Science & Technology · GS - III

Artificial Intelligence is emerging as both a tool for strengthening cybersecurity and a potential source of sophisticated cyber threats. Examine its opportunities and challenges in securing India's digital infrastructure.

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MARKS	WORD LIMIT
10	~150 words

Answer Hint

AI-driven cybersecurity, vulnerability detection, automated patching, cyber threat intelligence, authorised security testing, AI-powered cyberattacks, data privacy, misuse prevention, cybersecurity governance, skilled workforce

Model Answer

Introduction

The growing digitisation of governance, banking and critical infrastructure has increased India's exposure to cyber threats. Artificial Intelligence offers new capabilities for identifying vulnerabilities and strengthening digital security.

Opportunities

AI-based cybersecurity systems can detect suspicious activities, analyse large volumes of security data and identify software vulnerabilities. Specialised models such as GPT-6 Cyber demonstrate the potential of AI-assisted vulnerability discovery, validation and patch development.

These technologies can improve threat detection, automate security audits and strengthen the protection of critical information infrastructure.

Challenges

The same capabilities can be misused to develop sophisticated cyberattacks, automate malicious activities and exploit software weaknesses. Other concerns include data privacy, unauthorised access, algorithmic vulnerabilities and dependence on automated systems.

Way Forward

India should strengthen CERT-In, promote responsible AI development, establish cybersecurity testing standards and encourage public-private research partnerships. Skilled cybersecurity professionals and robust incident-response mechanisms are equally important.

Conclusion

AI must be integrated into cybersecurity through responsible deployment, effective safeguards and continuous human oversight to build a secure and resilient digital ecosystem.

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