ISRO launches of heaviest vehicle LVM3

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In news– India's heaviest rocket injected 36 broadband satellites of a UK-based customer into precise orbits.

About the Launch Vehicle Mark III (LVM3)-

- This **was the first foray of any Indian launch vehicle,** other than ISRO's workhorse PSLV, into the commercial space market.
- With this, India also entered the heavier launch vehicle segment of the market.
- The mission, however, was not just about India positioning itself to capture a larger chunk of the commercial space sector (currently, India accounts only for 2 per cent of the market despite being one of the foremost space-faring countries).

- **This was the first time that this launch vehicle carried multiple satellites and launched them into low earth orbit.**

- This was also the **first time any of India's rockets carried a 5.8-tonne payload to space, the heaviest payload for the space agency to date.**
- The **LVM3 rocket (earlier called the Geosynchronous Launch Vehicle Mark III or GSLV-MK3) can carry up to 8 tonnes** into low earth orbit.
- The PSLV is much lighter and can carry between 1.4 and 1.75-tonne payloads.
- The LVM3-M2 rocket is a three-stage launch vehicle consisting of two solid propellant S200 strap-ons on its sides and core stage comprising L110 liquid stage and C25 cryogenic stage.

- Before the LVM3 was operationalised – **its first operational mission after two development flights was Chandrayaan 2 – several of the 2 to 5-tonne GSAT satellites** were launched by European launch provider Arianespace.
- **UK-based Network Access Associated Ltd – India's Bharti Group is a major investor** plans to create a 588 satellite-strong constellation to provide high speed, low latency global connectivity.
- **These satellites will be placed in 12 rings of 49 satellites each,** with every satellite completing a full trip around the Earth in 109 minutes.
- **This was the fourteenth launch for OneWeb,** taking the fleet strength to 464 satellites so far. The constellation will likely be completed by next year, with ISRO's 36-satellite launch being among the last ones.
- The mission demands the separation of all 36 satellites into the 600-km orbit and the separation has to be sequenced in such a way that the customer requirement of minimum 137-metre distance between any pair of satellites is maintained.
- This is achieved by orienting and reorienting the cryo stage (third stage of the rocket) using the on-board thrusters.
- The mission assumes significance as this was LVM3's maiden commercial mission and also NewSpace India's (NSIL) first with the said launch vehicle.
- NSIL is a central public sector enterprise under the Department of Space.

Note:

OneWeb (legally Network Access Associates Ltd is a communications company that aims to build broadband satellite Internet services. The company is headquartered in London, and has offices in Virginia, US and a satellite manufacturing

facility in Florida – OneWeb Satellites – that is a joint venture with Airbus Defence and Space. The company was formerly known as WorldVu Satellites Ltd.