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Special Issue on

Advances in Discrete Mathematics and Secure Network Technologies (Part-A)

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FOREWORD

This special issue titled “Advances in Discrete Mathematics and Secure Network Technologies”, brings together a diverse and timely collection of research papers that highlight the strong convergence of discrete mathematics, combinatorial theory, cryptography, biometrics, and modern network security. The contributions span foundational mathematical constructs - such as graph theory, combinatorial numbers, algebraic functions, and discrete algorithms - to applied innovations in secure communication, IoT authentication, wireless sensor networks, cryptographic optimization, and zero trust architectures. Several papers explore advanced security mechanisms, including biometric authentication, RSA enhancements, elliptic curve cryptanalysis, and bio-inspired and AI-driven encryption techniques, addressing the growing complexity of cyber threats in real-time and intelligent networked environments. Collectively, these works demonstrate how rigorous mathematical modeling and combinatorial approaches can drive practical solutions for secure systems, resilient networks, and trustworthy digital infrastructures, making this compilation a valuable source for researchers, academicians, and practitioners alike.

This special issue features selected papers presented at the International Conference on Sustainable Computing (SUSCOM-2025), organized by Sri Balaji College of Engineering & Technology, Jaipur, India, during June 26–27, 2025, wherein we received more than 400 papers from researchers which went through a rigorous peer review process, after which only 79 papers were selected for this special issue, which are being published in two parts : JDMSC 29#2-A and JDMSC 29#2-B, covering a wide range of innovative concepts.

We extend our heartfelt gratitude to all authors for their significant contributions, to the reviewers for their meticulous evaluations, and to the editorial team for their continued guidance and support. We are especially thankful to Professor B. K. Dass, Chief Editor, for his constant support and encouragement during the publication process in the *Journal of Discrete Mathematical Sciences and Cryptography*, published by Taru Publications, New Delhi.

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