GOVERNMENT OF TAMIL NADU

HIGHER SECONDARY SECOND YEAR

MATHEMATICS

VOLUME - I

A publication under Free Textbook Programme of Government of Tamil Nadu

Department of School Education

Untouchability is Inhuman and a Crime

Government of Tamil Nadu

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NOT FOR SALE

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HOW TO USE THE BOOK ?

Scope of Mathematics

- Awareness on the scope of higher educational opportunities; courses, institutions and required competitive examinations.
- Possible financial assistance to help students climb academic ladder.

Learning Objectives

- Overview of the unit
- Give clarity on the intended learning outcomes of the unit.

- Visual representation of concepts with illustrations
- Videos, animations, and tutorials.

ICT

- To increase the span of attention of concepts
- To visualize the concepts for strengthening and understanding
- To link concepts related to one unit with other units.
- To utilize the digital skills in classroom learning and providing students experimental learning.

Summary

- Recapitulation of the salient points of each chapter for recalling the concepts learnt.

Evaluation

- Assessing student's understanding of concepts and get them acquainted with solving exercise problems.

Books for Reference

- List of relevant books for further reading.

Scope for Higher Order Thinking

- To motivate students aspiring to take up competitive examinations such as JEE, KVPY, Math olympiad, etc., the concepts and questions based on Higher Order Thinking are incorporated in the content of this book.

Glossary

- Frequently used Mathematical terms have been given with their Tamil equivalents.

Mathematics Learning

The correct way to learn is to understand the concepts throughly. Each chapter opens with an Introduction, Learning Objectives, Various Definitions, Theorems, Results and Illustrations. These in turn are followed by solved examples and exercise problems which have been classified in to various types for quick and effective revision. One can develop the skill of solving mathematical problems only by doing them. So the teacher's role is to teach the basic concepts and problems related to it and to scaffold students to try the other problems on their own. Since the second year of Higher Secondary is considered to be the foundation for learning higher mathematics, the students must be given more attention to each and every concept mentioned in this book.

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MATHEMATICS

GEK8O

E-book

N9UVC

Assessment

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EXAMS

Joint Entrance Examination (JEE) Main	
Purpose	For Admission in B. E./B. Tech., B. Arch., B. Planning
Eligibility	Class 12 pass (PCM)
Application Mode	Online
Source	http://jeemain.nic.in
JEE Advanced	
Purpose	Admission in UG programmes in IITs and ISM Dhanbad
Eligibility	Class 12 Pass (PCM)
Application Mode	Online
Source	http://jeeadv.iitd.ac.in/
Indian Maritime University Common Entrance Test	
Purpose	Admission in Diploma in Nautical Science (DNS) leading to BSc. (Nautical Science)
Eligibility	Class 12 (PCM)
Application Mode	By post
Source	www.imu.edu.in/index.php
Indian Navy B.Tech Entry Scheme	
Purpose	Admission in Indian Navy B.Tech course
Eligibility	Class 12 passed
Application Mode	Online
Source	www.nausena-bharti.nic.in/index.php

EXAMS

Indian Navy Sailors Recruitment	
Purpose	Admission in 24 weeks Basic training at INS Chilka followed by Professional training
Eligibility	Class 12 (Maths and Physics/Chem./Bio/Computer Sc.)
Application Mode	Online, By Post
Source	www.nausena-bharti.nic.in/index.php
Defence Indian Army Technical Entry Scheme (TES)	
Purpose	Technical Entry to Army
Eligibility	Class 12 PCM
Application Mode	Online
Source	www.joinindianarmy.nic.in/
National Defence Academy and Naval Academy Examination (I)	
Purpose	Admission to Army and Air Force wings of NDA and 4 years B. Tech course for the Indian Naval Academy Course (INAC)
Eligibility	Class 12 Passed
Application Mode	Online
Source	www.upsc.gov.in/

Scope for students after completing Higher Secondary

EXAMS

- If you have aspiration to become a scientist/teacher, you can do degree course in mathematics in any college of your choice. Doing B.Sc., mathematics with your knowledge which acquired in XII standard mathematics will definitely elevate you to a better career.
- There are some institutions such as IIT's, IISc., ISI's and Anna University which admit students at XII Standard level for their Integrated Courses leading to the award of M.Sc., degree in mathematics/engineering/Statistics/ Computer Science .

In Mathematics, the following degrees programmes are offered:

- 3-year BSc
- 3-year B. Math
- 4-year B. Tech
- 4-year Integrated B.Sc-B.Ed.
- 4-year BS
- 5-year Integrated M.Sc /MS

BITSAT
Purpose- For admission to Integrated First Degree Programmes in BITS Pilani, Goa & Hyderabad campuses.
National Aptitude Test in Architecture (NATA)
Purpose- Admission to B.Arch. program
Kishore Vaigyanik Protsahan Yojana (KVPY)
Purpose- Fellowship and admission to IISc Banglore in 4 year BS Degree
Indian Statistical Institute (ISI) Admission
Purpose-Admission in B Stat (Hons), B Math (Hons)
Chennai Mathematical Institute
Purpose- Admission in BSc (Hons) in Mathematics and Computer Science, BSc (Hons) in Mathematics and Physics

Job Opportunities

- You have acquired sufficient analytical still to appear for competitive examinations conducted by various organizations such as TNPSC, UPSC, BSRB, RSB.
- You are placed with better opportunity to get recruitment directly into some of the top Multi National Companies.
- You can plan to take up engineering degree course to acquire BE/B.TECH in any of the leading Technical Institutions/Universities/Engineering colleges. Institutions such as IIT's , IISc, NIT's conduct All India Level Entrance Examinations to admit students.

• Indian Forest Services	• Scientist Jobs in ISRO, DRDO, CSIR labs
• Union Public Service Commission	• Staff Selection Commission
• Indian Defense Services	• Public Sector Bank
• Tax Assistant	• Statistical Investigator
• Combined Graduate Level Exam	• Tamil Nadu Public Service Commission
• Teaching Profession	

Scholarship and Research Opportunities

FINANCIAL ASSISTANCE

- **Scholarship for Graduate and Post – Graduate courses**
- **NTSE at the end of X (from class XI to Ph.D)**
- **International Olympiad: for getting stipend for Higher Education in Science and Mathematics**
- **DST – INSPIRE Scholarships (for UG and PG)**
- **DST – INSPIRE Fellowships (for Ph.D)**
- **UGC National Fellowships (for Ph.D)**
- **Indira Gandhi Fellowship for Single Girl Child (for UG and PG)**
- **Moulana Azad Fellowship for minorities (for Ph.D)**
- **In addition various fellowships for SC / ST / PWD / OBC etc are available. (Visit website of University Grants Commission (UGC) and Department of Science and Technology (DST))**
- **University Fellowships**
- **Tamil Nadu Collegiate Education fellowship.**

RESEARCH INSTITUTIONS

NAME OF THE INSTITUTION	WEBSITE
Indian Institute of Science (IISc) Bangalore	www.iisc.ac.in
Chennai Mathematical Institute (CMI) Chennaie	www.cmi.ac.in
Tata Institue of Fundamental Research (TIFR) Mumbai	www.tifr.res.in
Indian Institute of Space Science and Technology (IIST) Trivandrum	www.iist.ac.in
National Institute of Science Education and Research (NIS-ER)	www.niser.ac.in
Birla Institute of Technology and Science, Pilani	www.bits-pilani.ac.in
Indian Institute of Science Education and Research	www.iiseradmission.in
Anna University	https://www.annauniv.edu/
Indian Institute of Technology in various places (IIT's)	www.iitm.ac.in
National Institute of Technology (NITs)	www.nitt.edu
Central Universities	www.cucet.ac.in
State Universities	www.ugc.ac.in
Tamil Nadu agricultural University (tnau.ac.in)	tnau.ac.in
International Institute of Information Technology	www.iiit.ac.in
The Institute of Mathematical Sciences (IMSC) Chennai.	www.imsc.res.in
Hyderabad Central university, Hyderabad.	www.uohyd.ac.in
Delhi University, Delhi	www.du.ac.in
Mumbai University, Mumbai	www.mu.ac.in
Savithiri Bai Phule Pune University, Pune	www.unipune.ac.in