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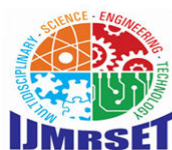
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An Analytic Study of Forensic Evidence in Indian System of Criminal Trial

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ABSTRACT: Forensic evidence has become an essential component of the modern criminal justice system, playing a significant role in the investigation, prosecution, and adjudication of criminal cases. In India, the increasing complexity of crimes, technological advancements, and the need for scientific methods of investigation have enhanced the importance of forensic science in criminal trials. This study aims to analyze the role, relevance, admissibility, and effectiveness of forensic evidence within the Indian system of criminal trial. It examines how scientific evidence contributes to the administration of justice by assisting courts in determining facts objectively and reducing dependence on eyewitness testimony and confessions, which may sometimes be unreliable. The research explores various forms of forensic evidence commonly used in criminal proceedings, including DNA analysis, fingerprint examination, ballistics, toxicology, cyber forensics, handwriting analysis, and forensic pathology. These scientific techniques provide valuable information for identifying offenders, establishing links between suspects and crime scenes, and corroborating other forms of evidence. The study further evaluates the legal framework governing forensic evidence in India, particularly the provisions of the Indian Evidence Act, the Code of Criminal Procedure, and relevant judicial pronouncements that guide the admissibility and evidentiary value of expert opinions in courts.

KEYWORDS: Forensic Evidence, Criminal Trial, Criminal Justice System, Forensic Science.

I. INTRODUCTION

The administration of criminal justice aims to maintain law and order, protect the rights of citizens, and ensure that offenders are punished while innocent persons are protected from wrongful conviction. In modern criminal jurisprudence, the determination of guilt or innocence depends largely upon the quality and reliability of evidence presented before the court. Among the various forms of evidence, forensic evidence has emerged as one of the most significant tools for the investigation and prosecution of crimes. Forensic science applies scientific principles and techniques to matters of law and assists courts in reaching fair and accurate decisions. The increasing use of forensic evidence has transformed the criminal justice system by enhancing the credibility, objectivity, and efficiency of criminal investigations and trials. In India, the criminal justice system primarily operates through the provisions of the Constitution of India, the Bharatiya Nagarik Suraksha Sanhita (formerly the Code of Criminal Procedure), the Bharatiya Sakshya Adhinyam (formerly the Indian Evidence Act), and other relevant laws. The role of forensic evidence within this framework has become increasingly important due to the growing complexity of crimes such as murder, sexual offences, cybercrimes, terrorism, financial frauds, and organized criminal activities. Traditional methods of investigation often relied on eyewitness testimony, confessions, and circumstantial evidence. However, these forms of evidence may sometimes be unreliable because of human error, memory lapses, coercion, bias, or intentional falsehood. Forensic evidence, being scientifically based, provides a more objective and dependable means of establishing facts.

Forensic evidence includes a wide range of scientific materials and analyses used in criminal investigations. These may include DNA profiling, fingerprint analysis, blood examination, toxicology reports, ballistic examinations, handwriting analysis, digital forensics, voice identification, forensic pathology, and other scientific techniques. Such evidence helps investigators reconstruct crime scenes, identify suspects, establish connections between the accused and the crime, determine the cause of death, and verify or disprove witness statements. The advancement of science and technology has significantly improved the accuracy and reliability of forensic methods, making them indispensable in modern criminal trials.



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The Indian judiciary has increasingly recognized the importance of forensic evidence in criminal proceedings. Courts have relied on scientific evidence in numerous cases to establish guilt beyond reasonable doubt. DNA testing, in particular, has become a powerful tool in cases involving sexual offences, paternity disputes, and identification of deceased persons. Similarly, fingerprint evidence has long been considered a reliable means of identification due to the uniqueness of fingerprint patterns. Ballistic evidence assists in determining the use of firearms, while toxicological examinations help detect the presence of poison, drugs, or alcohol in criminal cases. Digital forensic evidence has also gained prominence with the rise of cybercrimes and electronic communications. Despite its importance, the use of forensic evidence in India faces several challenges. One of the major concerns is the shortage of well-equipped forensic laboratories and trained forensic experts. Many forensic science laboratories experience significant delays due to heavy workloads and limited resources. Such delays can adversely affect the timely disposal of criminal cases and may compromise the effectiveness of investigations. Furthermore, the improper collection, preservation, and handling of forensic samples can lead to contamination or loss of crucial evidence, thereby reducing its evidentiary value.

Another challenge relates to the admissibility and appreciation of forensic evidence in courts. While scientific evidence is generally considered reliable, courts must ensure that the methods used are scientifically valid and that proper procedures have been followed during collection and analysis. Judges and lawyers may not always possess adequate scientific knowledge to fully understand complex forensic reports, which can affect the evaluation of evidence. Therefore, expert witnesses play a critical role in explaining scientific findings and assisting courts in interpreting forensic results accurately. The legal framework governing forensic evidence in India has evolved over time to accommodate scientific advancements. Various judicial decisions have highlighted the importance of scientific investigation and encouraged the use of forensic techniques. The Supreme Court and High Courts have repeatedly emphasized the value of DNA profiling, fingerprint analysis, and other forensic methods in ensuring justice. Recent legislative reforms have also sought to strengthen the integration of forensic science into criminal investigations. The growing recognition of forensic evidence reflects a shift towards a more scientific and evidence-based criminal justice system.

The significance of forensic evidence extends beyond securing convictions. It also serves as a safeguard against wrongful prosecution and miscarriage of justice. Scientific evidence can exonerate innocent individuals by disproving allegations and identifying the actual perpetrators. This aspect is particularly important in a legal system committed to the principle that it is better for several guilty persons to escape punishment than for one innocent person to be wrongly convicted. Thus, forensic evidence contributes to both the effectiveness and fairness of criminal trials. In recent years, technological innovations have expanded the scope of forensic science. Advanced DNA analysis, artificial intelligence, biometric identification systems, digital forensics, and cyber investigation tools have enhanced the capability of law enforcement agencies to detect and investigate crimes. As criminals increasingly utilize sophisticated technologies, the importance of forensic science in combating modern forms of crime continues to grow. Consequently, strengthening forensic infrastructure and promoting scientific investigation have become essential priorities for the criminal justice system.

This study seeks to analyze the role and significance of forensic evidence in the Indian system of criminal trial. It examines the various types of forensic evidence, their admissibility and evidentiary value, the legal framework governing their use, and the challenges faced in their application. The study also evaluates the contribution of forensic science to criminal investigations and judicial decision-making. By assessing the strengths and limitations of forensic evidence, the research aims to understand its impact on the administration of criminal justice in India and suggest measures for improving its effectiveness.

II. RESEARCH OBJECTIVES

The primary objective of the present study is to critically analyze the role, significance, and effectiveness of forensic evidence in the Indian system of criminal trial. In recent years, forensic science has emerged as an indispensable tool in the administration of criminal justice. The increasing complexity of crimes, advancements in technology, and the growing demand for accurate and reliable evidence have made forensic techniques an essential component of criminal investigations and prosecutions. This research aims to examine how forensic evidence contributes to the process of establishing facts, identifying offenders, and ensuring fair adjudication in criminal cases. The study seeks to evaluate the extent to which forensic evidence assists investigating agencies, prosecutors, defense counsels, and courts in reaching accurate conclusions and delivering justice. By analyzing the legal framework governing the admissibility and use of forensic evidence in India, including provisions under the Bharatiya Sakshya Adhiniyam, Bharatiya Nagarik Suraksha Sanhita, and other relevant laws, the research intends to assess whether the existing legal mechanisms adequately support



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the effective utilization of scientific evidence in criminal proceedings. Furthermore, the study aims to explore the relationship between forensic science and the constitutional principles of fairness, due process, and protection of individual rights, thereby determining the role of forensic evidence in strengthening public confidence in the criminal justice system.

Another significant objective of this research is to investigate the practical challenges, limitations, and opportunities associated with the use of forensic evidence in Indian criminal trials. While forensic science has the potential to enhance the accuracy and credibility of criminal investigations, its effectiveness often depends on factors such as the availability of forensic infrastructure, the expertise of forensic professionals, the timely collection and preservation of evidence, and the awareness of legal practitioners regarding scientific methods. Therefore, the study seeks to examine the functioning of forensic laboratories, the chain of custody procedures, and the standards followed in the examination and presentation of forensic evidence before courts. It aims to identify the obstacles that hinder the effective integration of forensic science into the criminal justice process, including delays in forensic reporting, shortage of trained personnel, inadequate technological resources, and inconsistencies in investigative practices. The research also intends to analyze important judicial decisions that have shaped the interpretation and evidentiary value of forensic findings in India. Through a detailed examination of case laws and practical experiences, the study seeks to evaluate whether forensic evidence has successfully contributed to the conviction of guilty persons while simultaneously protecting innocent individuals from wrongful prosecution. Additionally, the research aims to suggest reforms and policy recommendations for improving forensic capabilities, enhancing the quality of scientific investigations, promoting judicial understanding of forensic techniques, and ensuring that forensic evidence is utilized in a manner that upholds the principles of justice, transparency, and accountability. Ultimately, the study endeavors to contribute to the ongoing discourse on the modernization of criminal justice administration in India by highlighting the critical role of forensic evidence in achieving efficient, reliable, and fair criminal trials.

III. METHODOLOGY

The present study titled “An Analytic Study of Forensic Evidence in Indian System of Criminal Trial” is based on a doctrinal and analytical research methodology. The purpose of this research is to examine the role, importance, admissibility, reliability, and effectiveness of forensic evidence in the Indian criminal justice system. The study seeks to analyze how forensic science contributes to criminal investigations and trials, assists courts in reaching fair decisions, and influences the administration of justice. Since forensic evidence has become an indispensable component of modern criminal investigations, this research aims to critically evaluate its application within the Indian legal framework and identify the challenges associated with its use.

The research adopts a qualitative approach because the subject matter involves the examination and interpretation of legal principles, judicial decisions, statutory provisions, and forensic practices. The study relies primarily on secondary sources of data, including legal texts, statutes, case laws, research articles, government reports, forensic science publications, and academic journals. Secondary data has been chosen because it provides comprehensive information regarding the development, use, and legal recognition of forensic evidence in criminal trials. The research does not involve field surveys or experimental investigations; instead, it focuses on the critical analysis of existing legal and scholarly materials relevant to the topic. The doctrinal method forms the foundation of this study. Under this approach, various provisions of criminal law and evidence law have been examined to understand the legal status of forensic evidence in India. Particular attention has been given to the provisions of the Bharatiya Sakshya Adhiniyam, 2023, the Bharatiya Nagarik Suraksha Sanhita, 2023, and earlier legal frameworks such as the Indian Evidence Act, 1872, and the Code of Criminal Procedure, 1973. The study analyzes the statutory provisions governing expert evidence, scientific reports, admissibility of forensic findings, and the evidentiary value assigned to forensic experts by courts. Through doctrinal analysis, the research seeks to determine the extent to which forensic evidence is recognized and relied upon in criminal proceedings.

In addition to statutory analysis, the research includes a detailed examination of judicial precedents. Landmark judgments delivered by the Supreme Court of India and various High Courts have been studied to understand the judicial approach towards forensic evidence. These judgments provide valuable insights into the standards applied by courts while evaluating scientific evidence, expert testimony, DNA reports, fingerprint analysis, ballistic reports, toxicology reports, cyber forensics, and other forms of forensic evidence. The analysis of case laws helps in understanding how courts balance scientific findings with other forms of evidence and how forensic evidence influences the determination of guilt or innocence. Judicial decisions also reveal the practical challenges faced by courts in assessing the credibility and reliability



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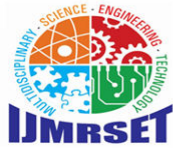
of forensic reports. The study further employs an analytical method to evaluate the effectiveness of forensic evidence in criminal trials. The analytical approach enables a critical assessment of both the strengths and limitations of forensic science in the administration of criminal justice. The research examines how forensic evidence assists in identifying offenders, establishing links between suspects and crime scenes, corroborating witness testimony, and reducing wrongful convictions. At the same time, the study evaluates issues such as delays in forensic examination, shortage of forensic laboratories, inadequate infrastructure, lack of trained personnel, contamination of evidence, and procedural irregularities that may affect the reliability of forensic findings. By analyzing these factors, the research aims to provide a balanced understanding of the role of forensic evidence in criminal trials. A comparative element has also been incorporated into the methodology. While the primary focus remains on the Indian legal system, the study briefly refers to forensic practices and evidentiary standards followed in other jurisdictions such as the United Kingdom and the United States. This comparative analysis helps in identifying best practices and modern developments in forensic science that may be relevant for strengthening the Indian criminal justice system. The comparison provides a broader perspective on how scientific evidence is integrated into criminal investigations and judicial proceedings across different legal systems.

IV. BACKGROUND

The administration of criminal justice is one of the most important functions of any legal system. In India, the criminal justice system is designed to maintain law and order, protect the rights of citizens, and ensure that offenders are punished according to law. Traditionally, criminal investigations in India relied heavily on eyewitness testimony, confessions, circumstantial evidence, and documentary records. However, with the advancement of science and technology, forensic evidence has emerged as a vital tool in the investigation and prosecution of crimes. Forensic science refers to the application of scientific principles, techniques, and methods to matters related to law and criminal investigations. It helps in collecting, preserving, analyzing, and presenting evidence before courts to establish facts and determine the guilt or innocence of an accused person. The growing importance of forensic evidence has significantly transformed the Indian criminal trial system by providing objective, reliable, and scientifically validated information.

The increasing complexity of crimes in modern society has highlighted the need for scientific methods of investigation. Crimes such as murder, sexual assault, cybercrime, terrorism, organized crime, financial fraud, and drug trafficking often involve sophisticated techniques that cannot be effectively investigated through traditional methods alone. In such situations, forensic evidence plays a crucial role in uncovering the truth. Various branches of forensic science, including forensic biology, forensic chemistry, forensic toxicology, forensic medicine, forensic anthropology, forensic psychology, digital forensics, and DNA profiling, contribute significantly to criminal investigations. These scientific techniques help investigators establish links between suspects, victims, crime scenes, and criminal activities, thereby strengthening the evidentiary foundation of criminal trials.

In the Indian context, the importance of forensic evidence has increased considerably over the past few decades. The Indian judiciary has recognized the value of scientific evidence in ensuring fair and accurate adjudication of criminal cases. Courts have increasingly relied upon forensic reports and expert opinions to supplement traditional forms of evidence. The enactment and interpretation of various provisions under the Indian Evidence Act, 1872, the Code of Criminal Procedure, 1973, and other related laws have facilitated the admissibility and use of forensic evidence in criminal proceedings. Sections relating to expert opinion, medical examination, DNA testing, electronic records, and scientific reports have strengthened the legal framework governing forensic evidence in India. One of the most significant developments in forensic science has been the introduction and acceptance of DNA profiling as a powerful investigative tool. DNA evidence has revolutionized criminal investigations by providing highly accurate methods of identifying individuals involved in criminal activities. In cases involving sexual offences, homicide, disputed parentage, and identification of deceased persons, DNA analysis has proven invaluable. Indian courts have acknowledged the evidentiary value of DNA profiling in several landmark judgments, recognizing its reliability and scientific accuracy. The use of DNA evidence has helped secure convictions in cases where traditional evidence was insufficient while also preventing wrongful convictions by establishing the innocence of accused persons. Apart from DNA evidence, forensic medicine plays an essential role in criminal trials. Medical experts assist courts by providing scientific opinions regarding causes of death, nature of injuries, time of death, and other medically relevant issues. Post-mortem examinations, toxicological analyses, and injury assessments often form critical components of criminal investigations. In cases involving suspicious deaths, poisoning, assault, and sexual offences, medical evidence frequently serves as a key determinant in establishing the facts of the case. The testimony of forensic medical experts assists judges in understanding complex scientific matters and reaching informed decisions.



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V. LITERATUREREVIEW

The role of forensic evidence in the Indian criminal justice system has expanded significantly over the last few decades. Traditionally, criminal trials in India relied heavily on eyewitness testimony, confessions, and documentary evidence. However, with the advancement of science and technology, forensic evidence has emerged as a crucial tool for ensuring accuracy, objectivity, and fairness in criminal investigations and trials. Scholars have increasingly emphasized that forensic science strengthens the evidentiary process by providing scientific proof that can corroborate or contradict oral testimony, thereby reducing the chances of wrongful convictions and acquittals. The growing acceptance of forensic methods such as DNA profiling, fingerprint examination, ballistics, handwriting analysis, toxicology, and digital forensics reflects the transition of the Indian criminal justice system toward evidence-based adjudication.

Several researchers have examined the legal framework governing forensic evidence in India. Studies reveal that the admissibility of forensic evidence is primarily regulated through provisions of the Indian Evidence Act and procedural laws governing criminal investigations. Scholars argue that courts have gradually recognized the importance of scientific evidence because it offers a higher degree of reliability compared to traditional forms of evidence. Nevertheless, concerns remain regarding the absence of comprehensive legislation exclusively dealing with forensic evidence, resulting in inconsistent judicial approaches across different cases. Researchers have pointed out that while forensic reports are generally admissible as expert opinions, their evidentiary value often depends on the qualifications of experts, the credibility of laboratories, and compliance with prescribed procedures.

A substantial body of literature focuses on DNA profiling as one of the most reliable forms of forensic evidence. DNA technology has transformed criminal investigations by enabling precise identification of suspects and victims. Researchers have highlighted numerous cases where DNA evidence has played a decisive role in solving crimes such as murder, rape, kidnapping, and paternity disputes. Studies suggest that DNA evidence possesses a high degree of scientific accuracy and can significantly reduce investigative errors. However, scholars also emphasize concerns relating to privacy, consent, data protection, and the management of DNA databases. The absence of a comprehensive statutory framework governing DNA collection and storage has been identified as a major challenge. Despite these concerns, most researchers agree that DNA evidence has become an indispensable component of modern criminal trials in India. Researchers have also analyzed the role of fingerprint evidence in criminal proceedings. Fingerprint identification has historically been one of the oldest and most widely accepted forensic techniques. Literature indicates that Indian courts have consistently relied upon fingerprint evidence due to its established scientific basis and long history of successful application. Scholars note that fingerprint evidence is often used to establish the presence of an accused person at a crime scene. However, some studies caution that improper collection, contamination, and human error during analysis can affect the reliability of fingerprint evidence. Consequently, researchers advocate for improved training and standardization among forensic experts to ensure the accuracy of fingerprint examinations.

Another important area of research concerns controversial forensic techniques such as polygraph tests, narco-analysis, and brain mapping. Academic studies reveal that while these techniques have occasionally been used during investigations, their admissibility in court has remained highly contested. Scholars argue that such methods raise serious constitutional concerns related to the right against self-incrimination and the protection of personal liberty. Judicial decisions have generally emphasized that involuntary administration of these tests violates fundamental rights. Consequently, researchers conclude that although these techniques may assist investigative agencies, their evidentiary value remains limited and subject to strict judicial scrutiny. The literature also highlights the growing significance of digital and cyber forensic evidence in criminal trials. With the increasing use of computers, smartphones, and internet-based communication, digital evidence has become a crucial component in the investigation of cybercrimes, financial frauds, terrorism-related offences, and organized crime. Researchers note that digital forensics enables investigators to recover deleted files, trace electronic communications, and establish timelines of criminal activities. However, studies identify several challenges, including data tampering, chain-of-custody issues, technological complexity, and inadequate expertise among law enforcement personnel. Scholars recommend the adoption of advanced forensic technologies and specialized training programs to improve the effectiveness of digital investigations.



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VI. DISCUSSION

The Indian criminal justice system traditionally relied heavily on eyewitness testimony, confessions, and circumstantial evidence. However, these forms of evidence often faced challenges related to credibility and reliability. Wrongful convictions and acquittals sometimes occurred because of inaccurate testimonies or insufficient proof. In this context, forensic evidence provides a scientific foundation that can support or contradict other forms of evidence presented before the court. The use of DNA profiling, fingerprint analysis, ballistic examination, toxicology reports, handwriting analysis, cyber forensics, and forensic pathology has enhanced the accuracy of criminal investigations. These techniques help establish a direct link between the accused, the victim, and the crime scene, thereby reducing uncertainty in judicial proceedings.

One of the significant findings of the study is the increasing judicial acceptance of forensic evidence in India. Courts have recognized the evidentiary value of scientific methods and have increasingly relied on expert opinions in criminal cases. Landmark judgments delivered by Indian courts have demonstrated the importance of DNA evidence, fingerprint identification, and other forensic techniques in determining guilt or innocence. The judiciary has acknowledged that scientific evidence often provides a more objective basis for decision-making than human testimony alone.

The study further indicates that forensic evidence plays a crucial role in serious crimes such as murder, rape, terrorism, kidnapping, and cybercrime. In sexual assault cases, DNA analysis has become one of the most powerful tools for identifying perpetrators and corroborating victims' statements. Similarly, in homicide investigations, forensic pathology helps determine the cause and time of death, while ballistic analysis assists in identifying weapons used in crimes involving firearms. In cybercrime cases, digital forensics enables investigators to recover deleted data, trace online activities, and establish electronic evidence. These developments demonstrate how forensic science contributes to uncovering the truth and ensuring accountability in criminal proceedings.

Despite its growing importance, the study identifies several challenges affecting the effective use of forensic evidence in India. One of the major concerns is the inadequate forensic infrastructure available across the country. Many forensic laboratories face shortages of modern equipment, trained personnel, and financial resources. As a result, a large number of cases remain pending for forensic examination, leading to delays in investigations and trials. The backlog of cases in forensic laboratories often undermines the timely delivery of justice. Furthermore, the uneven distribution of forensic facilities across different states creates disparities in access to scientific investigation techniques. Strengthening forensic infrastructure is therefore essential for improving the efficiency and effectiveness of the criminal justice system.

V. CONCLUSION

The present study on "An Analytic Study of Forensic Evidence in the Indian System of Criminal Trial" highlights the growing significance of forensic science in ensuring fairness, accuracy, and efficiency within the criminal justice system. In an era where crime has become increasingly complex due to technological advancements, traditional methods of investigation alone are often insufficient to establish the truth. Forensic evidence has emerged as a scientific and objective tool that assists investigating agencies, prosecutors, defense lawyers, and courts in reaching reliable conclusions. Unlike oral testimony, which may be affected by memory lapses, bias, fear, or manipulation, forensic evidence is based on scientific principles and factual analysis. Therefore, it plays a crucial role in identifying offenders, proving guilt, establishing innocence, and reducing the possibility of wrongful convictions. The study reveals that the Indian criminal justice system has gradually recognized the value of forensic science and has incorporated various scientific techniques such as DNA profiling, fingerprint analysis, toxicology, ballistics, cyber forensics, handwriting examination, and digital evidence into criminal investigations and trials.

The analysis further demonstrates that forensic evidence serves as an essential bridge between crime investigation and judicial decision-making. Scientific findings often provide direct or circumstantial links between the accused, the victim, and the crime scene. Courts increasingly rely upon forensic reports to corroborate witness statements and other forms of evidence. The judiciary has acknowledged the reliability and relevance of forensic evidence in numerous cases, particularly in crimes involving murder, sexual offenses, terrorism, cybercrime, and financial fraud. DNA evidence, in particular, has revolutionized criminal investigations by providing highly accurate identification of individuals. Similarly, advancements in digital forensics have enabled law enforcement agencies to investigate crimes committed through electronic devices and online platforms. These developments indicate that forensic science has become an indispensable



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component of modern criminal justice administration in India.

However, the study also identifies several challenges that hinder the effective use of forensic evidence in criminal trials. One of the major issues is the inadequate forensic infrastructure available in many parts of the country. Despite the increasing demand for forensic examinations, forensic laboratories often face shortages of skilled personnel, modern equipment, and financial resources. As a result, there is a significant backlog of cases, leading to delays in the submission of forensic reports. Such delays adversely affect investigations and prolong criminal trials, thereby undermining the objective of speedy justice. Furthermore, the uneven distribution of forensic facilities across states creates disparities in access to scientific investigation. While some states possess advanced laboratories and trained experts, others continue to struggle with limited resources and outdated technology.

REFERENCES

1. Agrawal, A. (2017). Forensic Medicine and Toxicology. New Delhi: Avichal Publishing Company.
2. Bardale, R. V. (2018). Principles of Forensic Medicine and Toxicology (2nd ed.). New Delhi: Jaypee Brothers Medical Publishers.
3. Basu, D. D. (2016). Law of Evidence (22nd ed.). Kolkata: LexisNexis Butterworths.
4. Chandra, A., & Gupta, S. (2016). Forensic Science in Criminal Investigation and Trials. International Journal of Scientific Research, 5(7), 450–454.
5. Chaudhary, R. K., & Sharma, S. (2018). Role of Forensic Evidence in Criminal Justice Delivery System in India. Indian Journal of Criminology and Criminalistics, 39(2), 87–99.
6. Gaur, K. D. (2016). Textbook on Indian Penal Code (6th ed.). New Delhi: Universal Law Publishing.
7. Goswami, G. K. (2015). Forensic Laws. New Delhi: Universal Law Publishing.
8. Goswami, G. K. (2018). Forensic Law – 2016. Journal of the Indian Law Institute, 52, 585–612.
9. Jhala, R. M., & Raju, M. V. (2017). Scientific Evidence and Criminal Justice Administration in India. Journal of Indian Law Institute, 59(3), 321–340.
10. Kelkar, R. V. (2018). Lectures on Criminal Procedure (7th ed.). Lucknow: Eastern Book Company.
11. Kumar, A. (2017). Forensic Science and Criminal Justice System in India. International Journal of Law, 3(4), 31–35.
12. Malik, B. S. (2015). Handbook of Forensic Science. New Delhi: Central Law Publications.
13. Mathiharan, K., & Patnaik, A. K. (2017). Modi's Medical Jurisprudence and Toxicology (26th ed.). Gurgaon: LexisNexis.
14. Nanda, B. B., & Tiwari, R. K. (2018). Forensic Science in India: A Vision for the Twenty First Century. New Delhi: Selective & Scientific Books.
15. Parikh, C. K. (2016). Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology (7th ed.). Hyderabad: CBS Publishers.
16. Saferstein, R. (2017). Criminalistics: An Introduction to Forensic Science (12th ed.). Boston: Pearson Education.
17. Sharma, B. R. (2018). Forensic Science in Criminal Investigation and Trials. New Delhi: Universal Law Publishing.
18. Singh, A. (2019). Admissibility of Scientific Evidence under the Indian Evidence Act. Journal of Criminal Law and Criminology, 10(2), 45–58.
19. Trivedi, J. K. (2018). DNA Profiling and Criminal Justice System in India. Indian Journal of Forensic Medicine and Toxicology, 12(4), 120–125.
20. Goswami, G. K. (2014). DNA Evidence: Current Perspective and Future Challenges in India. Forensic Science International, 241, 183–189.



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