

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) Define figure of merit of CMOS transistor. [2]
- b) Draw the CMOS inverter circuit. [3]
- c) What is meant by synthesis? [2]
- d) Differentiate Functional simulation and timing simulation. [3]
- e) What is the importance of fan-in and fan-out? [2]
- f) Differentiate rise time and fall time. [3]
- g) Draw the 1-bit SRAM cell. [2]
- h) What are the various serial access memories? [3]
- i) Implement 2:1 MUX using PAL. [2]
- j) What is the difference between verification and validation? [3]

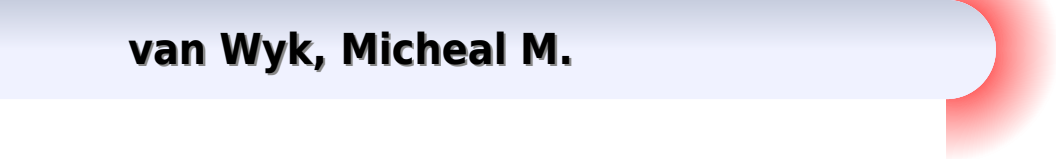
PART - B

(50 Marks)

2. Draw and explain the operation of BiCMOS inverter. [10]
- OR
3. Derive the drain to source current equation for NMOS enhancement mode transistor. [10]
- OR
4. Discuss the steps involved in VLSI design flow. [10]
- OR
5. Draw the stick diagram for the following Boolean expression using CMOS logic.
 $F = A(B + C)$. [10]
6. Briefly explain the commonly used technique to estimate the delay time of a MOS inverter. [10]
- OR
7. Implement 4:1 multiplexer using switch logic. [10]
8. Design a 4-bit magnitude comparator. [10]
- OR
9. Design a zero detector circuit. [10]
10. Discuss scan design Techniques. [10]
- OR
11. Compare various programmable devices. [10]

Anna University Vlsi University Question Paper

van Wyk, Micheal M.



Anna University Vlsi University Question Paper:

AI Smart-Enabled Architecture and Infrastructure for Higher Education van Wyk, Micheal M.,2025-07-03

Artificial intelligence AI transforms the landscape of higher education creating smart enabled architecture and infrastructure that redefines how campuses operate and evolve By integrating AI technologies into the physical and digital frameworks of universities institutions can create more adaptive efficient and student centered environments From intelligent energy management systems and predictive maintenance in campus buildings to AI powered learning platforms and data driven administrative tools it enhances both operational performance and academic delivery As higher education faces growing demands for innovation sustainability and personalized experiences AI enabled architecture and infrastructure may shape future campuses AI Smart Enabled Architecture and Infrastructure for Higher Education explores the integration of intelligent technologies into higher education organizations It explores how AI and machine learning can provide tools to reduce digital divides and address issues of educational disparity through inclusion and equity This book covers topics such as education infrastructure sustainability and digital technology and is a useful resource for computer engineers business owners educators academicians researchers and scientists

AI-Driven Marketing Research and Data Analytics

Masengu, Reason,Chiwariidzo, Option Takunda,Dube, Mercy,Ruzive, Benson,2024-04-22 The surge in technological advancements coupled with the exponential growth of data has left marketers grappling with the need for a paradigm shift The once established methods of consumer engagement are now overshadowed by the complexities of the digital age demanding a profound understanding of artificial intelligence AI and data analytics The gap between academic knowledge and practical applications in the field of marketing has widened leaving industry professionals educators and students seeking a comprehensive resource to navigate the intricacies of this transformative era AI Driven Marketing Research and Data Analytics is a groundbreaking book that serves as a beacon for marketers educators and industry leaders alike With a keen focus on the symbiotic relationship between AI data analytics and marketing research this book bridges the gap between theory and practice It not only explores the historical evolution of marketing but also provides an innovative examination of how AI and data analytics are reshaping the landscape Through real time case studies ethical considerations and in depth insights the book offers a holistic solution to the challenges faced by marketing professionals in the digital age

Harnessing AI and Digital Twin Technologies in Businesses Ponnusamy, Sivaram,Assaf, Mansour,Antari, Jilali,Singh, Satyanand,Kalyanaraman, Swaminathan,2024-07-26 The intersection of artificial intelligence AI and digital twin technology presents a problem and an unparalleled opportunity for transformation Businesses grapple with the need for operational excellence innovation and a competitive edge all while navigating the intricate web of data analytics decision making and real time monitoring In response to these challenges Harnessing AI and Digital Twin Technologies in Businesses emerges as an example of insight and guidance offering a comprehensive exploration of the complementary connection between AI and

digital twin technology In a world where the convergence of these powerful tools transforms business intelligence enabling initiative taking decision making and dynamic simulations This book serves as a solution for decision makers technologists and researchers seeking to not only understand but harness the potential of AI powered digital twins to enhance productivity creativity and judgment in their operations VLSI for Neural Networks and Artificial Intelligence Jose G.

Delgado-Frias,W.R. Moore,2013-06-29 Neural network and artificial intelligence algorithms and computing have increased not only in complexity but also in the number of applications This in turn has posed a tremendous need for a larger computational power that conventional scalar processors may not be able to deliver efficiently These processors are oriented towards numeric and data manipulations Due to the neurocomputing requirements such as non programming and learning and the artificial intelligence requirements such as symbolic manipulation and knowledge representation a different set of constraints and demands are imposed on the computer architectures organizations for these applications Research and development of new computer architectures and VLSI circuits for neural networks and artificial intelligence have been increased in order to meet the new performance requirements This book presents novel approaches and trends on VLSI implementations of machines for these applications Papers have been drawn from a number of research communities the subjects span analog and digital VLSI design computer design computer architectures neurocomputing and artificial intelligence techniques This book has been organized into four subject areas that cover the two major categories of this book the areas are analog circuits for neural networks digital implementations of neural networks neural networks on multiprocessor systems and applications and VLSI machines for artificial intelligence The topics that are covered in each area are briefly introduced below **Handbook of Research on Investigations in Artificial Life Research and**

Development Habib, Maki,2018-06-08 Research on artificial life is critical to solving various dynamic obstacles individuals face on a daily basis From electric wheelchairs to navigation artificial life can play a role in improving both the simple and complex aspects of civilian life The Handbook of Research on Investigations in Artificial Life Research and Development is a vital scholarly reference source that examines emergent research in handling real world problems through the application of various computation technologies and techniques Examining topics such as computational intelligence multi agent systems and fuzzy logic this publication is a valuable resource for academicians scientists researchers and individuals interested in artificial intelligence developments **Second International Conference on Computer Networks and Communication**

Technologies S. Smys,Tomonobu Senjyu,Pavel Lafata,2020-01-21 This book presents new communication and networking technologies an area that has gained significant research attention from both academia and industry in recent years It also discusses the development of more intelligent and efficient communication technologies which are an essential part of current day to day life and reports on recent innovations in technologies architectures and standards relating to these technologies The book includes research that spans a wide range of communication and networking technologies including

wireless sensor networks big data Internet of Things optical and telecommunication networks artificial intelligence cryptography next generation networks cloud computing and natural language processing Moreover it focuses on novel solutions in the context of communication and networking challenges such as optimization algorithms network interoperability scalable network clustering multicasting and fault tolerant techniques network authentication mechanisms and predictive analytics

Industry Applications of Thrust Manufacturing: Convergence with Real-Time Data and AI Satishkumar, D.,Sivaraja, M.,2024-03-04 In manufacturing entrenched challenges like costly maintenance operational inefficiencies and product defects loom large casting shadows over industry progress Despite the promise of Industry 4.0 and the proliferation of data driven technologies many enterprises need help to effectively harness the transformative power of artificial intelligence AI The gap between AI's potential and its practical application persists hindering manufacturing companies from achieving optimal efficiency competitiveness and sustainability Industry Applications of Thrust Manufacturing Convergence with Real Time Data and AI is a groundbreaking book meticulously crafted to address the pressing needs of academic scholars and industry professionals Offering a nuanced exploration of AI's role in revolutionizing manufacturing this book serves as a beacon of clarity amidst the complexities of modern industrial landscapes Whether seeking to optimize operational workflows mitigate risks or unlock untapped opportunities this definitive guide offers invaluable insights and actionable strategies to propel manufacturing enterprises into a future of innovation efficiency and sustainable growth

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Novel AI Applications for Advancing Earth Sciences Yadav, Sudesh,Yadav, Satya Prakash,Raj, Pethuru,Tiwari, Prabhakar,Albuquerque, Victor Hugo C. de,2023-12-29 The Earth Sciences industry faces a new challenge the need for accurate efficient and reliable methods to monitor and predict geological phenomena and environmental changes As climate change earthquakes and other natural disasters become more frequent and severe the necessity for advanced tools and techniques is paramount Traditional methods often fall short in providing the precision and speed required to address these critical issues Geologists and earth scientists who are grappling with the urgent problem of utilizing artificial intelligence AI to revolutionize their field will find the solution within the pages of Novel AI Applications for Advancing Earth Sciences This book offers the research community concepts expanding upon the fusion of AI technology with earth sciences By leveraging advanced AI tools such as convolutional neural networks support vector machines artificial neural networks and the potential of remote sensing satellites this book transforms the identification of geological features geological mapping soil classification and gas

detection Scientists can now predict earthquakes and assess the probability of climate change with unprecedented accuracy. Additionally, the book explains how the optimization of algorithms for specific tasks substantially reduces the time complexity of earth observations, leading to an unprecedented leap in accuracy and efficiency. International Conference on Computer Applications 2012 :: Volume 04 Kokula Krishna Hari K,

Anna University Vlsi University Question Paper Book Review: Unveiling the Magic of Language

In an electronic era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its power to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Anna University Vlsi University Question Paper**," published by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we will delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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