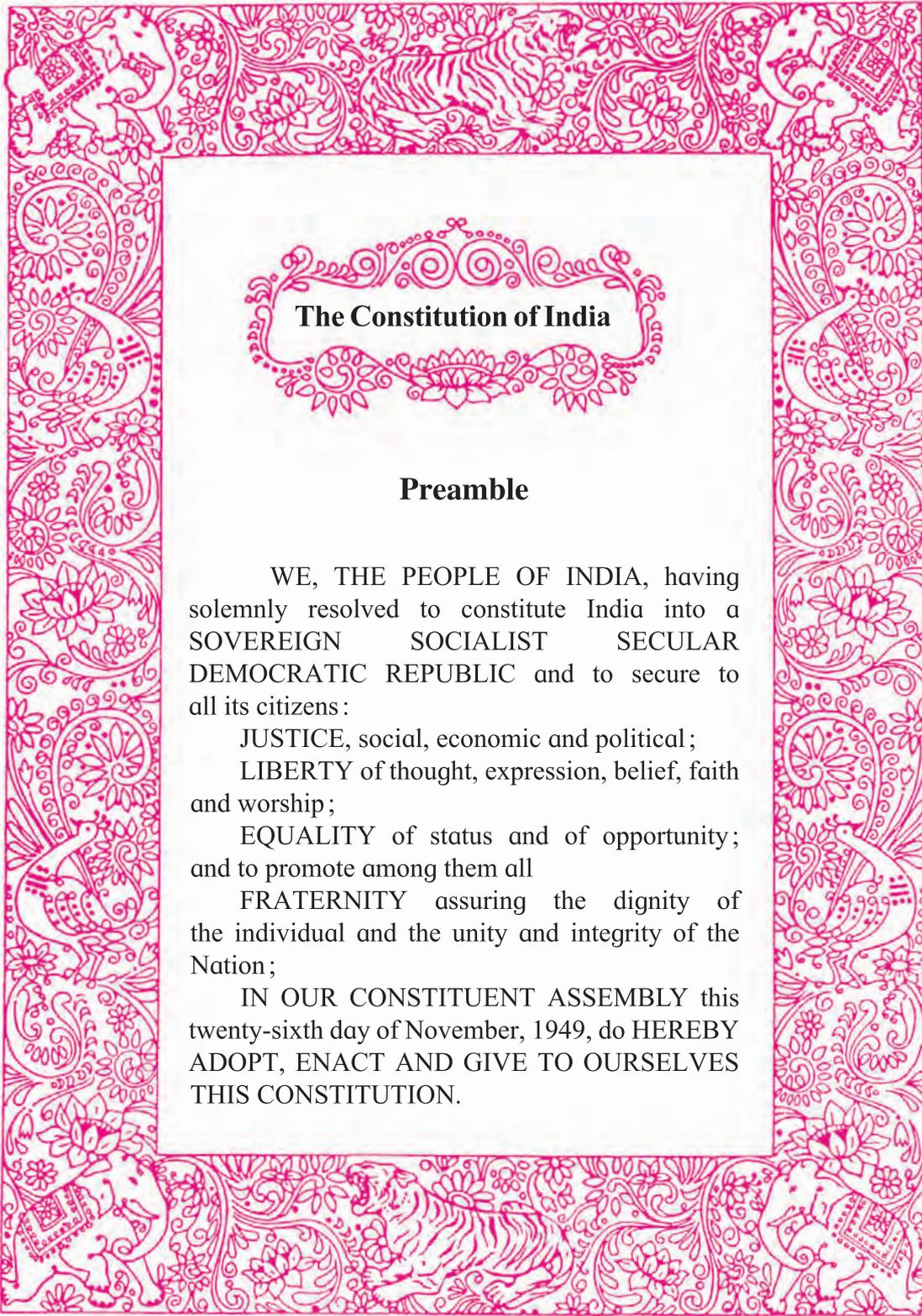
### **Printer**

M/S. ASHOKA PRINT PACK, SANGLI

### **Publisher**

Vivek Gosavi,  
**Controller**

Maharashtra State Textbook  
Bureau, Prabhadevi,  
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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 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.

## NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē  
Bhārata-bhāgya-vidhātā,

Panjāba-Sindhu-Gujarāta-Marāthā  
Drāvida-Utkala-Banga

Vindhya-Himāchala-Yamunā-Gangā  
uchchala-jaladhi-taranga

Tava subha nāmē jāgē, tava subha āsisa māgē,  
gāhē tava jaya-gāthā,

Jana-gana-mangala-dāyaka jaya hē  
Bhārata-bhāgya-vidhātā,

Jaya hē, Jaya hē, Jaya hē,  
Jaya jaya jaya, jaya hē.

## PLEDGE

India is my country. All Indians  
are my brothers and sisters.

I love my country, and I am proud  
of its rich and varied heritage. I shall  
always strive to be worthy of it.

I shall give my parents, teachers  
and all elders respect, and treat  
everyone with courtesy.

To my country and my people,  
I pledge my devotion. In their  
well-being and prosperity alone lies  
my happiness.

## Foreword

### Dear Students,

Congratulations to all of you for the successful completion of Std XI and welcome to the second year of Higher Secondary Education. The syllabus of Information Technology (**Science**) at Higher Secondary Level has been revised and implemented in view of the fact that computer is used currently as a tool for various applications, especially in the field of e-Banking, e-Commerce, e-Governance, etc. Higher studies and placements, at present, greatly demand human resources with adequate knowledge in computer applications and information technology.

The Information Technology aims to equip students the knowledge, skills and attitudes to become productive employees in the area of computer science and technology. In this course, you all will gain a perspective to become a successful entrepreneur in information Technology and allied sector. Scope of this textbook also provides you all with the foundation for higher studies. Information technology is one of the most significant growth catalysts for the Indian economy. I am sure after completion of HSC with IT, you will acquire skills and competence to enter in the upcoming job market.

In Class XI, the syllabus focused on the fundamentals of Computer, computer network, basics of website designing and some knowledge of database. Emphasis is also given to put a strong foundation to develop problem solving skills and create computer programs using JavaScript as a scripting language. You all are also familiar with web page designing and database concepts.

The syllabus of Class XII Information Technology (Science) is a continuation to that of Class XI. Hence the textbook designed in accordance with the syllabus, begins with some advance features of HTML5. It also has given vertical ladder to understand JavaScript thoroughly with loop statements. To become a full-fledged web developer with proper knowledge and understanding about server side scripting PHP with database connectivity is also an additional feature of this syllabus. Once you have developed a website it is necessary to optimize its ranking and therefore SEO is introduced in this book. One chapter is dedicated to new technologies like cloud computing, 5G, IoT and AI. The concepts such as E-commerce and E-Governance are the decisive concepts in today's world and knowledge about the same is must.

I hope this book will meet all the requirements for stepping to levels of higher education and pave the way to the peak of success. Each unit comprises of simple activities and demonstrations which can be done by you on your own.

It is sure if you carefully study the text and practice the laboratory exercises, you will develop confidence in working with website development, web hosting and analyzing, scripting and also update your knowledge with new and current technologies.



(Vivek Gosavi)  
Director

Pune

Date : 21 February, 2020

Bharatiya Saur : 2 Phalguna 1941

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Production and Curriculum Research, Pune

## For Teachers

**Dear Teacher,**

The subject Information Technology (**Science**) is an optional subject of the Higher Secondary Education. The content is developed in view of the fact that it should be useful to the students for their higher studies and they should be able to use computer as a tool. Besides, if somebody wishes a shift towards the IT field in higher education, the syllabus can cater to their needs. Although the field of IT continues to expand rapidly, it is not feasible to expand the size of the curriculum proportionately. As a result, the syllabus has been designed in such a manner to inculcate the current technical knowledge among the students.

The textbook on Information Technology (Science) is developed as per the approaches and methods used in recent era of internet and web. As the curriculum is activity-based, process-oriented and based on constructivism, it demands higher level proficiency and dedication from the part of the teachers for effective teaching.

This textbook takes two aspects into consideration - **knowledge domain and process domain**. The knowledge area of the curriculum of Class XII is a continuation to that of Class XI. The programming aspects to solve complex problems and handle complex data are introduced. Since we are in an era of Internet, a wide coverage is given to the contents required for designing web pages and developing web applications. It also enhances the knowledge of web hosting. The knowledge domain also initiates server side scripting using PHP. The emerging technologies such as Cloud computing, 5G, AI are also included to keep the students updated with current knowledge. The concepts such as E-commerce are also introduced and E-Governance. The knowledge about the same is must for today's generation.

The process domain gives importance to gain the Science and logical method and develop interest for deeper investigation. The SEO topic is introduced to encourage the students to design a perfect website by optimising and ranking the site at top on search engines. While transacting the concepts through activities, it should be ensured that the students are attaining the skills along with learning outcomes.

The Textbook IT (Science) is prepared by a team of practicing teachers under the guidance of a panel of subject experts. All possible efforts have been taken to make the books learner-friendly and interesting. There is no denying the fact that our teachers are resourceful and committed, and hence directions towards the right path can make the transaction of the curriculum most effective and productive.

Constructive criticism and creative suggestions for improvement of the book are most welcome.

**Information Technology  
Subject Committee and Study Group  
Textbook Bureau, Pune**

## **Competency Statements For Information Technology Standard - XII (All Streams)**

### **Competency**

#### **Theory**

1. To create awareness and acquire knowledge about new technology.
2. To acquire in-depth knowledge about technologies related to AI, IOT, 3D Printing, 5G.
3. To enable the student to think and create interest in emerging technology from career point of view.
4. To make students aware about concept of E-commerce.
5. To acquire knowledge about scope of E-commerce.
6. To create awareness about different E-commerce websites and discuss its features.
7. To develop higher order logical skills based on basic knowledge acquired in 11<sup>th</sup> standard.
8. To make students aware about HTML5's advanced tags while developing web page.
9. To make students competent in scripting language to create dynamic web page.
10. To acquire knowledge about concept of object.

#### **Skill Oriented Practicals (SOP)**

1. To inculcate web designing skills using advance tags.
2. To make students confident to create website.
3. To develop skills for programming using DOM.
4. To develop ability to create dynamic web pages using advance features.
5. To develop ability to program for server side scripting.
6. To develop skill to create simple PHP Program.
7. To make student aware about connectivity with database.
8. To develop skill in handling accounting package with advance feature.
9. To make student competent to display and print different accounting report.
10. To acquire skills in recording and manipulating audios.
11. To make student skillful to mix audio.
12. To acquire skills to record, create and manipulate video.
13. To enhance the creative ability by mixing and fusion of the different media.

# INFORMATION TECHNOLOGY

## STANDARD - TWELVE

(Science)



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