Defence & Security · GS - III

Examine the emerging cybersecurity challenges associated with the use of cloud computing in critical defence infrastructure.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
10	~150 words

Answer Hint

Cloud vulnerabilities, control-plane security, sensitive military data, supply-chain risks, access management, cyber resilience, defence preparedness

Model Answer

Cloud computing has improved data storage, operational coordination and information sharing in modern defence systems. However, its growing integration into military infrastructure has also expanded the potential attack surface.

The reported breach of the US Air Force's Cloud One platform highlights several concerns. The full extent of the intrusion and any data theft remain unconfirmed.

Major cybersecurity challenges

1. **Sensitive data exposure:** Cloud platforms may host personnel, logistics, maintenance and operational information.
2. **Control-plane compromise:** Unauthorised access to management systems can potentially expose multiple connected resources.

3. **Supply-chain vulnerabilities:** Dependence on external cloud service providers creates additional security risks.
4. **Operational disruption:** Cyber incidents can interrupt software updates, administrative access and essential digital services.
5. **Attribution difficulties:** Identifying attackers and establishing the full extent of an intrusion can be challenging.

Measures to strengthen defence cybersecurity

- Adopt zero-trust architecture and multi-factor authentication.
- Conduct regular vulnerability assessments and independent security audits.
- Encrypt sensitive information and strengthen access controls.
- Establish continuous monitoring and rapid incident-response mechanisms.
- Develop secure backup systems and operational redundancy.
- Strengthen coordination between defence agencies and domestic cybersecurity institutions.

Conclusion

Cybersecurity must be treated as an integral component of national defence preparedness. Secure cloud infrastructure, technological resilience and institutional coordination are essential to protect critical military capabilities.

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