

27-10-2022

Launch Vehicle Mark-3

Why in Newspapers?

Recently Indian Space Research Organization (ISRO)'s heaviest Rocket Launch Vehicle Mark 3 (LVM3 or GSLV Mark 3) successfully orbited 36 satellites of UK-based OneWeb.

Quick Issue?

- OneWeb is a global communications network operated by a group of 648 Low Earth Orbit (LEO) satellites.

Historical Background?

- The LVM3-M2 mission is a dedicated commercial mission for an overseas client One Web, from New Space India Limited (NSIL), a Central Public Sector Enterprise (CPSE).
- This is the first multi-satellite mission in which LVM3 carries 36 OneWeb satellites to low earth orbit so far, with the heaviest payload mass of 5,796 kg.
- This latest rocket is capable of launching 4,000 kg class satellites into Geosynchronous Transfer Orbit (GTO) and 8,000 kg payloads into LEO.
- It is a three-stage launch vehicle, with two solid propellant S200 strap-ons on the sides and the core stage consisting of an L110 liquid stage and a C25 cryogenic stage.
- **Features:-**
 - First commercial mission of LVM3
 - First launch of LEO from LVM3
 - First Indian rocket with a six-tonne load capacity
 - First NSIL mission with LVM3

Other Key Facts?

LAUNCH VEHICLE USED BY ISRO

- **Satellite Launch Vehicle (SLV):~** The first rocket developed by ISRO was simply called SLV or Satellite Launch Vehicle. Then came the Augmented Satellite Launch Vehicle (ASLV).
- **Enhanced Satellite Launch Vehicle (ASLV):~** Both SLV and ASLV can carry small satellites, weighing up to 150 kg, into low earth orbits
- .ASLV was operated before the arrival of PSLV i.e. till the early 1990s.
- **Polar Satellite Launch Vehicle (PSLV):~** The first successful launch of PSLV was done in October 1994. Since then it has been the main rocket of ISRO. However, today's PSLV is much better and many times more powerful than the PSLV used in the year 1990s.
- PSLV is the first launch vehicle equipped with liquid stages. PSLV is the most reliable rocket ever used by ISRO, with 52 successful flights out of 54.
- **Geosynchronous Satellite Launch Vehicle (GSLV):~** Geosynchronous Satellite Launch Vehicle (GSLV) is a more powerful rocket, capable of carrying heavy satellites to greater heights in space. GSLV rockets have carried out 18 missions so far, Four of which have failed. It can carry 10,000 kg satellites to low earth orbit.



Agni Prime

Why in Newspapers?

Recently Defense Research and Development Organization (DRDO) has launched indigenously developed new generation medium range ballistic missile Agni Prime (Agni-P) Successfully test fired from Dr APJ Abdul Kalam Island off Odisha coast.

Quick Issue?

- It is a two-stage canisterized missile. It is the latest and the sixth version of the Agni series of missiles developed under the Integrated Guided Missile Development Program (IGMDP).

Historical Background?

- The missile is capable of delivering various munitions/weapons to different locations over a range of 1,000 - 2,000 km with various independently targeted re-entry vehicles.
- This missile of 1.2 meters diameter and 10.5 meters in length can carry up to 1.5 tons of warhead.
- These missiles will be inducted into the armed forces after a few user associated launches. It has a dual navigation and guidance system.
- Agni-P missile will further strengthen India's credible deterrence in future.
- India laid the foundation stone of an ambitious project 'Coordinated Guided Missile Development Program' in 1983 to achieve self-reliance in the defence sector
- The idea of establishing IGMDP was given by the famous scientist Dr. APJ Abdul Kalam.
- Its objective was to achieve self-reliance in the field of missile technology.
- It was approved by the Government of India in the year 1983 and was completed in March 2012.
- The responsibility of research and development to be done under IGMDP was entrusted to 'Defence Research and Development Organization' (DRDO).
- The Indian Missile Development Program has received significant support from the Indian Space Program.
- 5 missile systems (P-A-T-N-A) have been developed under IGMDP.**
 - Prithvi:** Short-range ballistic missile capable of surface-to-surface strikes.
 - Agni:** A medium-range ballistic missile capable of surface-to-surface strikes, i.e. Agni (1,2,3,4,5).
 - Trishul:** Short-range surface-to-sky missile.

Other Key Facts?

Other Agni Missiles

- They are the mainstay of India's nuclear launch capability.
- Other Range of Agni Missiles:~**
 - Agni I:** limit of 700-800 kms.
 - Agni II:** More than 2000 kms.
 - Agni III:** 2,500 kms. exceeding the limit
 - Agni IV:** Its range is 3,500 km. and it can fire from a road mobile launcher.
 - Agni V:** The longest in the Agni series, is an inter-continental ballistic missile (ICBM) with a range of 5,000 km. More than.



- **Nag:** Third generation anti-tank missile.
- **Akash:** Medium-range missile capable of surface-to-sky strikes.

Likely Question Asked In Preliminary Exam

Que. Which of the following statement(s) is/are correct regarding Agni-IV missile?

1. It is a surface-to-surface missile.
2. It is propelled only by liquid propellant.
3. It is about 7500 km. It is capable of delivering one ton of nuclear warhead to a distance.

Select the correct answer using the code given below:

- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Answer: (a) 1 only

