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SEMESTER - I (CBCS)

SOCIOLOGY PAPER - I
FUNDAMENTALS OF SOCIOLOGY

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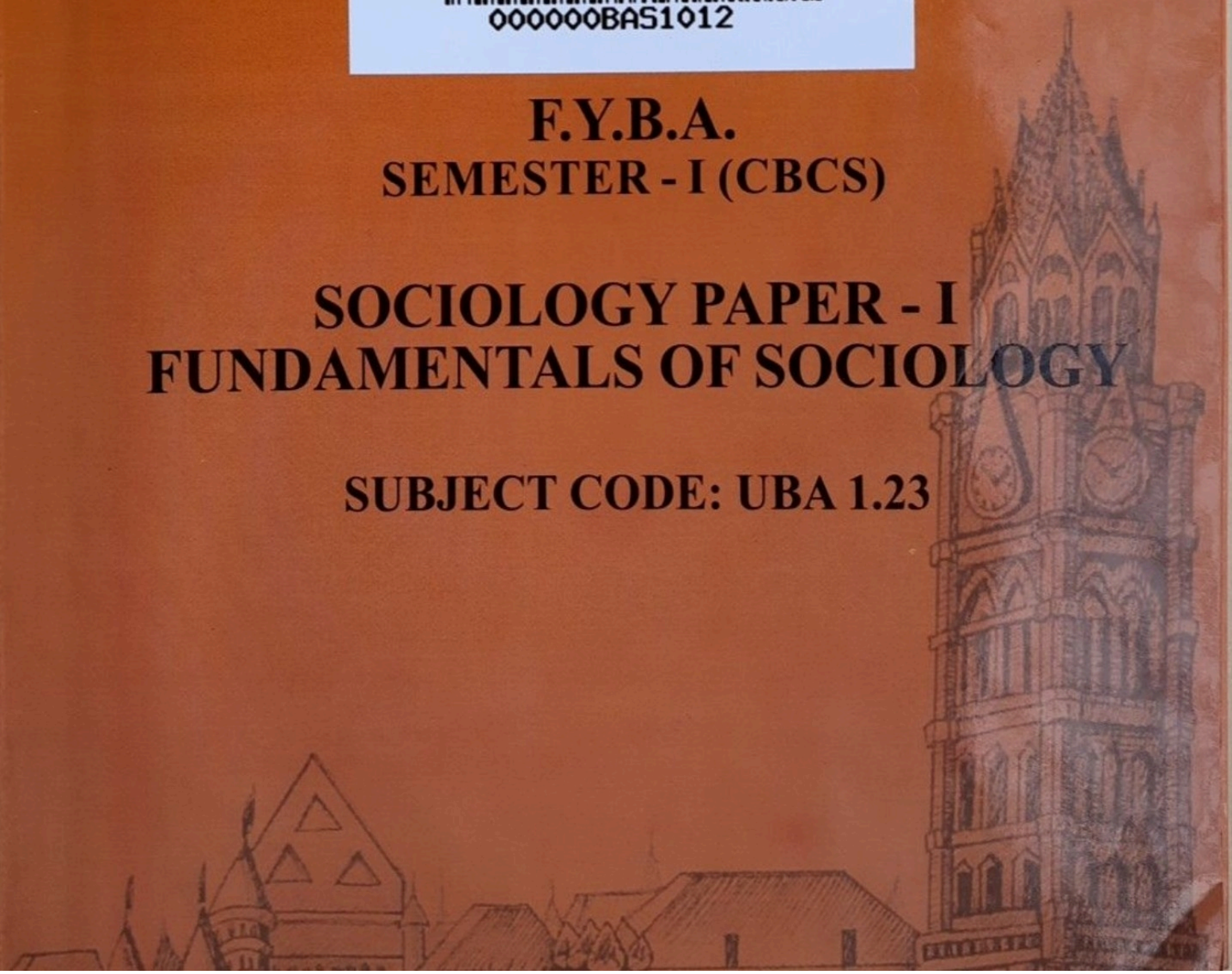

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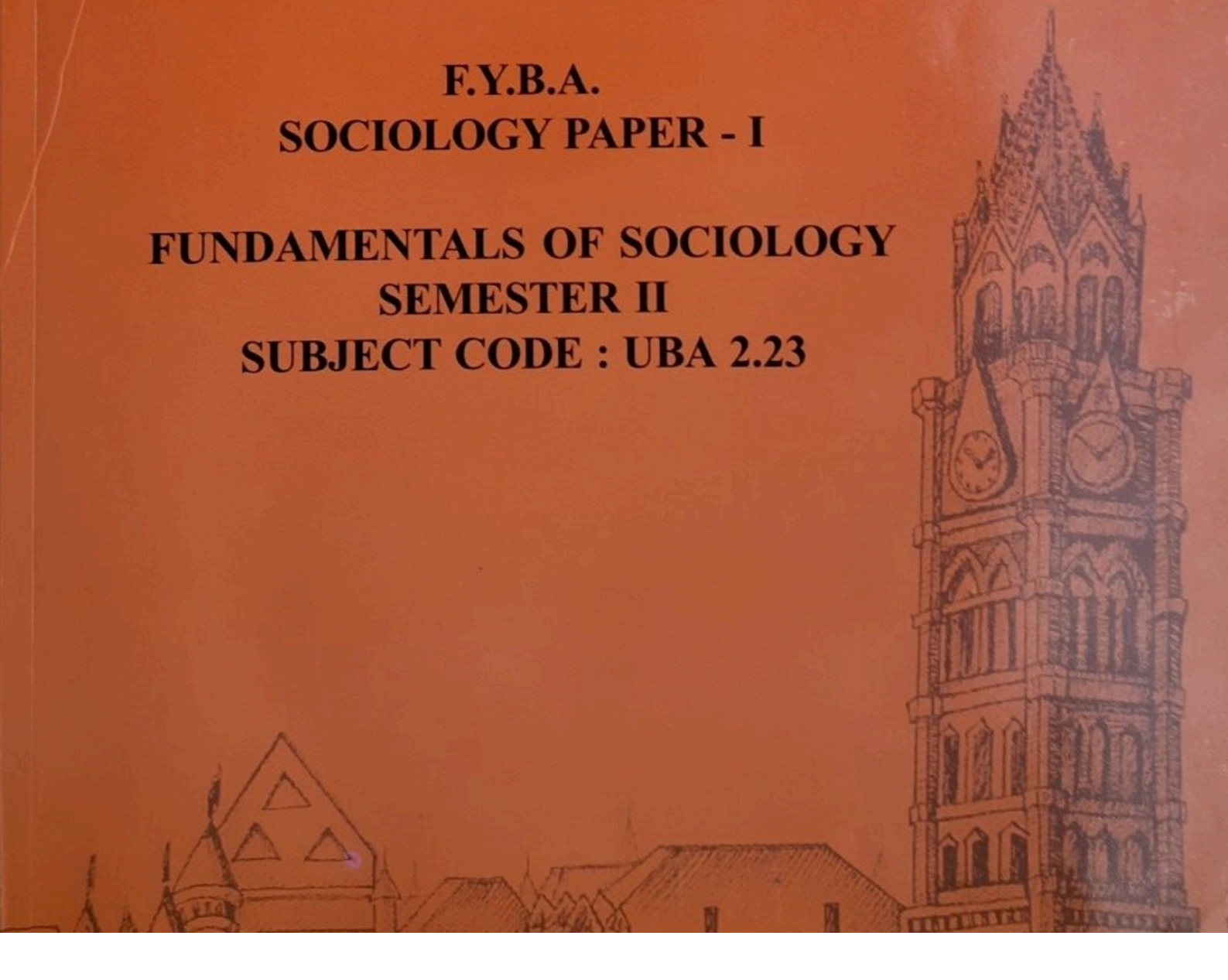

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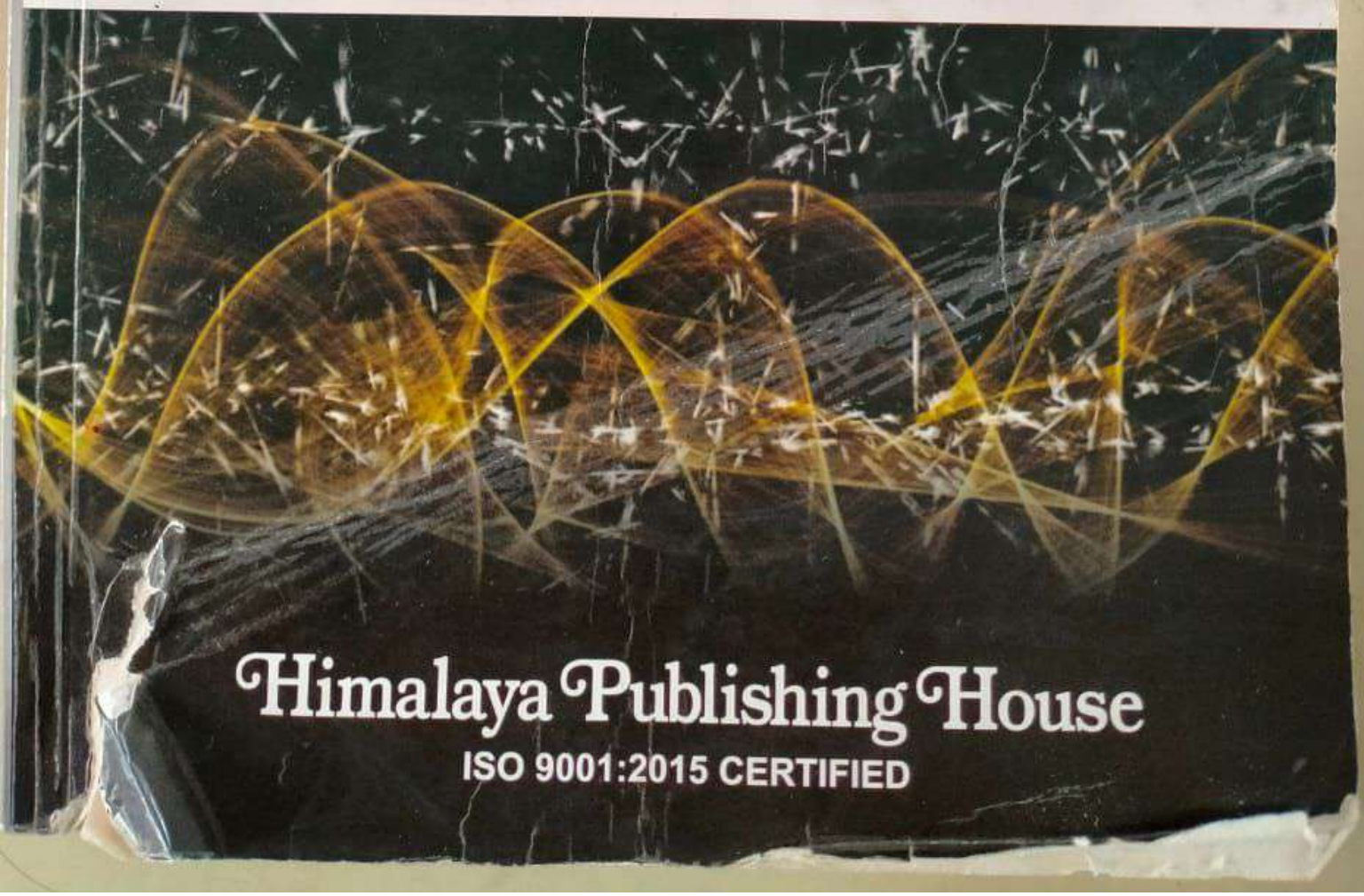

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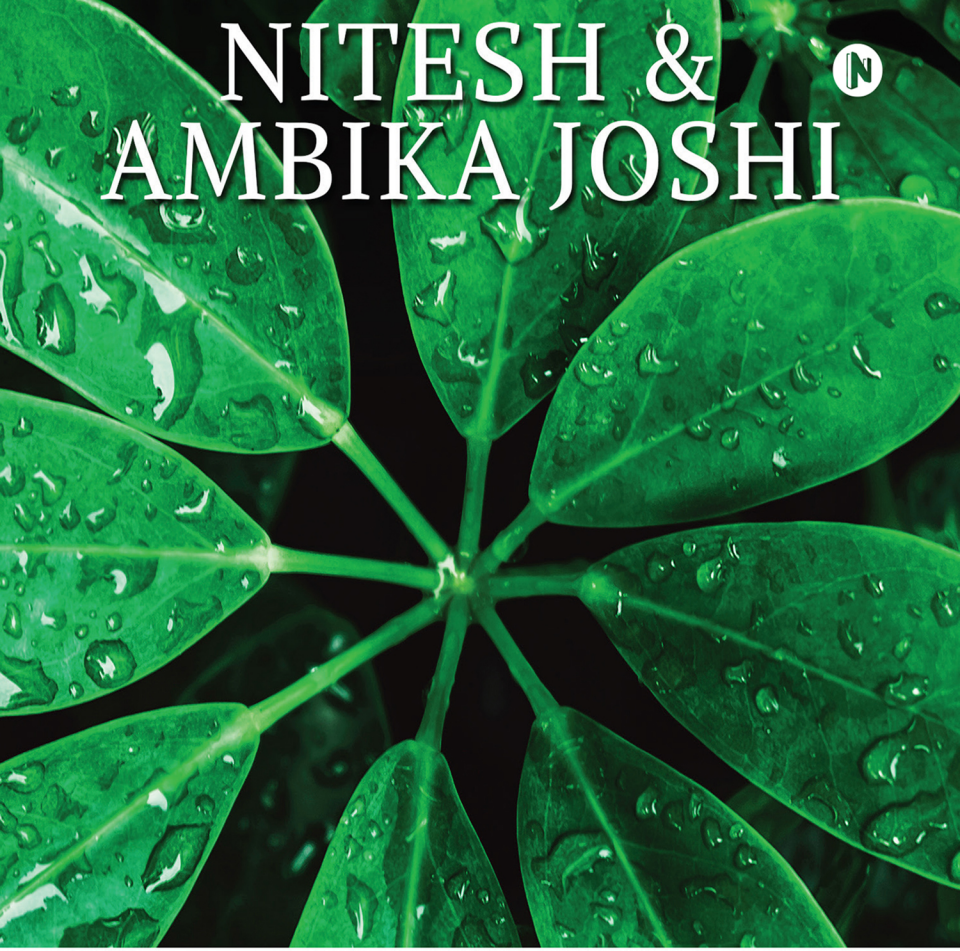

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Our planet earth is facing various environmental problems caused due to man-made activities. These problems are causing long term damage to several ecosystems. We all have to come together to create sustainable development strategies and mitigation policies for environmental problems. Common people and students must be made aware about causes, impacts and remedies for environmental issues. This book constitutes research and review papers on various topics like various Environmental Problems, Effect of mobile tower radiations on birds, Mitigation Policies, Environment Education, and Public Participation, Use of Compost for Carbon Sequestration , Bioremediation, Phytomonitoring and Phytoremediation, Legislative attempts for Environment Protection, Microbial Degradation and Detoxification of dyes, Nanofluids , E-waste and Disposal Techniques, Green and Cloud Computing, Sustainable Tourism etc. written by professors and researchers. This book is useful for researchers, academicians, students, nature lovers, environmentalists, government officials and policy makers etc.

Dr. Pratap Naikwade is editor and one of authors of this book. He has outstanding academic career. He has completed post doc research from USA. He is author of several research papers and books, worked as invited speaker in International Conferences, recipient of many Research and Extension Awards and got international recognition for Research.

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CHAPTER 3

Phytomonitoring and Phytoremediation of Dust pollution in Mumbai

Alkama G. Faqih[1], Nitesh C. Joshi[1] and Ambika N. Joshi[2]
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Abstract

Dust pollution is one of the major environmental issues in Mumbai city. Current work is an attempt to analyse the efficiency of some common plants in Phytomonitoring and Phytoremediation. *Bougainvillea spectabilis* Willd., *Ficus benjamina L., Nerium odorum* Aiton. and *Pedilanthus tithymaloides* Poit. were used to calculate dust pollution at ten sites in Mumbai. The 10 roads selected for the study were Marine Drive, Dr Babasaheb Ambedkar Road - Dadar, Ghatkopar - Eastern Express Highway, Mulund - Lal Bahadur Shastri Marg, Borivali - Western Express Highway, Goregaon - Swami Vivekanand Road, Malad - Linking Road, Bandra - Linking Road, Bandra Kurla Complex and Krishna Chandra Marg. The leaves were washed thoroughly in first visit and collected in second visit after seven days. Vehicular densities of these sites were calculated and correlated with foliar dust deposition. Statistical analysis, Box Plots and dust maps highlighted that Borivali - Western Express Highway was dustiest site with maximum vehicles, *Nerium odorum* Aiton. was best dust capturer and the months of summer season were dustier than

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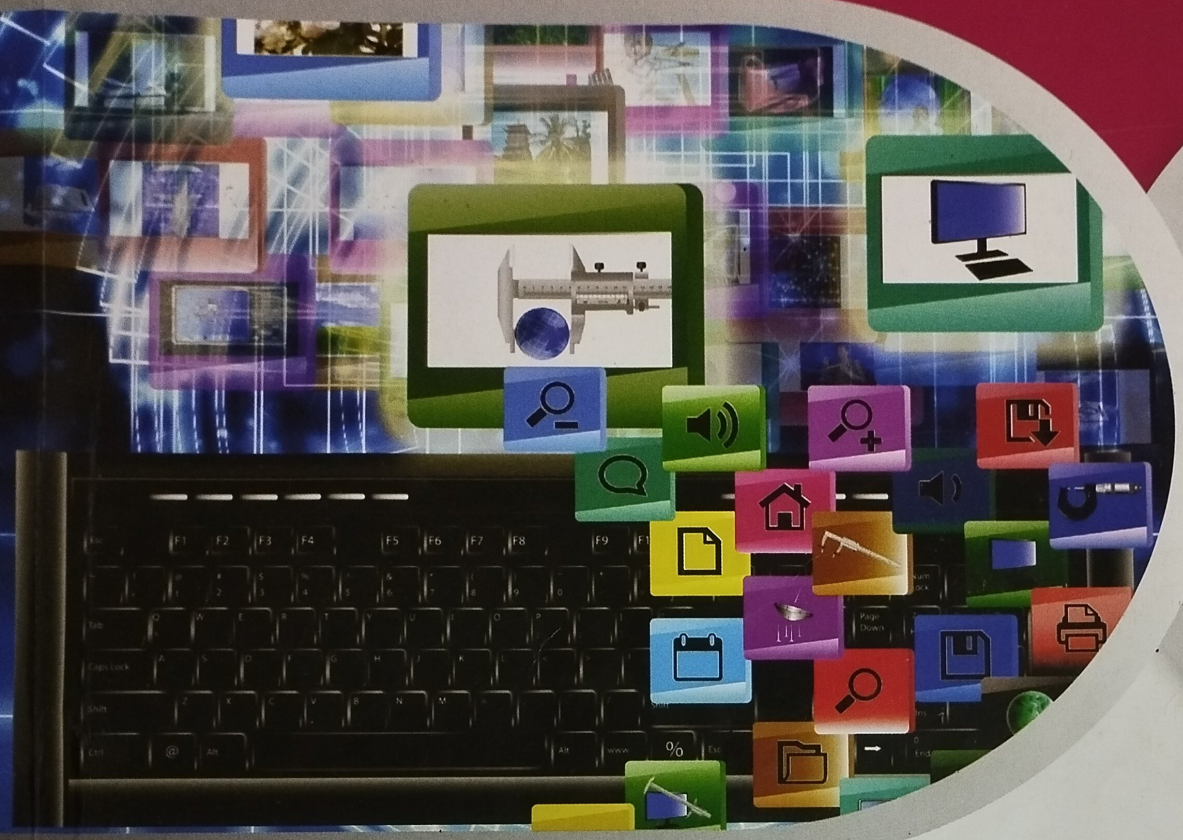

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CHAPTER 1

UNIT I

Cartesian Coordinate System

Syllabus :

Cartesian Coordinate System : The Cartesian XY-plane, Function Graphs, Geometric Shapes, Polygonal Shapes, Areas of Shapes, Theorem of Pythagoras in 2D, Coordinates, Theorem of Pythagoras in 3D, 3D Polygons, Euler's Rule.

✓ **Syllabus Topic :** The Cartesian xy-plane 1-1

1.1 The Cartesian xy-plane 1-1

Q. Write a short note on Cartesian xy-plane. 1-1

✓ **Syllabus Topic :** Function Graphs 1-1

1.2 Function Graphs 1-1

Q. What are function graphs? Explain through examples. 1-1

✓ **Syllabus Topic :** Geometric Shapes 1-2

1.3 Geometric Shapes / Shape Representation 1-2

✓ **Syllabus Topic :** Polygonal Shapes 1-2

1.4 Polygonal Shapes 1-2

Q. How is a geometric shape such as a Polygon represented on a Cartesian plane. 1-2

✓ **Syllabus Topic :** Areas of Shapes 1-3

1.5 Areas of Shapes 1-3

Q. How do you calculate areas of shapes from the coordinates of vertices? 1-3

✓ **Syllabus Topic :** Theorem of Pythagoras in 2D 1-3

1.6 Theorem of Pythagoras in 2D 1-3

Q. Explain how Theorem of Pythagoras can be applied for calculating the distance between two points on a 2D Cartesian plane. 1-3

✓ **Syllabus Topic :** Coordinates 1-4

1.6.1 Coordinates 1-4

Q. Explain 3D coordinates. Explain how Theorem of Pythagoras can be applied for calculating the distance between two points in a 3D coordinate system. 1-4

✓ **Syllabus Topic :** Theorem of Pythagoras in 3D 1-4

1.7 Theorem of Pythagoras in 3D 1-4

Q. State the Pythagoras theorem for 3D. Oct. 18. 1 Mark 1-4

Q. Explain 3D coordinates. Explain how Theorem of Pythagoras can be applied for calculating the distance between two points in a 3D coordinate system. 1-4

Q. State the Pythagoras theorem for 3D. 1-4

1.7.1 Polar Coordinates 1-4

Q. Write a short note on Polar coordinates. 1-4

1.7.2 Spherical Polar Coordinates 1-5

Q. Write a short note on Spherical coordinates. 1-5

1.7.3 Cylindrical Coordinates 1-6

Q. Write a short note on Cylindrical coordinates. 1-6

✓ **Syllabus Topic :** 3D Polygons 1-6

1.8 3D Polygons 1-6

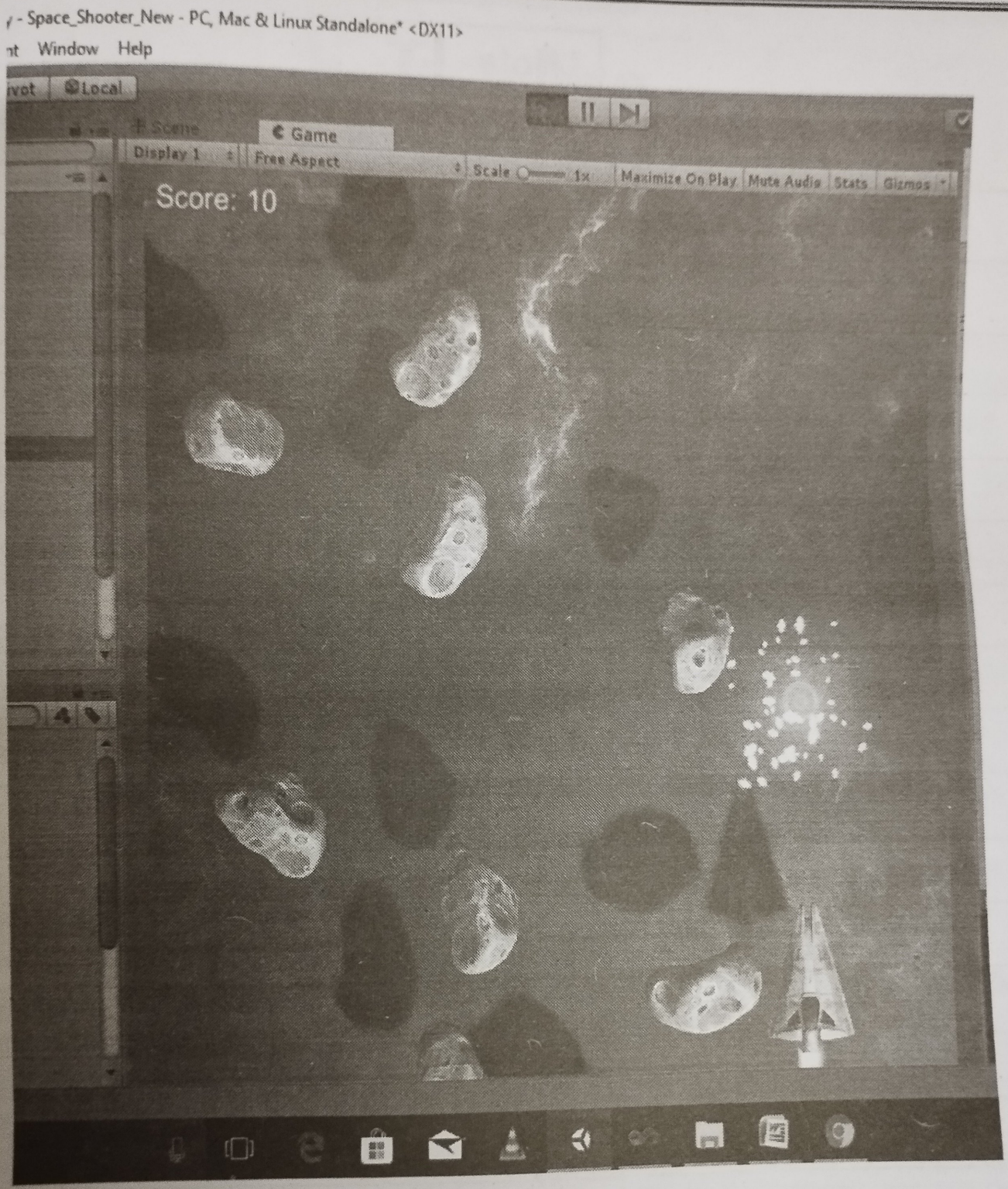
✓ **Syllabus Topic :** Euler's Rule 1-6

1.9 Euler's Rule 1-6

Q. Explain the Euler's Rule for a 3D polygonal object. 1-6

1.10 University Questions and Answers 1-7

● Chapter Ends 1-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UNIT-I

Chapter 1

INTRODUCTION

OPEN SOURCE SOFTWARE

Open source software is the software which is available with source code that anyone can inspect, modify, and enhance. Open source software's designs are publicly accessible.

Programmers have access to a computer program's source code, can improve that program by adding new features to it or by correcting parts that don't work correctly. User have full control over the access and modification of the code.

Libre Office, MySQL, WordPress, Android, Firefox, Linux are examples of open source software.

Advantages of Using Open Source Software

1. Control

User have more control over the software. They can modify the code as per own requirement. They add or keep the features they want and remove the unwanted features or parts.

2. Training

As the Source Code of the software is publicly available Open Source Programs are very helpful for the students and naïve programmers to learn and make better software.

3. Security

Some people prefer open source software because they consider it more secure and stable than proprietary software. These are mostly updated software.

4. Stability

Open Source Software are long term projects, if the owner stop working on it, it will continue be updated and upgraded by someone.

FREE SOFTWARE

The Free Software Definition was written by Richard Stallman and published by Free Software Foundation (FSF) in February 1986, defines free software as being software that ensures that the end users have freedom in using, studying, sharing and modifying that software. Free software is distributed under terms that allows user to run the software for any purpose as well as to study, change, and distribute it in any adapted versions.

The term "free" is used in the sense of "free speech," not of "free of charge." Thus, "free software" is a matter of liberty, not price.

5. List any two open source database technologies.

II. Answer the following : (ANY THREE) **(15)**

1. Give comparison between Free Software and Open Source Software.
2. Explain the concept "Free doesn't mean no cost".
3. Write short note on principles of open source.
4. Write a note on the following :
   i) LGPL licenses
   ii) Apache License
5. Discuss the problems in traditional commercial software.
6. Explain the zero marginal cost with respect to FOSS.

III. Answer the following : (ANY THREE) **(15)**

1. Write a note on the following :
   i) Drupal
   ii) Wordpress
2. Explain five key components of Open Office.
3. How one can contribute to Wikipedia? Explain.
4. Explain the following terms :
   i) Open Source Media
   ii) Open source Hardware
5. Distinguish between Commercial design practices and Open Design practices.
6. Explain process of testing open source code.

IV. Answer the following : (ANY THREE) **(15)**

1. Explain the features of Android operating system.
2. Write short note on Open Solaris operating system.
3. Write sort note on "virtualization technology".
4. Discuss Containerization technology for IDE.
5. Write a short note on "debugger".
6. Write short note on development tools.

V. Answer the following : (ANY THREE) **(15)**

1. Explain the following terms :
   i) Trademark
   ii) Copyleft
2. What is communication and etiquette? Discuss.
3. Explain role of open source in today's world.
4. How the mode of funding followed for Apache Web Server project?
5. Write a short note on 'Docker'.

ADVANCED WEB PROGRAMMING

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