

# GSAT 7A

January 4, 2019

## Manifest pedagogy

2018 has been the busiest year with 17 flights and 2019 is going to be the busiest year with many launches of first-of-its-kinds. We can expect more questions from space in both Prelims and Mains.

## In news

*GSLV-F11 launched GSAT- 7A*

## Placing it in syllabus

Science and Technology- developments and their applications

Achievements of Indians in science & technology

Awareness in the fields of space

## Static dimensions

1. GSLV MK II
2. GSAT series

## Current dimensions

Defence capabilities enabled by satellites.

## Content

GSAT-7A is the Indian Communication satellite built by ISRO. This is a geostationary satellite carrying communication transponders in Ku-band, it is built to provide communication capability to the users in Ku-band over the Indian region. **Satellite using Ku band will enable superior real time**

**aircraft-to-aircraft communication;** and between planes that are in flight and their commanders on the ground.

### **Key highlights**

- GSAT-7A is an **advanced military communications satellite** meant primarily for the Indian Air Force with Indian Army using 30% of capacity.
- GSAT-7A is similar to Indian navy's GSAT-7 and the **Indian Air Force will be the sole operator** of the satellite.
- GSAT-7A will be the first satellite **built primarily for the IAF** to qualitatively unify its assets and improve combined, common intelligence during operations.
- The satellite is expected to add a **new space-based dimension** to the way Indian Air Force interlinks, operates and communicates with its aircraft as they fly and with command centres on ground.
- GSAT-7A is designed to expand the communication capabilities of the Indian Air Force (IAF). It will do this by connecting many of the ground radar stations, airbases and aircrafts operated by the IAF, and is also expected **to boost some of their network-dependant warfare** and drone capabilities.
- It will be placed in its final geostationary orbit **using the onboard propulsion systems**.
- It comes with many firsts, including **increased propellant loading and other features**.
- The advanced communication satellite also came with **new technology regarding the antenna to improve the performance**.
- The satellite will enhance **network-centric warfare capabilities** of the Indian Air Force and therefore **enhance its global operations**.
- The satellite will also be used by **Indian Army's Aviation Corps** for its real-time control and communication system for the helicopters and UAV's operations.

- This was the **heaviest satellite lifted by the GSLV** with indigenous cryogenic stage. (**Not to confuse with GSAT-11**, which is the overall heaviest satellite of India)
- **Mission life of GSAT-7A is 8 years.**

### **About GSLV-F11**

GSLV – F11 is ISRO's **fourth generation launch vehicle with three stages**. The four liquid strap-ons and a solid rocket motor at the core form the first stage. The second stage of the vehicle is equipped with high thrust engine using liquid fuel. The Cryogenic Upper Stage forms the third and final stage of the vehicle. This is GSLV Mk-II version. F11 is 11<sup>th</sup> operational flight.

## **Test yourself: Mould your thoughts**

ISRO's space missions and satellites are making India's defence capabilities robust. Elucidate.