Defence & Security · GS - III

The induction of the LCA Tejas Mk1A reflects India's efforts to achieve self-reliance in defence aviation. Critically examine the significance of indigenous fighter aircraft programmes for India's strategic autonomy and defence preparedness. What institutional and technological challenges must be addressed to make India a major aerospace manufacturing power?

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MARKS	WORD LIMIT
15	~250 words

Answer Hint

Defence indigenisation, LCA Tejas Mk1A, strategic autonomy, import dependence, aerospace ecosystem, indigenous engine development, AESA radar, supply-chain resilience, private-sector participation, technology transfer, R&D investment, skilled workforce, defence exports.

Model Answer

Introduction

The LCA Tejas programme represents a major step in India's indigenous aerospace development. The proposed induction of the first LCA Mk1A squadron into the Indian Air Force during the current financial year highlights the growing role of domestic defence manufacturing.

Significance for Strategic Autonomy

1. **Reduced import dependence:** Indigenous fighter production can reduce dependence on foreign suppliers for critical platforms and components.

2. **Operational preparedness:** Domestic manufacturing and maintenance capabilities can improve fleet availability and reduce logistical vulnerabilities.
3. **Technological development:** The programme strengthens capabilities in avionics, flight-control systems, radar and composite materials.
4. **Industrial ecosystem:** It supports domestic manufacturers, research institutions, MSMEs and skilled employment.
5. **Defence diplomacy:** Indigenous platforms can create opportunities for exports and deeper strategic partnerships.

Key Challenges

- **Engine dependence:** Developing reliable indigenous aero-engines remains a major technological challenge.
- **Supply-chain constraints:** Dependence on imported components can affect production timelines.
- **Research and development:** Advanced materials, sensors and electronic warfare systems require sustained investment.
- **Production capacity:** Timely delivery requires stronger manufacturing infrastructure and coordination between public and private industries.
- **Testing and certification:** Complex aviation systems require rigorous quality assurance and long-term performance validation.

Way Forward

India should strengthen public-private collaboration, increase defence R&D expenditure, promote technology transfer and build a competitive domestic component ecosystem. Greater investment in indigenous propulsion technology is particularly important.

Conclusion

The LCA programme is not merely an aircraft acquisition initiative; it is a foundation for India's aerospace sovereignty. Its success must be measured through technological depth, reliable production and sustained operational capability.