



## Third Attempt for Artemis I

**For Prelims:** National Aeronautics and Space Administration (NASA), Artemis I, moon mission, Chandrayaan project, Indian Space Research Organisation (ISRO), History of Moon Exploration

**For Mains:** Space Exploration, Moon mission, Sending Humans on Moon.

### Why in News?

[National Aeronautics and Space Administration \(NASA\)](#) has successfully launched its **unmanned Moon mission Artemis I** on 16<sup>th</sup> November 2022.

- After multiple delays caused by technological failures and natural disasters spread across two months, the **Space Launch System (SLS)** rocket has been lifted off from the **Kennedy Space Centre in Cape Canaveral, Florida**.

### What is the Artemis I Mission?

- Artemis I is an **uncrewed mission** of NASA.
  - Named after the sister of Apollo in Greek mythology, it is NASA's successor to the Apollo lunar missions from fifty years ago.
- It will test the agency's **Space Launch System (SLS) rocket and Orion crew capsule**.
  - The SLS is the largest new vertical launch system NASA has created since the Saturn V rockets used in the 1960s and 1970s.
- Artemis I is the first in a series of increasingly complex missions to build a **long-term human presence** at the Moon for decades to come.
  - The **primary goals for Artemis I** are to demonstrate Orion's systems in a spaceflight environment and ensure a safe re-entry, descent, splashdown, and recovery prior to the first flight with crew on Artemis II.
- It is only a lunar Orbiter mission even though, unlike most Orbiter missions, it has a return-to-Earth target.

## What is the Importance of Artemis I Mission?

- Artemis I is the **first step into that new space age of achieving the promise of transporting humans** to new worlds, of landing and living on other planets, or maybe meeting aliens.
- The CubeSats it will carry are equipped with instruments meant for **specific investigations and experiments**, including **searching for water** in all forms and for **hydrogen that can be utilised** as a source of energy.
- **Biology experiments** will be carried out, and the impact of **deep space atmosphere on humans** will be investigated through the effect on **dummy 'passengers'** on-board Orion.

## What are the Upcoming Artemis Missions?

- **Artemis II:**
  - It will take off in **2024**.
  - Artemis II will have a **crew aboard Orion** and will be a test mission to confirm that all of the **spacecraft's systems will operate as designed** when it has humans on board.
  - But the Artemis II launch will be similar to that of Artemis I. A crew of four astronauts will be aboard Orion as it and ICPS orbit the Earth twice before moving to the direction of the Moon.
- **Artemis III:**
  - It is scheduled for 2025, and is expected to ferry astronauts to the moon for the first time since the Apollo missions.

## What are India's Moon Exploration Efforts?

- **Chandrayaan 1:**
  - Chandrayaan-1 was India's first mission to Moon under [Chandrayaan project](#).
  - It was launched successfully in October 2008 from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, Andhra Pradesh.
    - [Indian Space Research Organisation \(ISRO\)](#) lost communication with Chandrayaan-1 on 29<sup>th</sup> August 2009.
- **Chandrayaan-2:**
  - [Chandrayaan-2](#) is India's **second mission to the moon** and comprises a fully indigenous Orbiter, **Lander (Vikram) and Rover (Pragyan)**.
  - The Rover Pragyan is **housed inside Vikram lander**.
- **Chandrayaan-3:**
  - The ISRO recently announced India's third lunar mission Chandrayaan-3, which will comprise a lander and a rover.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. Which of the following pairs is/are correctly matched? (2014)

	Spacecraft	Purpose
1.	Cassini-Huygens	Orbiting the Venus and transmitting data to the Earth
2.	Messenger	Mapping and investigating the Mercury
3.	Voyager 1 and 2	Exploring the outer solar system

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

**Ans: (b)**

**Exp:**

- Cassini-Huygens was sent to study Saturn and its moons. It was a joint collaboration between NASA and European Space Agency. It was launched in 1997 and entered Saturn's orbit in 2004. The mission ended in 2017. Hence, pair 1 is not correctly matched.
- Messenger, a spacecraft by NASA was sent to map and investigate Mercury. It was launched in 2004 and entered Mercury's orbit in 2011. The mission ended in 2015. Hence, pair 2 is correctly matched.
- Voyager 1 and 2 were launched by NASA in 1977 to explore the outer solar system. Both the spacecrafts are still operational. Hence, pair 3 is correctly matched.
- **Therefore, option (b) is the correct answer.**

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