



## Mains Practice Question

**Q.** Discuss the significance of space power for India. (250 words)

22 Jan, 2020 GS Paper 3 Science & Technology

### Approach:

- Explain the emerging issue of Space power.
- Explain the significance of space power for India.
- List steps taken by India in this direction.
- Conclude suitably.

### Introduction

Space missions can seriously impact the future of cooperation between space powers. Space has now become a major frontier for warfare. All major powers are eyeing to take lead in the development of their capabilities in space warfare including India with Mission Shakti (Anti Satellite Mission).

### Body

#### 3 types of space warfare:

- **Auxiliary system:** to assist warfare on different terrain
  - Eg. Satellites communication to support the Army to conduct its operation
- **Defensive system:** to protect space assets
  - The early warning system against any anti-satellite missile.
- **Weaponized system:** purely offensive in nature
  - ASAT, Laser targeting, cyber targeting comes in this domain

#### Steps Taken By India

##### Mission Shakti:

- Under Mission Shakti, India conducted an anti-satellite missile test against a live satellite in low earth orbit (LEO). India is only the 4th country to acquire this capability. MEA underlines the rationale behind the test as a means 'to safeguard our space assets'.

**Creation of Defence Space Agency (DSA)** with command over the space assets of the Army, Navy and Air Force

- Indian government conducted a tabletop war game called 'IndSpaceEx' involving stakeholders from the military and scientific establishments.  
A similar exercise has been conducted by various thinktanks like Observers Research Foundation SIMEX (Simulation Exercise)
- DRDO has created Electro-Magnetic Intelligence Satellite (EMISAT) for surveillance and other satellites like CARTOSAT-3, GSAT-7, etc.

## Significance of Space Power for India

- With US, Russia and China already in pursuit of becoming a Space power, India will need to equip itself appropriately to meet emerging security challenges.  
Space power has the ability to use space while denying reliable use to any foe.
- USA, China, and Russia have concluded Kinetic kill interceptor testing, and now focusing on co-orbital anti-satellite systems and directed energy (laser) systems.  
Countries are also working on cyber capabilities to disrupt communication links with satellites.
- US has launched the US Space Force while China has established the Strategic Support Force (PLASSF) in 2015 to integrate space, cyber and electronic warfare. Russia too tweaked its air force to include space force in its domain.
- Military around the world are working on C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) capabilities along with ASAT technologies
- India already has a significant ability to use space. But it's the ability to deny space use to an adversary is, understandably, negligible.  
When it comes to satellites, India has a handful of military satellites in operation, compared to over 40 civilian ones. Our first dedicated military satellite was launched only in 2013.

## Way Forward

- Creation of the comprehensive defence space security architecture
- Defense Space Command
- A dedicated space command is needed to cater to all services related to space.
- Defence Space Research Agency: Such an agency may be set up under the Defense Research and Development Organization. It should focus upon:
  - Space Situational Awareness
  - SIGINT/COMINT/ELINT/IMAGEINT satellites which will be used for intelligence gathering, communication mapping and imaging.
  - Directed Energy Weapons, which are alternative to ASAT
  - Electronics Warfare which includes jamming and spoofing technologies
  - Rogue satellites used to cause damage to adversaries satellites
- Defense Space Agency must work on the following initiatives:
  - India must protect two kinds of space assets—those that belong to us and those that are crucial to our economy and national security.
  - India must have the most reliable and accurate capabilities to track space objects
  - India must acquire a minimum, credible offensive capacity across the various types of space weapons, physical, electronic and cyber.
  - Improving launch capabilities and spacecraft design.
  - Comprehensive Space policy harnessing the potential of the private sector of India.

## Conclusion

Since Space is a global common, India should seek the peaceful resolution of conflicts over space. But we also need to develop our capabilities to deter the wrong intentions of other states and we are moving in the right direction in that regard.