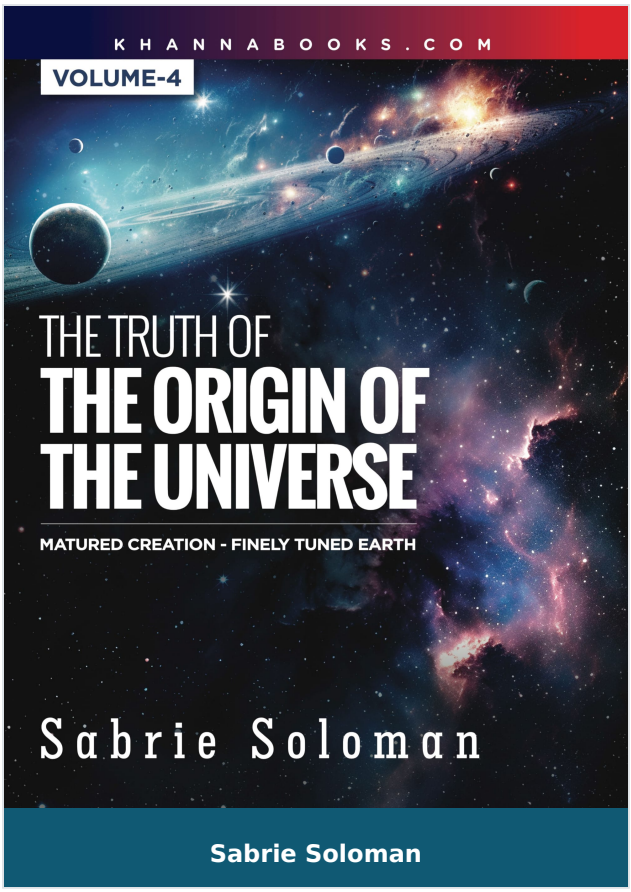

The Truth of The Origin of The Universe (Matured Creation- Finely Tuned Earth) Volume-4

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Product Description

Fully Matured Universe and Finely Tuned Earth.

The concept of a matured creation and a finely tuned Earth is a fascinating topic that has sparked much debate in the realms of science, religion, and philosophy. Proponents of this idea argue that the universe and the Earth were created in a state of maturity and perfection, with all the necessary conditions for life to thrive.

One of the key arguments for a matured creation is the idea of fine-tuning in the universe. This concept suggests that the fundamental physical constants and laws of nature are precisely calibrated to allow for the existence of life as we know it. For example, if the strength of gravity or the electromagnetic force were even slightly different, life as we know it would not be possible. This level of precision has led some to suggest that a higher power must have orchestrated the creation of the universe with the express purpose of allowing life to flourish on Earth.

Moreover, the Earth itself is viewed as a finely tuned machine that provides the perfect conditions for life. From the composition of the atmosphere to the distance of our planet from the sun, everything seems to be finely calibrated to allow for the existence living organisms. The intricate ecosystems that exist on Earth further demonstrate complexity and harmony of this finely tuned planet.

Chapters Covered in This Book:

1. Young Universe –Young Earth.
2. Earth’s Magnetic Field – Earth Age.
3. Life in a finely Tuned Cosmos.
4. The entity of the Creator.
5. Uranus and Neptune are young planets.

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- Earth’s Magnetic Field – Earth Age
- Can Science Prove the Age of The Earth
- Life in a Finely Tuned Cosmos
- The Entity of the Creator
- ISAAC Newton’s Recognition of the Creator

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Sabrie Soloman

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Sensors and Control Systems in Manufacturing (2nd edition), Affordable Automation, Introduction to Electromechanical Engineering, Modern Welding Technology, to name a few. Dr. Soloman holds numerous Patents, Technical Awards, and several US Product Registrations. He is a Fellow of the Society of Manufacturing Engineers. USA. The Royal Society of Manufacturing Engineers (England), and L'Ores Des Ingenieurs Du Quebec (Canada), He received several awards from the American Society of Mechanical Engineers (ASME), the Society of Manufacturing Engineers (SME), and the American Management Association (AMA). Dr. Soloman is considered an international authority on advanced manufacturing technology, robotics, biomedical engineering, pharmaceuticals, and automation in the microelectronic, automotive, beef, pork, poultry industries. He has been and continues to be instrumental in developing and implementing several industrial and modernization programs through the United Nation to European, Asian, and African countries. He is the first to introduce and implement unmanned flexible synchronous/asynchronous manufacturing systems the microelectronic and meat industries, and the first to incorporate advanced vision technology in a wide array of robot/micro-robot manipulators. Dr. Soloman was selected to deliver the US Presidential closing address, "Innovative Remote Sensors Technologies," at the Universal Design Conference, New York, USA

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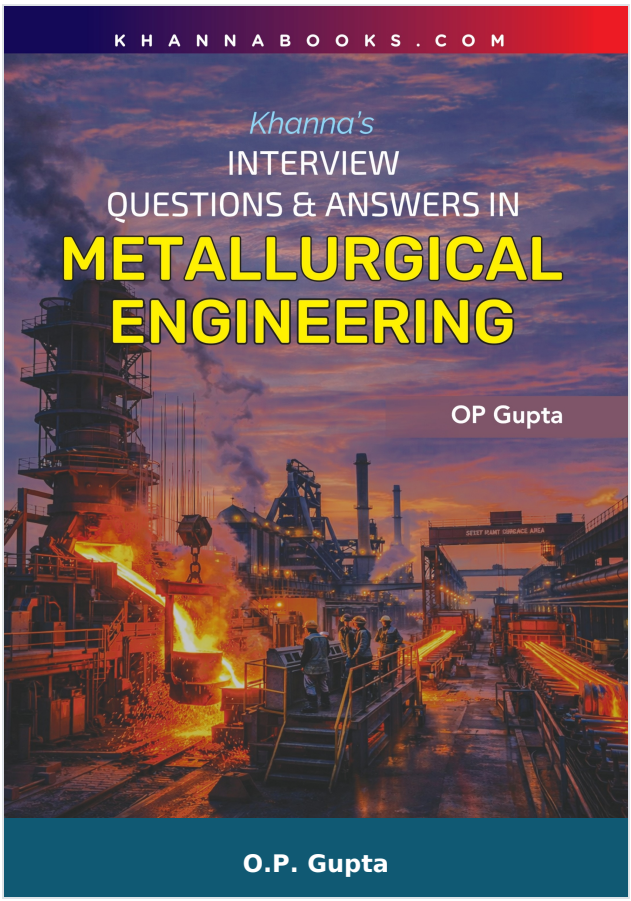

Khanna's Interview Questions & Answers in Metallurgical Engineering

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Product Description

Interview Questions and Answers in Metallurgical Engineering is a definitive preparatory guide designed to bridge the gap between academic theory and professional practice. Authored by Om Prakash Gupta, an experienced industry veteran, the book serves as a comprehensive resource for students and engineers facing the rigors of technical interviews and competitive examinations. Its core theme centers on the practical application of metallurgical principles across a vast spectrum of materials and processes, ranging from foundational material science to advanced nanomaterials and smart technologies.

The primary purpose of this volume is to equip candidates with the precise, high-impact knowledge required by major public and private sector recruiters, such as SAIL, TATA Steel, and DRDO. By presenting information in a clear question-and-answer format, it demystifies complex topics like phase diagrams, heat treatments, and powder metallurgy, making them accessible for quick revision and deep understanding. Whether you are a diploma student, a postgraduate researcher, or a professional seeking a career transition, this book provides the practical value and academic rigor necessary to excel in the metallurgical engineering landscape.

Salient Features

• Comprehensive Coverage: Includes 35 specialized chapters ranging from foundational metallic structures to advanced nanomaterials and polymers.

• Industry Alignment: Specifically tailored to meet the technical standards of elite recruiters like SAIL, TATA Steel, ISRO, and DRDO.

• Academic Integration: Aligned with degree and diploma curricula, as well as professional exams like AMIE and AMIIM.

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• Process Expertise: Offers functional insights into industrial workflows, including casting, welding, and metal forming.

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O.P. Gupta Om Prakash Gupta is basically being a chemical engineer, he has a practising experience of efficient Ennergy management and HR functions in steel Industry for more than three decades. privileged to be the youngest writer of technical books in the country (for he had written his first book at the age of 24 years while doing M. Tech. at I.I.T kanpur in 1979), he has authored many frontline books for engineering students. besides, being the regular faculty member in technical courses for Management Trainees (Technical), he has also visited england and france on a study tour sponsored by United Nations Development Programme (UNDP) to study the scope of energy conservation in steel plants in 1987.

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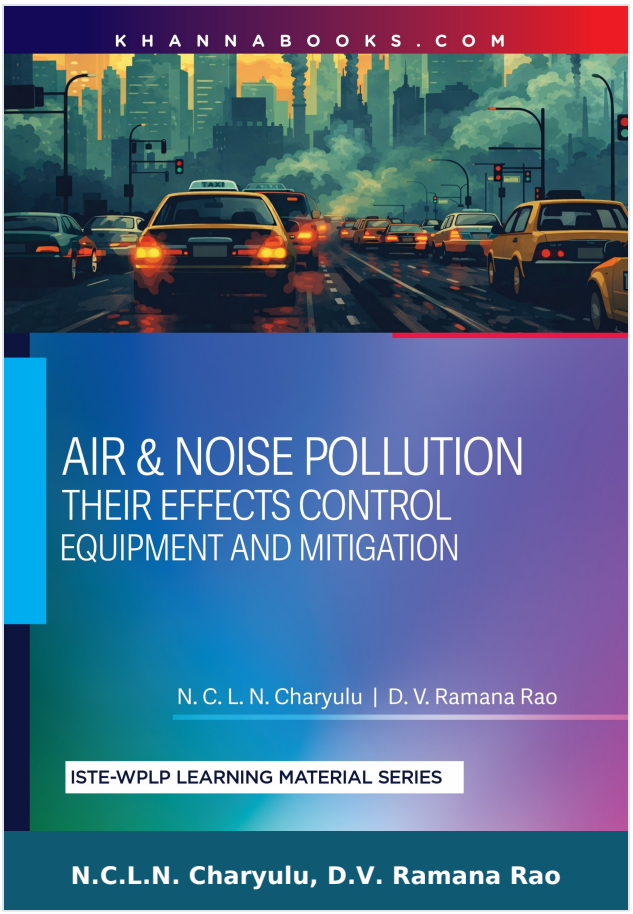

Air & Noise Pollution Their Effects Control Equipment and Mitigation

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Product Description

Air & Noise Pollution Their Effects Control Equipment and Mitigation

Industrial activities especially after the Industrial revolution all over the world have led to environmental problem by excessive consumption of resources and release of deleterious effluents, emissions and residues. Among the various aspects of pollutants, air, water noice are inherent characteristics, in contributing pollution in process industries. Air pollution in the form of particulates and gases are emanated from chemical and other process industries. Biological material from agricultural and other natural Phenomena are introduced or inserted into the atmospheric air.

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- Nanoparticle Emissions and Protective Controls
- Emerging Technologies for Particulate and Gaseous Emissions

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N.C.L.N. CHARYULU obtained B.Tech. (Chem Engg) from Andhra University in 1963 M. Tech. (Chem. Engg) with specialization in Chemical Plant Design, from IT Kharagpur, in 1967 (Technical Teacher Trainee) and Ph.D. (Chem Engg) from I.I.Sc., in 1977. Joined Karnataka Regional Engineering College, KREC Surathkal (presently renamed as National Institute of Technology Surathkal) as lecturer in 1967. Served in different capacities as Asst. Prof. Professor, Head of Chemical Engineering Department and Dean Students Affairs. Taken voluntary retirement in March, 2001 and joined Chaitanya Bharathi

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Institute of Technology (CBIT). Served as Prof and Head Chem Engg Dept., CBIT bill May, 2010. Total teaching experience of 46 Y (1954- 2010) He was awarded National Biotechnology Associate for One Year (1988-89) during which he was a visiting professor at Fermentation Technology and Bioengineering CFTRI, Mysore, in the Biotechnology associate ship programme. May-Nov 1990. he spent 3 months at NCSU, Raleigh, N.C., USA, another 3 months at UM.C.. USA, and Indian Secondment Visiting Professorship for one semester 1996-97 at School of Environment Resource Development, Asian Institute of Technology. Bangkok Thailand. He has Coordinated two I.S.TE. sponsored Winter Summer Schools a) Fluidization Engineering 1980 b) Bioconversion process optimization computer modeling-1989 and two refresher courses to working professionals a) Application of Chem. Eng. principles to Urea plant operators of MCF, Panambur 1993 and b) Unit operations for design, production and maintenance personnel in cement and mineral based industries October 20-25, 2008. He guided four theses for Ph.D. a) Biosynthesis of Cellulase enzyme and Modeling, 1994. b) Bioremediation of industrial and domestic effluents by microorganisms 1999. c) Studies on biodegradation of high BOD effluent by anaerobic digestion and modeling 2001. d) Study of Coagulation flocculation Process by polyelectrolytes for effective solid-liquid separation in water and wastewater treatment 2005. In addition he has guided over 20 M. Tech, theses. His areas of specialization are: Chemical plant design, Chemical reaction engineering, Enzyme synthesis, Bioremediation, Biosynthesis and Bioconversion, Simulation & Computer Modeling. Application of Science and Technology to Rural areas for utilization of Agro wastes, Environmental Impact Assessment, Environment Management Planning. He published about 15 technical papers in International and national journals and seminars/symposia. He delivered number of invited lectures. He was a chairman and/ or member of several academic bodies of different Universities-Mysore, Bangalore, Mangalore, Osmania, Kuvempu etc. Dr.

D.V. Ramana Rao

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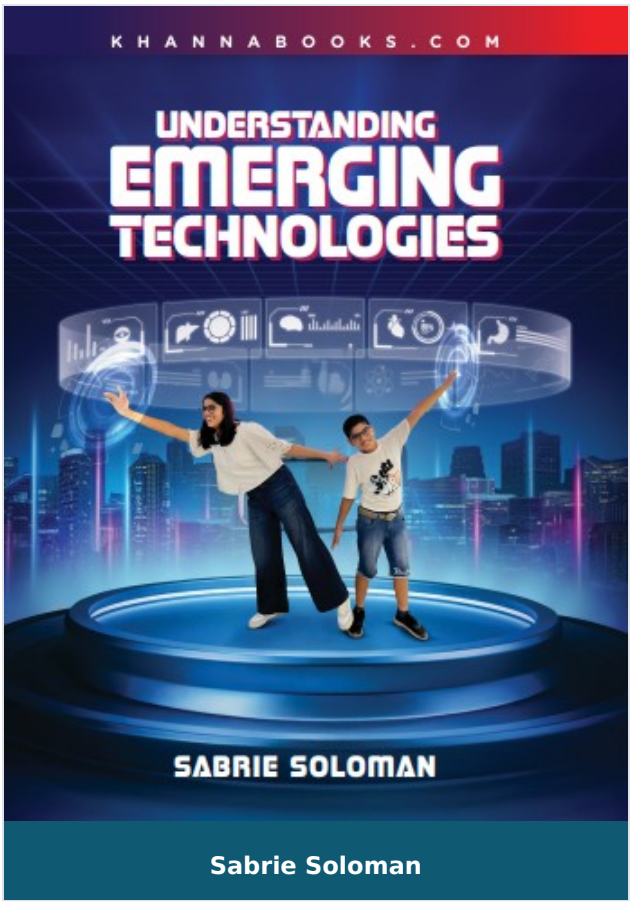

Sabrie Soloman

Understanding Emerging Technologies

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Product Description

Understanding Emerging Technologies

This book explores cutting-edge technologies like AI, AR/VR, IoT, 3D printing, blockchain, quantum computing, data science, and fusion power. It highlights their transformative impact on industries, healthcare, education, energy, and daily life. Readers gain insight into how pioneers are shaping the future, the benefits and challenges of each technology, and the promise of innovation-driven progress. A must-read for understanding the evolving tech landscape and its role in creating a smarter, sustainable, and connected world.

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Author

Sabrie Soloman

Dr. Sabrie Soloman, Ph.D., Sc.D., MBA, PE - He is the Chairman & CEO of American SensoR x, In, USA; Founder of Advanced Manufacturing Post Graduate Studies at Columbia University, USA; Professor of Advanced Technology at Columbia, where he lectures on Sensors & Control Systems in Manufacturing, Affordable Automation, Computer Integrated Manufacturing (CIM), Flexible Manufacturing System (FMS), Design for Manufacturability, Introduction to Electromechanical Engineering, Modern Welding Technology, and 3D Printing/Bioprinting Technology. Dr. Soloman authored numbers of technical books published and translated worldwide: Sensors Handbook (2nd edition), Sensors and Control Systems in Manufacturing (2nd edition), Affordable Automation, Introduction to Electromechanical Engineering, Modern Welding Technology, to name a few. Dr. Soloman holds numerous Patents, Technical Awards, and several US Product Registrations. He is a Fellow of the Society of Manufacturing Engineers. USA. The Royal

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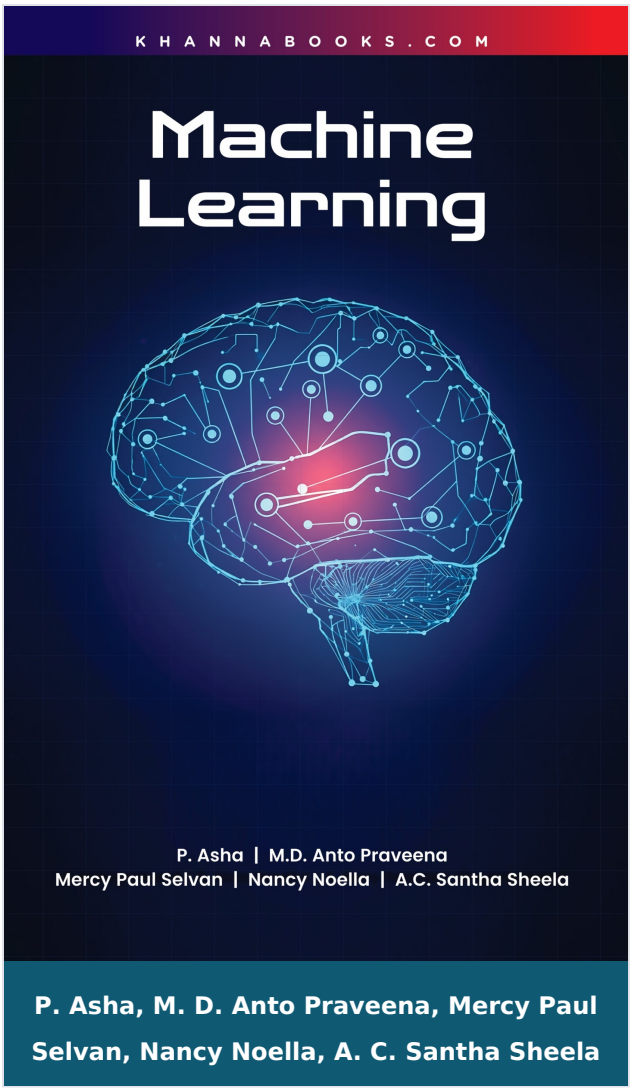

P. Asha, M. D. Anto Praveena, Mercy Paul Selvan, Nancy Noella, A. C. Santha Sheela

Machine Learning

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Product Description

MACHINE LEARNING: A Theoretical and Practical Guide is an essential introductory textbook meticulously designed to equip students and researchers with a robust theoretical foundation and critical practical insights into the rapidly evolving field of data analytics. Addressing the core principles of machine learning (ML), the book systematically explores the diverse ML types—Supervised, Unsupervised, Semi-Supervised, and Reinforcement Learning—while meticulously detailing their mathematical underpinnings and theoretical frameworks.

The book begins with an exploration of fundamental learning concepts, including the Bias-Variance Tradeoff and VC Dimension, before delving into core algorithms. It provides comprehensive coverage of key techniques for real-world problem-solving, such as Association Analysis for recommendation systems, and foundational Classification algorithms like Decision Trees and Naïve Bayesian Classifiers. Complex topics are simplified through a thorough analysis of parametric estimation, multivariate techniques, and crucial dimensionality reduction methods like PCA and LDA. Furthermore, the text offers practical solutions for Clustering and Outlier Detection, which are vital for achieving effective generalization. A dedicated section introduces Neural Networks, from single-layer perceptrons to Multi-layer Perceptrons and Backpropagation, culminating in a discussion of advanced local models and ensemble techniques like Bagging and Boosting. Finally, the book highlights emerging research in Reinforcement Learning, positioning it as a valuable resource for tackling complex engineering and open research challenges. This volume serves as an invaluable roadmap for aspiring data scientists and established academics seeking to master modern ML principles.

Salient Features:

• Foundational Learning Paradigms: Details the four main types of learning: Supervised, Unsupervised, Semi-Supervised, and Reinforcement Learning, providing context for

various algorithms.

• Core Algorithms Analyzed: Provides in-depth coverage of crucial models such as Decision Trees, Naïve Bayes Classifiers, K-Means clustering, and Linear Regression.

• Mathematical Underpinnings: Explains the theoretical frameworks of ML, including Bayesian Decision Theory, PAC Learning, and the Bias-Variance Tradeoff in model building.

• Data Reduction Techniques: Features practical chapters on essential dimensionality reduction methods like Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA) for data preprocessing.

• Neural Network Deep Dive: Introduces the architecture and training of neural networks, covering perceptrons, Multi-Layer Perceptrons, and the Backpropagation algorithm.

• Advanced Local Models: Includes detailed explanations of competitive learning, Self-Organizing Maps (SOM), and Radial Basis Function (RBF) networks for advanced data grouping.

• Model Optimization Strategies: Explores ensemble methods, specifically Bagging and Boosting (including AdaBoost and Gradient Boosting), for improving model accuracy and stability.

• Future Learning Paradigms: Highlights emerging research in Reinforcement Learning, explaining its workflow, terminologies, and key models like Markov Decision Processes (MDPs) and Q-Learning.

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- Multilayer Perceptions
- Local Models

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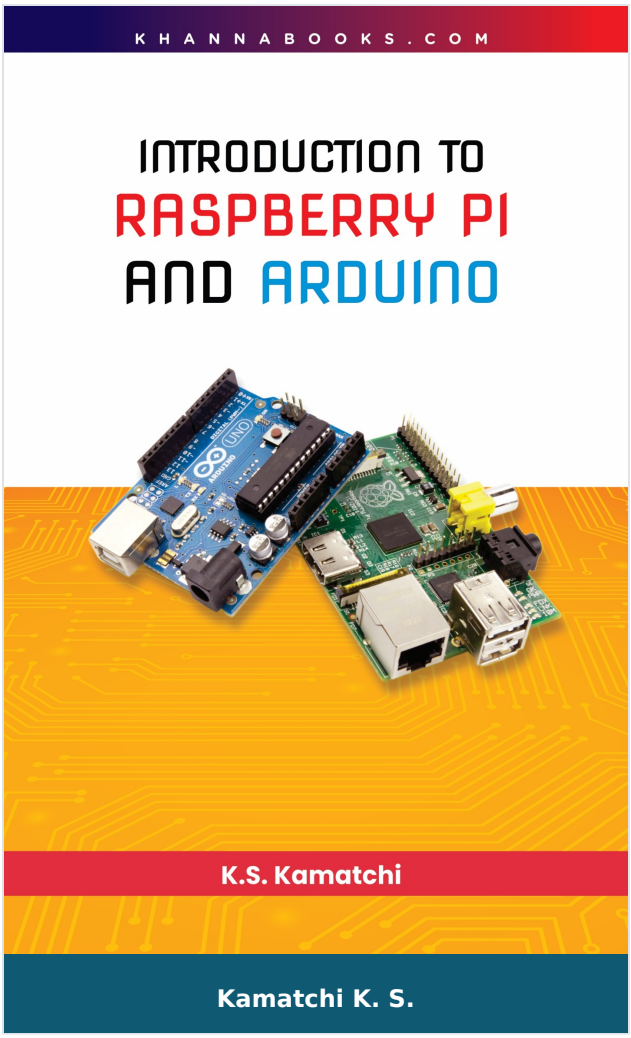

Introduction to Raspberry Pi and Arduino

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Product Description

"Introduction to Raspberry Pi and Arduino" is a comprehensive, practical guide designed to launch aspiring engineers, students, and hobbyists into the dynamic world of the Internet of Things (IoT), embedded systems, and electronics. Recognizing that modern IoT innovation rests upon versatile prototyping tools, this book provides focused, hands-on instruction for the two most popular platforms: Arduino and Raspberry Pi.

The core purpose of this text is to bridge the gap between theoretical electronic concepts and the tangible creation of smart devices. The journey begins by laying the groundwork, introducing the essential components of any IoT ecosystem, such as sensors and actuators. The book then systematically separates the platforms: Arduino is utilized for building interactive and rapid-prototyping applications, while the more powerful Raspberry Pi is leveraged for creating complex, networked, and web-connected projects. Readers will learn to integrate Wi-Fi supported modules like the ESP 8266, manage cloud communication (e.g., Thing Speak, Blynk), and design full-scale home automation systems that combine both microcontrollers.

With its academic yet friendly tone and chapters structured around hands-on examples, this resource guarantees that by the end, you will be equipped with the necessary knowledge and practical skills to create your own innovative IoT solutions, moving from the simplest to the most sophisticated systems. This book is your essential gateway to becoming a builder in the digital age.

Salient Features:

• Dual Platform Focus: Dedicated, practical coverage of both Arduino (for interactive prototyping) and Raspberry Pi (for complex, networked systems), providing versatile skills for any DIY electronics project.

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• Core IoT Components: Detailed introduction to sensors and actuators and their roles in IoT systems, with practical guidance on interfacing various types of sensors (LDRs, DHT-22, etc.) for crucial data collection.

• Hands-on Projects: Every chapter provides hands-on examples and step-by-step guides, enabling readers to follow along, experiment, and immediately build their own IoT applications for real-world problem-solving.

• Cloud Communication: Comprehensive coverage of IoT integration and cloud connectivity, including using the ESP 8266 Wi-Fi module and platforms like ThingSpeak and Blynk for remote data monitoring.

• Web-Connected Control: Teaches how to leverage the Raspberry Pi's potential for web-connected projects, covering key concepts like setting up a LAMP Web-server and controlling GPIO pins over a web browser.

• Visual Programming: Includes exploration of the Node-RED Visual Editor, which simplifies home automation and IoT design using a flow-based programming model to connect hardware, APIs, and online services.

• Integrated Automation: Explains the design and implementation of home automation systems that leverage both platforms, covering communication protocols like MQTT and providing blueprints for smart devices and solutions.

• Code Practicality: Provides executable code and programming guidance in both C/C++ (for Arduino sketches) and Python (for Raspberry Pi GPIO and networking), preparing the reader for full-stack embedded development.

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- Introduction to Raspberry Pi
- IoT Design Using Raspberry Pi
- Exrcises

Author

Kamatchi K. S.

P. Jeyanthi, Sankari M., Kamatchi K. S.

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Lekshmi S. Raveendran, Minu Susan Jacob, Selvapriya

Artificial Intelligence Search Methods & Reasoning

Author :	Lekshmi S. Raveendran, Minu Susan Jacob, Selvapriya
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Product Description

Artificial Intelligence Search Methods and Reasoning serves as an essential guide to the foundational principles and core algorithmic strategies that power modern intelligent systems. This book uniquely blends the basic cognitive science behind AI—exploring concepts of intelligence, memory, computation, and learning—with the practical, rigorous algorithms used for problem-solving in complex environments. Its core theme is to demystify how intelligent agents perceive, reason, and act by systematically searching for optimal solutions.

The primary purpose of this resource is to equip learners with a deep, practical understanding of both uninformed (e.g., BFS, DFS) and informed search techniques (e.g., A*, Greedy Best-First Search), adversarial search, and constraint satisfaction problems (CSPs). The text further extends into crucial domains like knowledge representation using logical agents (propositional and first-order logic) and probabilistic reasoning (Bayesian networks, Hidden Markov Models). It culminates in a detailed examination of various learning algorithms, including supervised, unsupervised, reinforcement, and ensemble methods.

The target audience for this book includes undergraduate and graduate students in Computer Science, Artificial Intelligence, and Electrical Engineering, as well as researchers and professionals seeking a robust, algorithm-focused foundation in AI theory and implementation. It offers practical value through numerous case studies, such as the N-Queens Problem, the Wumpus World, and the application of Nature-Inspired Computation like Ant Colony Optimization for the Traveling Salesman Problem. It is a vital resource for building intelligent systems capable of autonomous decision-making.

Salient Features:

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• Foundational AI Concepts: Provides a unique introduction to the cognitive roots of AI, detailing the science behind intelligence, human memory models, and their translation into computational systems.

• Exhaustive Search Algorithms: Offers comprehensive coverage of Uninformed Search methods (BFS, DFS, IDDFS, UCS, Bidirectional Search) & advanced Informed Search strategies, including heuristics & A*.

• Logic and Reasoning: Systematically explores the role of knowledge and its representation using propositional and First-Order Logic, enabling agents to perform complex inference via Forward and Backward Chaining.

• Probabilistic Approaches: Dedicated unit on planning and reasoning under uncertainty, covering essential topics like Bayes' Rule, Bayesian Networks, Hidden Markov Models, and Kalman Filters.

• Constraint Solving & Games: Detailed breakdown of Constraint Satisfaction Problems (CSPs), including a case study on the N-Queens problem, alongside an exploration of Adversarial Search strategies for competitive environments.

• Modern Learning Paradigms: Includes extensive chapters on learning intelligence, covering Supervised, Unsupervised, and Ensemble Learning techniques (e.g., Boosting/AdaBoost), vital for contemporary AI applications.

• Real-World Case Studies: Features practical application examples like solving the Wumpus World problem and a special unit on Nature-Inspired Computation, demonstrating Ant Colony Optimization for the Traveling Salesman Problem (TSP).

• Intelligent Agent Design: Focuses on the Rational Agent approach, detailing the PEAS framework (Performance, Environment, Actuators, Sensors) and exploring agent rationality, learning, and autonomy.

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- Approaches Behind Planning and Reasoning
- Learning an Communication

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D.C. Sikdar

Mechanical Operations (Particles and Motion of Particles)

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Product Description

MECHANICAL OPERATIONS

Particles and Motion of Particles

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1. Introduction.

2. Particle Technology.

3. Size Reduction.

4. Flow of Fluid Past Immersed Bodies.

4. Motion of Particles Through Fluids.

6. Sedimentation.

7. Filtration.

8. Agitation and Mixing.

9. Sampling Storage and Conveying of Solids.

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- Agitation and Mixing.
- Sampling, Storage and Conveying of Solids.
- Magnetic Separations.
- Jigging.

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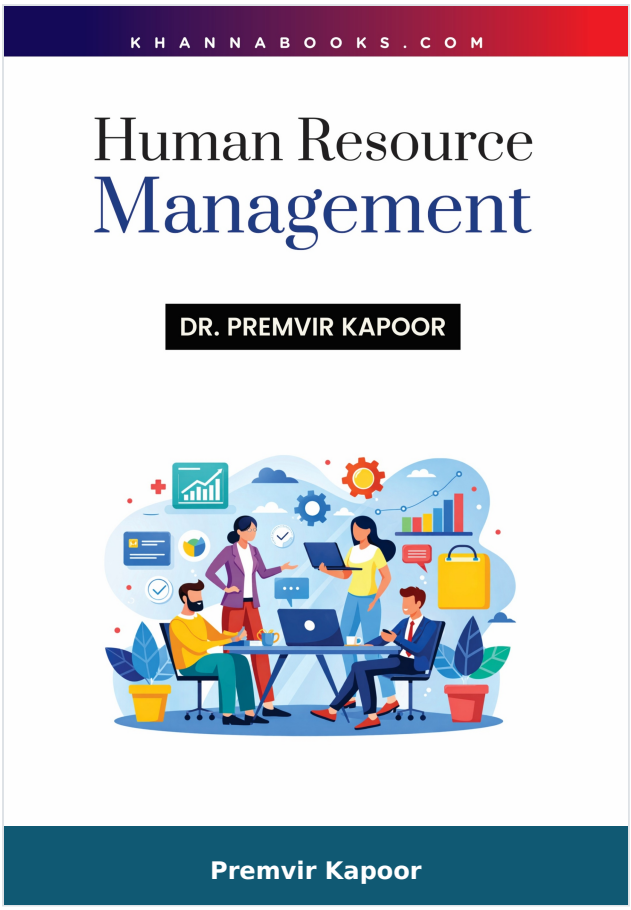

Human Resource Management

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Product Description

Human Resource Management

Human resource management by Dr. Premvir Kapoor is a comprehensive and forward-looking guide designed to navigate the complexities of managing people in a rapidly evolving global economy. Recognizing that human capital is an organization’s most vital and appreciating asset, the book shifts the focus from traditional, rule-bound personnel management to a modern, humanitarian, and strategic approach. It explores how socioeconomic, technological, and political shifts – such as globalization and the rise of WTO—demand innovative mechanisms for developing employee skills and competencies.

Specifically tailored for students for students of BBA, MBA, and M. Com, the text presents complex concepts in a simple, compact, and easily understandable manner. It bridges the gap between academic theory and professional practice by covering essential topics like job analysis, recruitment, performance appraisal, and the emerging field of human resource Accounting. Whether you are a student preparing for professional examinations or a manager seeking to improve organizational effectiveness through a motivated workforce, this book provides the necessary tools to transform human potential into a source of sustainable competitive advantage.

Salient Features:

- **Strategic Capital Focus**: the text treats human resources as a form of capital and a primary investment, emphasizing that while other resources depreciate, human value appreciates through experience.
- **Comprehensive functional coverage**: it provides an in-depth look at the entire HRM lifecycle, including meticulous processes for manpower planning, recruitment, selection, and induction.

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- **Scientific job Analysis**: The book details systematic methods for job description and specification, utilizing both quantitative and non-quantitative techniques to define roles and responsibilities accurately.
- **Advanced performance metrics**: Readers are introduced to sophisticated evaluation tools such as the balanced scorecard and HR scorecard to link people management directly to business performance.
- **Human Resource Accounting**: It explores modern valuation methods and models, like the lev and schwarts model, to measure the economic value of human resources within financial statements.
- **Organizational Development Insights**: The content emphasizes building an enabling culture through OD interventions, team development, and the use of change agents to faster innovation.
- **Analytical Research tools**: Dedicatied sections on personal research and auditing provide methodologies for evaluating HR effectiveness and ensuring compliance with statutory provisions.
- **Practical Learning Aids**: Each chapter is supported by learning objectives, summaries, and a detailed glossary of key terms to reinforce conceptual clarity and academic retention.

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AI Shakti, AI for Bharat (Coloured Addition)

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AI Shakti, AI for Bharat (Colour)

AI Shakti presents a bold and pragmatic wireframe for nations seeking to integrate artificial intelligence seamlessly into education, enterprise, governance, and daily life. The authors bring together the rare convergence of academic depth, institutional experience, and visionary imagination.

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- Tier 0: AI Foundations for Schools
- Tier 1: AI Literacy For ALL
- Tier 2: Applied AI Skills For Employability
- Tier 3: Msmes: The Backbone of India
- Tier 4: Deep-Tech AI Telent Pipeline
- Implementing The 5-Tier System at Scale
- Tools, Templates and Worksheets
- The Future of India with Alforall
- The Vault of Knowledge
- When the Mind Melts

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Mahesh Verma

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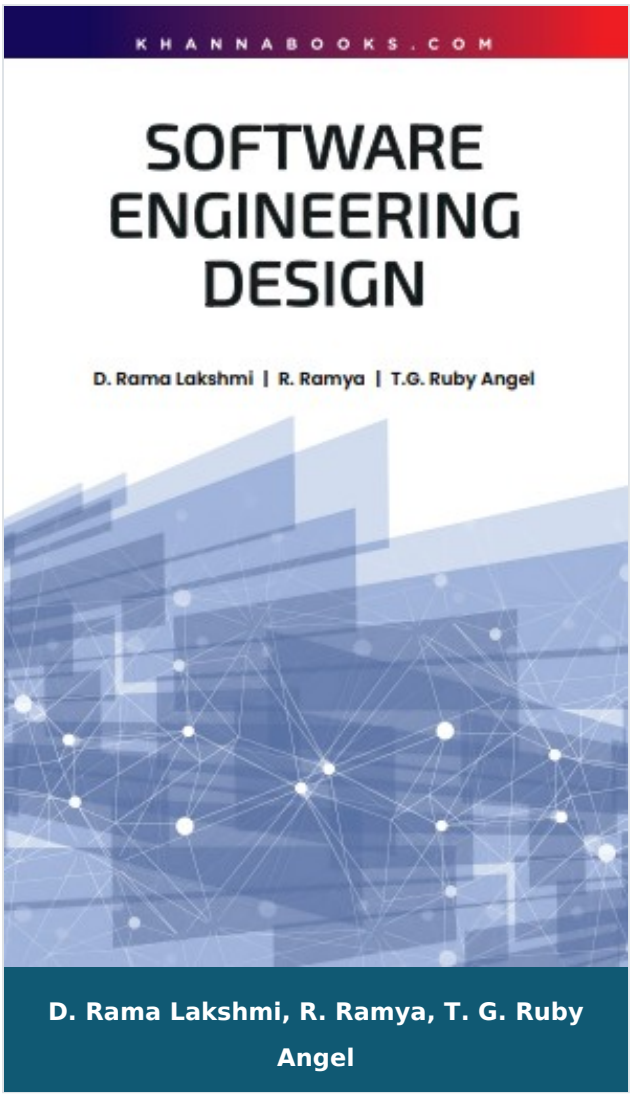
Yogi Kochhar

Yogi Kochhar : - Yogi, an AI FUTURIST, works across sectors in US, UK and India to operationalize AI adoption at scale: his ability to simplify complex ideas and translate them into implementable constructs gives this book its unique clarity and force. Author, Poet Golfer, Trekker. Their collaboration results in a seminal work that charts not just what AI can do, but what it must do; strengthen institutions, empower citizens, and prepare societies for an era of profound transformation.



D. Rama Lakshmi, R. Ramya, T. G. Ruby Angel

Software Engineering Design

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Product Description

Software Engineering Design

Software Engineering Design is a comprehensive guide to the foundational discipline that dictates the success, scalability, and maintainability of all modern software systems. Recognizing that software design is at the heart of technological advancements, this essential resource transforms the complex challenges of system design into a structured, manageable process. Its core purpose is to bridge the gap between theoretical foundations and real-world applications, ensuring that readers gain both a vital conceptual understanding and practical expertise in creating robust software solutions.

The book covers the entire spectrum of the software development lifecycle. It begins with an exploration of various Software Life Cycle Models—from linear methods like the Waterfall Model to adaptive Agile methodologies. The text then provides a deep dive into Requirement Engineering, focusing on crucial tasks like requirements modeling (DFD, ERD) and rigorous validation, before moving into the central System Design phase. Here, readers learn about popular architectural paradigms (Layered, Data-Centered) and objective metrics, such as Coupling and Cohesion, used to measure the "goodness" of a design. The content concludes with a focus on Testing & Quality Assurance (Verification and Validation) and key management aspects, including risk mitigation (RMMM) and project estimation (COCOMO).

This text is specifically tailored for a broad audience: students beginning their academic journey, as well as experienced professionals and practitioners seeking to refine their design skills. By imparting technical knowledge and fostering a necessary design-oriented mindset, this book serves as an invaluable companion for building systems that are efficient, reliable, and sustainable.

Salient Features:

- **Structured Life Cycles**: Explore fundamental Software Life Cycle Models (Waterfall, Spiral, Prototyping) and modern, iterative approaches like Agile methodologies to ensure efficient project management and successful risk mitigation.
- **Precise Requirements:** Details the systematic process of Requirements Engineering, covering elicitation, visual modeling (DFD, ERD), and rigorous validation to align the final product with core business and user needs.
- **Core Design Architectures**: Focuses on System Design principles, exploring essential architectural paradigms such as Layered Systems, Data-Centered Systems, and the critical transition from requirements analysis to a final blueprint.
- **Design Quality Metrics**: Provides essential methods for quantifying design effectiveness, specifically detailing the metrics of Coupling and Cohesion to guide students and professionals toward building maintainable and robust software.
- **Quality Assurance & Testing**: Integrates the continuous processes of Verification and Validation (V&V), covering the various Levels of Testing and approaches (Functional/Non-Functional) required to achieve a high-performance system.
- **Project Management Tools**: Covers Umbrella Activities such as Risk Management (RMMM), Software Quality Assurance (SQA), and project cost/time estimation using industry models like the well-known COCOMO model.
- **Evolution & Reengineering**: Discusses software evolution through different forms of Maintenance (Corrective, Adaptive, Preventive) and the techniques of Software Reengineering to enhance system longevity and scalability.
- **Agile and DevOps Focus**: Offers a practical overview of Agile methodologies (Scrum, Kanban, Lean) and the principles of DevOps to facilitate rapid development, continuous integration, and seamless collaboration across teams.

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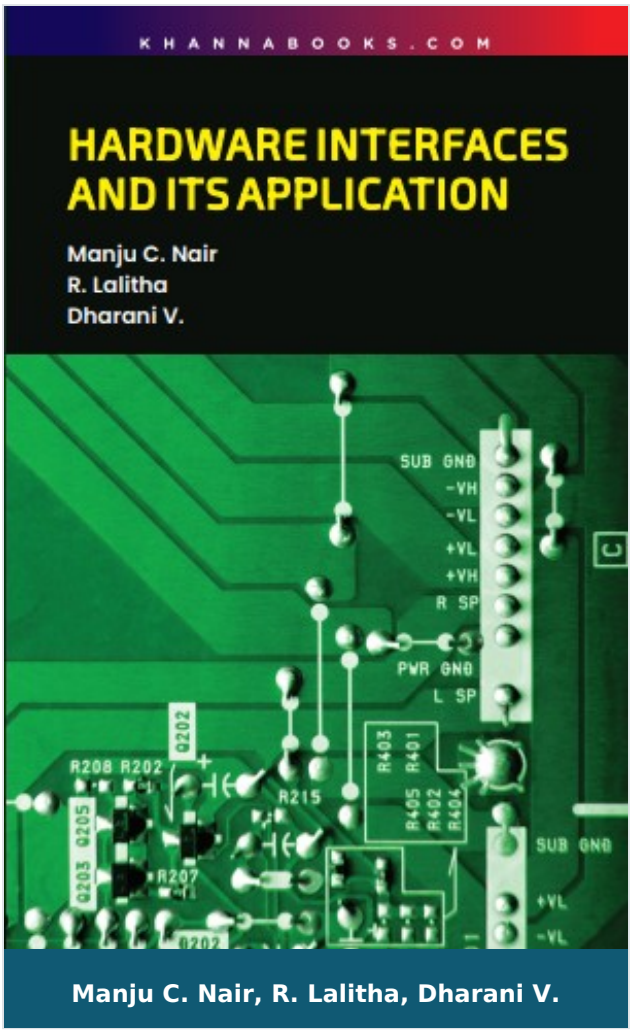

Hardware Interfaces and Its Application

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Product Description

Hardware Interfaces and Its Application

The foundation of modern technology—from high-performance computing to advanced networking and Artificial Intelligence—rests on the seamless integration of hardware interfaces. Hardware Interfaces and Its Application serves as a comprehensive and structured guide, providing a crucial understanding of the intricate connections that determine the performance, reliability, and functionality of modern computing systems. This book meticulously covers the evolution of personal computers, delves into essential components like processors, memory, and storage, and explores the crucial interfaces of motherboard designs, power management, and bus architectures.

The core purpose of this resource is to bridge the gap between foundational theoretical concepts and real-world, practical applications. It progresses logically, beginning with the history of computing and culminating in advanced topics such as modern CPU concepts, high-speed storage interfaces (NVMe, Hybrid), and network security protocols. The text ensures readers gain both theoretical expertise and practical insights for system optimization and maintenance.

Tailored for a broad audience, including students, aspiring engineers, IT professionals, and researchers, the content is carefully curated to cater to different levels of expertise. Whether you are a beginner seeking solid grounding or an experienced professional aiming to deepen your knowledge, this book is an invaluable reference for navigating the complexities of modern hardware architecture and staying updated with emerging industry trends.

Salient Features:

- **Foundational Architecture**: Explores the evolution of computing from mechanical devices to modern AI-powered systems and establishes the core principles of the

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Von Neumann architecture.

- Modern CPU Concepts: Detailed coverage of processor modes (Real, Protected, Virtual) and modern multi-core architectures, including CPU overclocking and performance optimization techniques.
- **Advanced Storage Solutions**: Comprehensive comparison of HDD vs. SSD technologies and in-depth discussions on RAID configurations, cloud storage, and high-speed NVMe interfaces for data management.
- **System Interconnectivity**: Focuses on core interfaces, including motherboard form factors, chipset roles, BIOS/UEFI firmware, and bus architectures like PCI Express and Thunderbolt.
- **Practical I/O & Networking**: Dedicated units on I/O peripherals (Serial/Parallel Ports) and network components (Switches, Routers, Cabling), crucial for system integration and performance.
- **Real-World Troubleshooting**: Includes practical case studies and solved problems for troubleshooting power failures, boot issues, and implementing efficient thermal management (air/liquid cooling).
- **Sustainability Focus**: Integrates discussions on environmental sustainability, e-waste management, and the ethical responsibilities associated with technology upgrades and hardware maintenance practices.

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