Defence & Security · GS - III

Assess the significance of indigenous precision-guided missile systems in transforming India's land-warfare capabilities. What challenges must be addressed to achieve self-reliance in advanced defence technologies?

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 21/11/2026	GS - III	Defence & Security

MARKS	WORD LIMIT
15	~250 words

Answer Hint

ATGM technology, precision strike capability, night operations, armoured warfare, indigenous R&D, private-sector participation, defence procurement, critical components, testing and quality assurance, strategic autonomy.

Model Answer

Introduction

Modern land warfare increasingly relies on precision, mobility and advanced surveillance. Indigenous Anti-Tank Guided Missile (ATGM) systems, such as the reported Bagheera AT1, reflect India's efforts to strengthen domestic defence capabilities.

Strategic Significance

1. **Enhanced operational capability:** Precision-guided missiles improve the ability to engage armoured targets over tactical distances.

2. **All-weather readiness:** Advanced seekers and guidance technologies can support operations during night-time and reduced visibility.
3. **Reduced import dependence:** Domestic production strengthens supply-chain security and reduces vulnerability to external restrictions.
4. **Private-sector participation:** Industry involvement complements public-sector defence research and expands the domestic manufacturing ecosystem.
5. **Deterrence:** Improved precision-strike capabilities contribute to operational preparedness and credible conventional deterrence.

Challenges to Self-Reliance

- Dependence on imported seekers, sensors, propulsion systems and specialised materials.
- Need for rigorous testing under diverse battlefield conditions.
- High research costs and long development cycles.
- Integration with existing platforms, command systems and military doctrine.
- Requirement for reliable mass production and lifecycle maintenance.

Way Forward

India should strengthen DRDO-industry collaboration, testing infrastructure, technology transfer, component-level indigenisation and user-led evaluation. Stable procurement policies and export-oriented manufacturing can improve economies of scale.

Conclusion

Indigenous missile development is not merely a procurement achievement but a foundation for technological sovereignty. Sustained investment in research, testing and industrial capacity is essential for credible defence self-reliance.

BECOME IAS
AI POWERED UPSC PREP