Science & Technology · GS - II

Examine the major cybersecurity challenges associated with cryptocurrency exchanges. Suggest measures to strengthen the security and regulatory oversight of digital-asset platforms.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
10	~150 words

Answer Hint

Cryptocurrency exchanges; private-key security; blockchain technology; cybercrime; investor protection; regulatory oversight

Model Answer

Introduction:

Cryptocurrency exchanges facilitate the buying, selling and storage of digital assets. However, vulnerabilities in digital wallets, user authentication and exchange infrastructure can expose users to substantial financial losses.

Major cybersecurity challenges

- **Private-key compromise:** Theft or misuse of private keys can enable unauthorised transfers of digital assets.
- **Software vulnerabilities:** Weaknesses in exchange platforms, smart contracts or connected services can be exploited by attackers.
- **Social engineering:** Phishing and impersonation can compromise employee or customer credentials.
- **Cross-border investigations:** Cryptocurrency transactions may span multiple jurisdictions, complicating asset recovery and prosecution.
- **Investor confidence:** Major security incidents can undermine trust in digital-asset markets.

Measures to strengthen security

Exchanges should adopt multi-factor authentication, cold storage for a substantial portion of assets, independent security audits, penetration testing and continuous monitoring. Incident-response plans and transparent disclosures can improve accountability.

Regulators should establish clear custody and cybersecurity standards, require appropriate risk disclosures and strengthen cooperation among financial intelligence and law-enforcement agencies. Consumer education is also essential.

Conclusion

Blockchain technology does not automatically make exchanges secure. Strong technical safeguards, effective supervision and international cooperation are necessary to reduce cybercrime and protect digital-asset users.

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