

Daily Mains Practice Answer 27-10-2026

Q. Discuss the significance of space-based assets in strengthening India's national security. Examine the challenges associated with developing an indigenous military-space ecosystem. (10 marks, 150 words)

Direction: Intro----Significance + Challenges-----Conclusion.

Introduction:

Define space-based assets - Refer to satellites and associated systems that provide communication, navigation, surveillance, reconnaissance, weather forecasting and other strategic services.

Main Body

Significance of space-based assets

- Intelligence, Surveillance and Reconnaissance (ISR) - Provides information about enemy troop movements, military infrastructure and border activities.
- Secure Military Communication - Communication satellites enable secure connectivity between military headquarters, field formations, aircraft and naval vessels.
- Examples: GSAT-7 supports Indian Navy communication & GSAT-7A supports Indian Air Force communication and networking.
- Navigation and Precision Warfare - Satellite navigation provides accurate positioning, navigation and timing (PNT), improving the precision of military operations, aircraft navigation and weapon guidance. Eg, NavIC
- Border and Maritime Security - Satellites monitor border infrastructure and military deployments by supporting maritime domain awareness by tracking vessels and identifying suspicious activities.
- Space Situational Awareness (SSA) - SSA involves tracking objects and activities in space and helps to identify potential collisions, space debris and hostile satellite manoeuvres.
- Disaster Management and Humanitarian Assistance - Provides information on cyclones, floods and other natural disasters.

Challenges associated with developing an indigenous military-space ecosystem

- Lack of specialised human resources.
- Limited institutions dedicated to advanced space science and military-space technology.
- Insufficient and unpredictable funding can delay advanced projects.

- Dependence on foreign technologies.
- Fragmented institutional structure.
- Emerging space-based threats - Anti-satellite (ASAT) weapons, cyberattacks, electronic jamming and spoofing, etc.

Conclusion:

Give a balanced conclusion and suggest some measures.

