Navigating the Public Examinations (Prevention of Unfair Means) Act 2024: A Legislative and Technological Approach to Securing Examination Processes

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With the recent controversies surrounding the National Eligibility-cum-Entrance Test (NEET) UG-2024 and the cancellation of the University Grants Commission-National Eligibility Test (UGC-NET), public examinations have come under increased scrutiny. Therefore, the Public Examinations (Prevention of Unfair Means) Act, 2024[1] came into effect, the first-ever national law against the use of unfair means in various recruitment exams conducted by different public bodies. The Act aims to prevent unfair means in the public examinations conducted by the Union Public Service Commission (UPSC), the Staff Selection Commission (SSC), the railways, banking recruitment examinations and the National Testing Agency (NTA), among others. This article, therefore, aims to address questions surrounding the efficacy and how do this act aims to prevent unfair practices in public examinations. This research paper will also try to assess the need to incorporate fundamental security principles and the potential role of technology in providing solutions to prevent unfair means used in public examinations through biometric authentication, machine learning algorithms, among others, and also the challenges of using advanced technologies. Furthermore, this research paper will also include case studies on recent paper leaks and then provide a comparative analysis of global standards against such fraudulent practices.

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[1] The Public Examinations (Prevention of Unfair Means) Act 2024

Keywords: *NEET ug paper leak, public examinations bill 2024, unfair means prevention.*

INTRODUCTION

The Public Examinations (Prevention of Unfair Means) Act, 2024,[2] which aims to curb unfair practices during public examinations and common entrance tests nationwide, has now come into effect. This legislation was passed amid controversy about alleged misconduct during the NEET and UGC NET exams. It seeks to prevent the use of 'unfair means'[3] in public examinations and bring 'greater transparency, fairness and credibility'. The recent NEET-2024 fiasco has led to the emergence of several unanswered questions. The NEET controversy is the culmination of a scandalous situation brewing over the years. *Additionally*, the government also cancelled the UG-NET examination conducted by NTA, compounding doubts about its institutional integrity.

Therefore, the Central Government decided to enact The Public Examinations (Prevention of Unfair Means) Act, 2024[4], due to such instances the government leading to the evident fact that there is some legislative vacuum in dealing with unfair means and practices committed by several institutions and entities involved in conducting public examinations by the Centre and its agencies. In the Statement of Objects and Reasons, the government admitted that malpractices in public examinations lead to delays and cancellations, adversely impacting the prospects of millions of youths.[5] The act aims to bring greater transparency, fairness, and credibility to public examination systems and reassure students that their labour would be fairly rewarded. It also sought to deter individuals or institutions[6] engaging in organised crime[7] from indulging in unfair means for monetary or wrongful gains. This article, therefore, will try to assist in the effectiveness of the act and how this act aims to prevent unfair practices in public examinations and how this act could have helped in preventing the recent NEET-

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[2] *Ibid*

[3] The Public Examinations (Prevention of Unfair Means) Act 2024, s 3

[4] The Public Examinations (Prevention of Unfair Means) Act 2024

[5] 'Statement of Object & Reasons of the Public Examinations (Prevention of Unfair Means) Act 2024' (*PRS India*) <https://prsindia.org/files/bills_acts/bills_parliament/2024/Public_Examinations_(Prevention_of_Unfair_Means)_Bill_2024.pdf> accessed 01 July 2025

[6] The Public Examinations (Prevention of Unfair Means) Act 2024, s 2(f)

[7] The Public Examinations (Prevention of Unfair Means) Act 2024, s 2(h)

UG Paper leak case. It will also delve into suggesting some preventive strategies for reducing the occurrence of paper leaks in future courses, through a multifaceted approach by incorporating fundamental security principles like multifactor authentication, the principle of zero trust and encryption into the guidelines and provisions of the Act.

EFFECTIVENESS AND IMPLEMENTATION OF THE ACT

The Public Examinations (Prevention of Unfair Means) Act could serve as a significant law in preventing future examination paper leaks and other unfair means due to its comprehensive coverage, stringent punishments. The Act has comprehensively defined all the acts that could potentially affect the fairness of conducting a public examination under section 3 of the Act. It provides stringent punishments for leakage of question paper or answer key[8], directly or indirectly assisting the candidate in any manner unauthorised in the public examination[9] and tampering with the computer network or a computer resource or a computer system[10] for the offences done by a person, group of persons or institutions. It also prohibits disclosing exam-related confidential information prematurely and unauthorised entry into exam centres to create disruptions.[11] The listing of these unfair practices and severe penalties for them, including imprisonment and substantial fines, could serve as strong deterrents against malpractice. Investigations conducted by high-ranking officers[12] and the establishment of a High-Level National Technical Committee focused on securing digital platforms and developing national standards further strengthened security measures.

Furthermore, the Act is also harsh and strict due to its stringent punitive clauses because, according to Section 9, all offences under this Act[13] shall be cognizable,[14] non-bailable,[15] and non-compoundable. Under Section 10(1), any person resorting to unfair means or committing offences under this Act shall be punished with imprisonment for a term not less than three years, which may extend to five years, and with a fine of up to Rs 10 lakh.[16] The Act also shifts the burden of proving innocence to the accused under Section 10(4), which

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8 The Public Examinations (Prevention of Unfair Means) Act 2024, s 3(i)
9 The Public Examinations (Prevention of Unfair Means) Act 2024, s 3(v)
10 The Public Examinations (Prevention of Unfair Means) Act 2024, s 3(xi)
11 The Public Examinations (Prevention of Unfair Means) Act 2024, s 5
12 The Public Examinations (Prevention of Unfair Means) Act 2024, s 12(1)
13 The Public Examinations (Prevention of Unfair Means) Act 2024, s 9
14 Bharatiya Nagarik Suraksha Sanhita 2023, s 2(d)
15 Bharatiya Nagarik Suraksha Sanhita 2023, s 2(b)
16 The Public Examinations (Prevention of Unfair Means) Act 2024, s 10(i)

states that a person shall not be liable for punishment if they can prove the offence was committed without their knowledge and that they exercised due diligence to prevent the commission of such an offence.[17]

Therefore, the Act could be effective in preventing future examination paper leaks and other unfair practices due to its comprehensive scope and stringent punitive measures. By explicitly defining offences, the Act leaves little room for ambiguity and loopholes. The severe penalties, including imprisonment of up to five years and fines up to Rs. 10 lakhs, could act as a strong deterrent. The Act's preventive measures of prohibiting premature disclosure of exam information and unauthorised entry into exam centres could further safeguard the integrity of the examination process. Additionally, the burden of proof placed on the accused to demonstrate their innocence highlights the rigorous approach to combat malpractices, ensuring a fair and transparent examination. However, the act still does not address the specific issues that emerged due to the recent NEET-UG fiasco, therefore, leaving critical questions unanswered in the present controversy. The Act does not explicitly tackle certain nuances and unique challenges that surfaced during the NEET-UG examination process.

LOOPHOLES OF THE ACT IN ADDRESSING THE NEET UG PAPER LEAK CASE

While the Act is harsh and strict due to its stringent punitive clause, it is also necessary to examine if the present situation of the NEET UG Paper leak case could be resolved through this act and what specific provisions of the Bill could have prevented the NEET UG examination paper leak, and what could be the next step in such a similar situation. In the present NEET fiasco, as many as 67 students scored a perfect 720, unprecedented in the NTA's history, with six from a centre in Haryana's Faridabad figuring in the list, raising suspicions about irregularities.[18] The exam became a national sensation, with reports of cheating and the use of unfair means in examination centres emerging from different parts of the country, followed by arrests and investigations. *Additionally,* there were grace marks given to over 1,500 students along with a paper leak on the dark net, which further enraged the controversy.

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[17] The Public Examinations (Prevention of Unfair Means) Act 2024, s 10(iv)

[18] Yeshwant Naik, 'NEET Exam 2024: A Troubled History of Paper Leaks, Mark Scams, and Corruption in India' (2024) SSRN <http://dx.doi.org/10.2139/ssrn.4859471> accessed 01 July 2025

Therefore, certain specific provisions of the Act, such as the prohibition of unauthorised access to exam centres and the severe penalties for leaking question papers, could have played a crucial role in preventing the anomalies as observed in the NEET UG case. However, several critical issues remain unaddressed by the Act.

Firstly, it does not address the problem when public examinations are cancelled following a paper leak, as happened in the NEET UG paper leak case and according to an investigation in the past five years, there have been forty-one paper leaks across fifteen states, which have significantly impacted 140 lakh jobseekers competing for over one lakh vacancies.[19] *Additionally,* if these exams are rescheduled, the act does not provide any definite time period within which the exam should be rescheduled and the candidates who shall appear for the rescheduled exam.

Secondly, the act does not provide the criteria for awarding grace marks. In the present NEET-UG Paper leak case, as many as 1500 students were awarded compensatory marks through the normalisation formula because of not allowed the full-time duration at their examination centres, leading to a shorter examination time. This formula was derived through the case of Disha Panchal v Union of India and Ors[20], on the basis of answering efficiency or capacity of a candidate to answer questions within the given time and then applying his rate of success as a parameter. However, it might happen that while appearing for an examination, a candidate first attempts those questions whose answers he is well aware of, and leaves out the rest to be answered in the end. Then his success rate in the former part would certainly be greater, as compared to the latter. Additionally, repeated interruptions could also cause him mental stress and affect his accuracy. Therefore, the normalisation formula to award grace marks should not be considered, and a more holistic and clear regulation should be incorporated, taking into account the diverse experiences and challenges faced by candidates during the examination.

Lastly, the present act only punishes service providers and institutions involved in causing paper leaks and does not include the candidates appearing for the examination; however, in

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[19] Madhulika Sonkar, 'Why Exam Paper Leaks Became One of Big Issues of the Election' *The Indian Express* (15 June 2024) <https://indianexpress.com/article/opinion/columns/why-exam-paper-leaks-became-one-of-big-issues-of-the-election-9378858/> accessed 01 July 2025
[20] *Disha Panchal v Union of India & Ors* AIR 2018 SC 2824

several paper leaks and in the present NEET UG controversy, at times, candidates are also involved in a large number and thus should also be included under the ambit of the Act.

Hence, the need of the hour is some clear and stringent *guidelines* on the immediate and subsequent actions required once a paper leak has been detected. For instance, there is no outlined procedure for how authorities should respond to such incidents to minimise their impact, including whether and how to conduct a re-examination to ensure fairness. Furthermore, the situation of awarding grace marks, as seen with over 1,500 students in the NEET UG controversy, raises questions about consistency and fairness in the examination process. The Act lacks specific provisions or protocols to address the situation of when to provide grace marks, making space for arbitrary decision-making. Therefore, preventing paper leaks effectively requires a multifaceted approach that goes beyond harsh penalties. This includes advanced technological solutions for securing examination papers, continuous monitoring and surveillance during the exam.

NEED FOR INTEGRATING ADVANCED SECURITY PRINCIPLES

To prevent unfair means in public examinations and safeguard the confidentiality and integrity of question papers, the Act should incorporate fundamental security principles like the principle of multifactor authentication, zero trust and encryption.

The use of multifactor authentication (MFA) is one of the most prevalent methods for restricting unauthorised access to data, but the use of this principle for question paper management is not known one. Multifactor authentication simply means a security system that requires more than one method of authentication from independent categories of credentials to verify the user's identity for a login or other transaction. Therefore, this system enhances security by adding an extra layer of protection and significantly enhances security by making it more difficult for unauthorised individuals to gain access.

There are 3 Primary Types of Authentication Factors:

- Knowledge Factors (Something the user knows),
- Possession Factors (Something the user has), and
- Inherent Factors (Something the user is).

Knowledge Factors are perhaps the most familiar form of authentication; a user must prove that they know a certain piece of information, such as a password, passphrase, or PIN, to access an account.

Hence, public examinations could be conducted by incorporating multifactor authentication by implementing a two-factor authentication (2FA) model combining something the user knows, like a password, with something they have, such as a security token or mobile device. Multi-Factor Authentication is already included in major global data protection regulations like Health Insurance Portability and Accountability Act,[21] a United States act on protection of individually identifiable health information and General Data Protection Regulation,[22] which is a European Union regulation on information privacy, to safeguard sensitive information and ensure data privacy which further leverage the potential of MFA in preventing unauthorized access to the question paper.[23]

Furthermore, the Act should also incorporate the *Zero Trust model,* which enhances security by treating every user, device, and network flow as potentially hostile, regardless of their location within or outside the network perimeter.[24] This model operates on the concept that 'never trust, always verify.[25] Thus, it would involve regularly re-authenticating users and monitoring their behaviour to detect potential security breaches. This system would presume every person as untrustworthy until verified. Even the person who drafts the question paper, who is allowed to access the question paper, will be considered an unauthorised person until they authenticate themselves through multifactor authentication.

Additionally, the act should also incorporate the principle of Encryption,[26] which, if followed, could significantly help in mitigating the paper leak incidents. The principle involves encoding data into a format that is unreadable for an unauthorised user, allowing it to be transmitted without unauthorised entities decoding it back into a readable format to the

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[21] Health Insurance Portability and Accountability Act 1996
[22] General Data Protection Regulation, 2016
[23] Polina Bezrukava, 'How can 2FA Help Businesses Comply with Regulations like GDPR and HIPAA?' (*BSG*, 27 June 2024) <https://bsg.world/blog/how-can-2fa-help-businesses-comply-with-regulations-like-gdpr-and-hipaa/> accessed 01 July 2025
[24] Scott Rose et al., 'Zero Trust Architecture' (*National Institute of Standards and Technology*, February 2020) <http://dx.doi.org/10.6028/NIST.SP.800-207-draft2> accessed 01 July 2025
[25] Toby Cane, 'Enhancing Security with Multi-Factor Authentication in Zero Trust Model' (*ISMS ONLINE*, 27 June, 2024) <https://www.isms.online/knowledge/multifactor-authentication-and-zero-trust/> accessed 01 July 2025
[26] Taizo Anan et al., 'Paper Encryption Technology' (2010) 46(1) Fujitsu Scientific & Technical Journal

authorised user.[27] Encrypting exam papers from the moment of creation to the point of distribution ensures that only authorised personnel can decrypt and access the content. This can be achieved through end-to-end encryption or crypto questions. For instance, these public examinations could adopt a cryptography-based method for setting and distributing question papers, where all question sets are encoded and stored in a database, ensuring the final question set is only decrypted minutes before the exam.[28]

Further, inclusion of Regular security audits and compliance checks is essential to ensure adherence to established security principles and identify areas for improvement. Scheduled audits of examination systems and processes can check compliance with security standards, while well-developed incident response plans can enable quick and effective responses to security breaches of these principles. Therefore, by inculcating these principles, incidents of question paper leaks can be significantly prevented, enhancing the overall security and integrity of public examinations.

ADVANCED TECHNOLOGICAL SOLUTIONS TO PREVENT PAPER LEAKS

While the present Act does not suggest any preventive strategies for reducing the occurrence of paper leaks in future courses, a multifaceted approach incorporating advanced technology could be integrated into the Act, which would also help in the implementation of the above-mentioned fundamental security principles. *Additionally*, instead of relying on age-old methods for securing the question papers, it's high time that technology-oriented solutions should be integrated into the process. By leveraging advanced technologies such as end-to-end encryption, crypto questions, internet of things-based paper delivery boxes and machine learning algorithms, can significantly help in preventing the usage of unfair means in public examinations.

End-To-End Encryption: The online examinations could be secured by encrypting exam papers. Encryption involves protecting information or data by converting human-readable plaintext to incomprehensible text using mathematical models, in such a way that only the

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[27] Kimia Tuz Zaman et al., 'IOT Based Question Paper Delivery Box: A Solution towards Preventing Question Paper Leakage in Public Exams of Bangladesh' (2019 IEEE International Conference on Smart Instrumentation, Measurement and Application (ICSIMA), Kuala Lumpur, Malaysia, 27-29 August 2019) <https://doi.org/10.1109/icsima47653.2019.9057307> accessed 01 July 2025

[28] S. M. Tawhidur Rahman et al., 'Secured Question Paper Management System' (2021) 20(1) AIUB Journal of Science and Engineering <http://dx.doi.org/10.53799/ajse.v20i1.121> accessed 01 July 2025

parties who have the key can access it. Therefore, encryption ensures that only authorised personnel can access the question paper and, hence, end-to-end encryption will protect the exam papers from creation to distribution, thus making it almost impossible for unauthorised individuals to alter the content. In this method, the question paper will be digitally encrypted and stored in the memory of highly secure, standalone servers. It will be decrypted only at the time of the first click by the candidate. Thus, this makes the question paper fully secured and gives a complete trace of access.[29]

Crypto Questions: A cryptography-based method of setting question papers can also significantly help in enhancing security. It will involve a digital question-setting method where a large number of question paper sets for examinations will be encoded and stored in a database. The final question paper will be drafted just before the exam, which will be decoded on the computers at each examination centre. In this proposed method, high-level encoding and decoding algorithms will ensure safety from digital attacks. Additionally, only one question will be selected from each question paper set, hence minimising the probability of question paper leaks.

Electronic Control Case: Another solution to prevent paper leaks could be the introduction of an Internet of Things-based question paper delivery box system utilising OTP and Radio Frequency Identification (RFID) based authentication systems.[30] An RFID reader is a device that uses radio waves to read and capture information stored on a tag attached to an object. As far as this question delivery box is concerned, it employs two levels of authentication: OTP and RFID, to ensure that only authorised personnel can access the exam papers. The box would be connected to an RFID reader and a memory unit, and only selected authorised personnel would be able to open it after entering the password, post-smart card swipe.[31] Upon reaching the destination, the authorised person would again use the smart card and password. If the seal gets broken before the second password entry, an alarm would be triggered, and an automated SMS would be sent to the concerned authority, thus mitigating incidents of question paper leaks during transportation.

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[29] Mitchell Telatnik, 'What Is End-to-End Encryption?' (*BUILTIN*, 28 March 2023) <https://builtin.com/articles/end-to-end-encryption> accessed 01 July 2025

[30] Zaman (n 27)

[31] *Ibid*

Machine Learning Algorithms: The online examinations could also be ensured through machine learning algorithms, which analyse patterns and detect suspicious activities during online examinations. These algorithms will detect irregular behaviours, such as multiple logins from different locations or unusual time patterns in answering questions, enabling prompt investigations as well as actions.[32] It will also include predictive analysis, which will identify potential security risks and proactively address vulnerabilities. These algorithms will flag irregular behaviours, enabling prompt investigation and action.

Therefore, these advanced technological solutions could help in providing a comprehensive framework or guidelines for preventing paper leaks in examinations. By integrating IoT-based systems, encryption, cryptographic methods, and machine learning algorithms, we can ensure the security and integrity of the examination process. These methods will not only make unauthorised access difficult but will also introduce a layer of unpredictability and security that traditional methods always lack.

COMPARATIVE ANALYSIS WITH GLOBAL STANDARDS

Educational Testing Services Regulations and Guidelines: Educational Testing Service (ETS) is the supreme regulating authority for conducting the TOEFL (Test of English as a Foreign Language) exam for foreign students applying for admission to US based colleges and universities. It provides comprehensive guidelines and regulatory frameworks for conducting this exam and has incorporated biometric voice identification to maintain fair and reliable testing.[33] This security measure has provided an additional proven technique and contributed to ensuring the TOEFL program's comprehensive security system in authenticating TOEFL test-takers globally. It is similar to highly *advanced speaker identification platforms* used by government and law enforcement agencies. The voice authentication software uses statistical pattern matching techniques, advanced voice classification methods, and inputs from multiple systems to compare speech samples from TOEFL test-takers. The *speaker identification system* has offered the ability to create voiceprints for detailed analysis to validate TOEFL test-takers. Other security steps incorporated by the authorities include

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[32] Michael L. Rich, 'Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment' (2016) 164(4) University of Pennsylvania Law Review
<https://scholarship.law.upenn.edu/penn_law_review/vol164/iss4/2/> accessed 01 July 2025
[33] Leonard Klie, 'ETS Adds Voice Identification to Increase TOEFL Exam Security' (*Speech Technology*, 10 July 2024) <https://www.speechtechmag.com/Articles/ReadArticle.aspx?ArticleID=83634> accessed 01 July 2025

photo and handwriting recognition, instructor training, and even room arrangement during the test.

Similarly, India could significantly improve the security and integrity of its public examinations by adopting a *comprehensive security system* similar to the one used by the Educational Testing Service (ETS) for the TOEFL exam. This system could integrate biometric and voice identification technologies, among other measures, to authenticate test-takers and prevent unfair means. India can adopt a similar system by collecting each invigilator's biometric data (fingerprints and facial images) and storing it securely during their hiring or registration process. On the day of the examination, invigilators will be required to undergo similar biometric verification to authenticate their identity. This would ensure that only authorised and verified individuals are allowed to supervise the exam, and question papers are delivered to the authorised person only, which could significantly help in preventing paper leaks.

Office of Qualifications and Examinations Regulation (Ofqual):[34] Ofqual is a statutory and independent regulator based in the United Kingdom, which derives its powers and authorities from the Apprenticeships, Skills, Children and Learning Act (ASCL) 2009[35]. Ofqual aims to ensure the integrity and transparency of conducting public examinations. Ofqual is accountable to parliament, not to government ministers. This independence in the context of national assessments helps to enhance the security of examinations, which are designed and delivered within the Department for Education. This is because developing and delivering assessments is a complex undertaking, and expert independent regulation can assure that effective technical processes, such as those relating to the setting and maintenance of annual test standards, are in place to secure valid assessments and outcomes that can be relied on. This is particularly important where assessment results can be seen as evidence of the success or otherwise of government education policy.

Similarly, India could formulate an independent, statutory regulatory body. India should pass a similar comprehensive legislative act, which grants statutory authority to an independent examination regulatory body. This legislation should clearly define the powers,

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[34] 'Regulatory framework for national assessments' (*Ofqual*, March 2018) <https://assets.publishing.service.gov.uk/media/5a9d6aeced915d07a00fd726/National_assessment_regulatory_framework_-_March_2018.pdf> accessed 01 July 2025
[35] Apprenticeships, Skills, Children and Learning Act 2009, c 22

responsibilities, and operational scope of the new body, including oversight of all public examinations conducted by central and state boards, universities, and other examining bodies. *Additionally*, in India, existing examination bodies often face significant political influence, which can affect their operations and lead to a biased approach. Therefore, an independent regulatory body, directly accountable to parliament, could ensure an unbiased approach and establish rigorous standards for question paper design, exam delivery, evaluation, and result dissemination.

CONCLUSION

The Public Examinations (Prevention of Unfair Means) Act, 2024, represents a significant step towards addressing the unfair practices in public examinations in India. By clearly defining offences and imposing stringent punishments for indulging in various unfair means, the Act aims to enhance the integrity, transparency and fairness of examination processes.

However, the lack of specific guidelines for handling paper leaks, awarding grace marks, and including candidates in its ambit of punishment leaves critical questions unanswered. Therefore, the Act should include specific guidelines for handling situations where public examinations are cancelled or significantly hampered due to paper leaks. This should encompass a defined timeline for rescheduling the exams and clear criteria for determining which candidates are eligible to appear for the rescheduled exams.

In addition to this, incorporating advanced security principles such as multi-factor authentication, the Zero Trust model, and encryption could also significantly enhance the protection of examination papers. A primary step in implementing these access management principles could be the inclusion of digitalisation of the paper delivery system, along with encryption of the question papers to restrict unauthorised access. By ensuring that question papers are digitally encoded and securely transmitted, only authorised persons can access the question paper after the completion of two rounds of authentication. This system can be further leveraged by randomisation of questions in different sets, which can significantly decrease the predictability of the type of question paper.

A comprehensive approach that integrates these technological solutions and addresses the current legislative gaps will strengthen the Act's effectiveness. Drawing from international best practices, such as the biometric and voice identification used by the Educational Testing

Service (ETS) for TOEFL exams and the independent regulatory framework of the Office of Qualifications and Examinations Regulation (Ofqual) in the UK, can provide valuable insights. Establishing an independent regulatory body similar to Ofqual in India can further enhance the security and integrity of public examinations.

In conclusion, while the Public Examinations (Prevention of Unfair Means) Act, 2024, is a crucial step towards ensuring the fairness of public examinations, its effectiveness can be significantly enhanced by incorporating advanced technological solutions, security principles, and addressing current legislative gaps. This holistic approach will ensure that public examinations are conducted with the highest standards of transparency, fairness, and credibility, ultimately restoring trust in the examination system.