



**Sleepy Classes**  
Free. Regular. Quality.

---

# PRE-Mix

*(Compilations of the Multiple Choice Questions)*

*For*

30th  
October  
2021

---

Visit our website [www.sleepyclasses.com](http://www.sleepyclasses.com) or

our [YouTube channel](#) for entire GS Course **FREE** of cost

Also Available: Prelims Crash Course || Prelims Test Series

# Science & Technology

Click [here](#) to watch the following questions on YouTube

## Space & Technology

1. Consider the following statements in the context of GSLV MK-III, a three stage launch vehicle,.

1. It was used for launching India's Chandrayan-2 Mission.
2. The vehicle has two solid strap-on, a core liquid booster and a cryogenic upper stage.
3. It is capable of placing the 4-ton class satellites of the GSAT series into Geosynchronous Transfer Orbits.

Which of the statements mentioned above is/are correct?

- A. 1, 2 and 3
- B. 1 and 2 only
- C. Only 3
- D. Only 1

**Answer: A**

### Explanation

- Geosynchronous Satellite Launch Vehicle Mark II (GSLV Mk II) is the largest launch vehicle developed by India, which is currently in operation. This fourth generation launch vehicle is a three-stage vehicle with four liquid strap-ons.
- GSLV Mk III is designed to carry 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO), which is about twice the capability of the GSLV Mk II.
- GSLV MkIII, chosen to launch Chandrayaan-2 spacecraft, is a three-stage heavy lift launch vehicle developed by ISRO. The vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage.

- The first developmental flight of GSLV Mk III, the GSLV-Mk III-D1 successfully placed GSAT-19 satellite to a Geosynchronous Transfer Orbit (GTO) on June 05, 2017 from SDSC SHAR, Sriharikota.
- India's first mission to land on moon, Chandrayan 2 was launched using GSLV-MkIII M1.

2. Consider the below mentioned ISRO missions.

1. NISAR is a joint mission of NASA and ISRO to observe black holes, quasars, and high-temperature gases.
2. Gaganyaan is dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.
3. Aditya L1 is India's first mission to study Sun.

Which of the above-mentioned missions are correctly described?

- A. 1 and 2 only
- B. 1 and 3 only
- C. 2 only
- D. 3 only

**Answer: D**

### Explanation

#### NISAR(Expected to be launched in 2023)

- It is a joint Earth Observatory Mission of NASA and ISRO
- The NASA-ISRO SAR (NISAR) Mission will measure:

- ✓ Earth's changing ecosystems, dynamic surfaces, ice masses
- ✓ Providing information about biomass,
- ✓ Natural hazards, sea level rise, and groundwater, and will support a host of other applications.
- **Gaganyaan:**
  - ✓ The Gaganyaan Program envisages undertaking the demonstration of human spaceflight to Low Earth Orbit (LEO) in the short-term and will lay the foundation for a sustained Indian human space exploration programme in the long run.
  - ✓ The objective of Gaganyaan programme is to demonstrate indigenous capability to undertake human space flight mission to LEO.
- **Aditya L1:**
  - ✓ It will be India's first mission to study Sun.
  - ✓ With the inclusion of multiple payloads, this project also provides an opportunity to solar scientists from multiple institutions within the country to participate in space based instrumentation and observations.
  - ✓ Aditya-L1 project will enable a comprehensive understanding of the dynamical processes of the sun and address some of the outstanding problems in solar physics.
  - ✓ Aditya-L1 with additional experiments will provide observations of Sun's Corona (soft and hard X-ray, Emission lines in the visible and NIR), Chromosphere (UV) and photosphere (broadband filters).

3. **Consider the following statements in the context of North Eastern Space Application Centre (NESAC):**

1. **It is an initiative of Department of Space (DoS) and the North Eastern Council (NEC).**
2. **The president of NESAC is Minister of Home Affairs.**
3. **The objective of NSEAC is to develop space center in the North Eastern Region.**

**Which of the statements mentioned above is/are correct?**

- A. 1, 2 and 3
- B. 1 and 3 only
- C. Only 1
- D. 1 and 2 only

**Answer: D**

**Explanation**

- **North Eastern Space Application Centre (NESAC):**
  - ✓ North Eastern Space Applications Centre (NESAC) was established as a joint initiative of Department of Space (DOS) and the North Eastern Council (NEC)
  - ✓ It was established in 2000.
  - ✓ Its president is Minister of Home Affairs, and Secretary of Department of Space is the chairman of the center.
- **The major objectives of the Centre are:**
  - ✓ To provide an operational remote sensing and geographic information system aided natural resource information base to support activities on development / management of natural resources and infrastructure planning in the region.

- ✓ To provide operational satellite communication applications services in the region in education, health care, disaster management support, and developmental communication.
- ✓ To enable space-based support for disaster management.
- ✓ To set up a regional level infrastructure for capacity building in the field of geospatial technology.

**4. Which of the following options is correct in the context of 'Kessler Syndrome'?**

- A. It is kind of motion sickness that can occur when one's surroundings visually appear to be in motion, but without a corresponding sense of bodily motion.
- B. It is a developmental disorder among astronauts due to oxygen deficiency in space.
- C. It is a phenomenon in the outer space when cascading of collision in the lower earth orbit occurs due to increase in the density of space debris.
- D. None of the above

**Answer: C**

**Explanation**

- It is a phenomenon in the Lower Earth Orbit (LEO) whereas the density of the space debris increases and it increases the chances cascading collision between the space objects.
- It was proposed by NASA scientist Donald J Kessler in 1978 the pollution caused by space debris creates threat for the rotating slide satellites in the lower earth orbit.
- ISRO has developed Project NETRA to detect space debris and to prevent the threats caused by these debris to the Indian satellites.

**About Space debris**

- These are the natural as well as artificial (man-made) particles or objects around the earth.
- The man-made objects include various non-functional spacecraft, satellites another abandoned launched vehicle.

**5. Consider the following statement in the context of Space Agreements:**

- 1. Moon Agreement, 1979 prohibits the military use of Moon as well as other Celestial Bodies.**
- 2. India has ratified the Moon Agreement.**
- 3. The Outer Space Treaty, 1967 prohibits only the use of nuclear weapons or other Weapons of Mass destruction.**

**Which of the above-mentioned statements is/are correct?**

- A. 1 and 2 only
- B. 1, 2 and 3
- C. 1 and 3 only
- D. Only 3

**Answer: C**

**Explanation**

**Outer Space Treaty, 1967**

- It is a multilateral treaty that forms the basis of international space law. It is negotiated and drafted under the auspices of the United Nations.
- India has ratified the Treaty in 1982.

**Moon Agreement**

- It is a multilateral treaty that turns jurisdiction of all celestial bodies (including the orbits around such bodies) over to the participant countries.

- Thus, all activities would conform to international law, including the United Nations Charter.
- India has signed the Agreement but has not ratified it yet.
- Other Multilateral Space treaties:
  - ✓ The Rescue Agreement of 1968
  - ✓ The Space Liability Convention of 1972
  - ✓ The Registration Convention of 1976

The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) oversees these treaties.