Defence & Security · GS - III

The security of military drone systems depends not only on their operational capabilities but also on the integrity of their underlying technology and supply chains. Analyse the need for a secure and self-reliant drone ecosystem in India.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
15	~250 words

Answer Hint

Drone warfare, cybersecurity, foreign component dependence, data sovereignty, trusted suppliers, indigenous manufacturing, defence procurement, R&D, testing and certification, strategic autonomy.

Model Answer

Introduction

Unmanned Aerial Vehicles (UAVs) have become important for surveillance, reconnaissance and combat operations. However, foreign-origin flight controllers, communication systems and software can expose military platforms to supply-chain and cybersecurity risks.

Why a Secure Drone Ecosystem is Necessary

1. **Operational security:** Compromised components may expose sensitive military data, locations and mission information.

2. **Data sovereignty:** Secure domestic control over data transmission, storage and processing reduces the risk of unauthorised access.

3. **Supply-chain resilience:** Dependence on foreign suppliers can disrupt defence readiness during geopolitical tensions or export restrictions.

4. **Technological autonomy:** Indigenous capabilities in sensors, propulsion, navigation and software strengthen India's strategic independence.

Measures Required

- **Trusted procurement:** Mandate country-of-origin disclosures and security assessments of critical components.
- **Indigenous R&D:** Promote domestic development of flight controllers, batteries, sensors and secure communication systems.
- **Testing and certification:** Establish rigorous cybersecurity and operational standards for military drones.
- **Industry collaboration:** Strengthen partnerships among defence research institutions, startups and established manufacturers.
- **Diversification:** Develop multiple trusted suppliers to avoid excessive dependence on a single source.

Conclusion

India's drone modernisation must combine operational effectiveness with technological trust and supply-chain security. A resilient domestic ecosystem is essential for protecting sensitive defence information and strengthening strategic autonomy.

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