1. Artificial Meteor Shower

Why in News?

- A Japanese company, ALE has recently plans to launch satellites that will trigger an artificial meteor shower, called Sky Canvas in 2025.

Highlights

- The Sky Canvas project aims to give people all over the world "the opportunity to view the world's first live human-made meteor shower."
- ALE plans to use a pressure-driven system of gas tanks that will shoot pellets at a speed of 8 kilometers per second to trigger the artificial meteor shower.
- The metal "shooting star" particles will be taken to a low-Earth orbit by small satellites.
- Once the orbit stabilises, the particles will be released, and they will travel around part of the planet before entering the atmosphere at an altitude of 60 to 80 kilometres.
- The company also hopes to collect atmospheric data in the mesosphere (the third layer of the atmosphere) to further scientific understanding of climate change.
- The Mesosphere Is too low to be observed by satellites and too high for weather balloons or aircraft.
- A natural meteor shower occurs when the Earth passes through a stream of debris left behind by a comet or asteroid.
- As the Earth travels in its orbit around the Sun, it encounters these streams of debris, which are composed of tiny particles of dust and rock.
- As the Earth passes through this debris, the particles enter the Earth's atmosphere at high speeds, typically around 40 kilometres per second.
- The friction between the particles and the atmosphere causes them to heat up and vaporise, creating the streaks of light that we see as meteors or "shooting stars."
- The name of the meteor shower is typically derived from the constellation from which the meteors appear to radiate.
- For example, the Perseid meteor shower appears to originate from the constellation Perseus.
- Around 30 meteor showers that are visible to observers on Earth occur every year and some of them have been observed for centuries.