

GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE

RAJYA SABHA  
**UNSTARRED QUESTION NO. 1247**

TO BE ANSWERED ON THURSDAY, DECEMBER 05, 2024

**GAGANYAAN MISSION**

1247. SHRI RAJEEV SHUKLA:

Will the PRIME MINISTER be pleased to state:

- (a) the details of progress made by the Gaganyaan Mission which envisages demonstration of ISRO's human spaceflight capability;
- (b) the stipulated timeline for the same;
- (c) the challenges and risks associated with the said project;
- (d) the measures being taken to mitigate the said risks; and
- (e) the details of other such missions to be undertaken involving humans?

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES  
& PENSIONS AND IN THE PRIME MINISTER'S OFFICE  
(DR. JITENDRA SINGH):**

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- (a) The status of the progress of Gaganyaan programme is as follows:
  - i. Human Rated Launch Vehicle :Ground testing of propulsion systems stages, including solid, liquid and cryogenic engine, towards human rating of the launch vehicle have been completed .
  - ii. Crew Module Escape System: Design & realization of five types of Crew Escape system solid motors completed. Static testing of all five types of solid motors completed. First Test Vehicle mission (TV-D1) for the performance validation of Crew Escape System (CES) and parachute deployment has been successfully accomplished.

- iii. Orbital Module Systems: Design of Crew Module and Service Module structure has been completed. Various Parachute Systems have been tested through Integrated Main parachute Air drop Test and Rail Track Rocket Sledge Tests. Ground test programme towards human rating of Crew Module Propulsion System has been completed and Service Module Propulsion System test programme is nearing completion. Characterization of Thermal Protection System has been completed.
  - iv. Gaganyatri Training: Two out of three semesters of the training programme completed .Independent Training Simulator and Static Mockup Simulators realized.
  - v. Major Ground Infrastructure: Critical ground facilities such as Orbital Module Preparation Facility (OMPF), Astronaut Training Facility (ATF) and Oxygen Testing Facility have been operationalized. Realization of Mission Control Centre (MCC) Facilities and establishment of Ground Station Networks are nearing completion.
  - vi. Gaganyaan First Uncrewed mission :Solid and Liquid Propulsion Stages of human rated launch vehicle are ready for flight integration. C32 Cryogenic stage is nearing completion. Crew Module and Service Module structure realization completed. Flight integration activities are in progress.
- (b) Stipulated Timeline for Gaganyaan Mission is as follows:
- i. 1<sup>st</sup> Uncrewed (experimental) mission is targeted by the end of 2024. Further, Uncrewed Missions are targeted for Q3 of 2025 and Q1 of 2026 respectively.
  - ii. Crewed spaceflight mission is targeted for Q4 of 2026.
- (c) Major challenges and risks are related to seamless supply of raw materials, semiconductor components and timely deliveries of hardware from industries.
- (d) Multiple sources have been identified for supply of critical elements for the mission. The criticalities with regards to the timely delivery of subsystems are monitored closely for intervention of higher management. Gaganyaan Industry Meet were organised to sensitize industries about the quality aspects required for human space mission and timely delivery of hardware.
- (e) Government has recently announced expanded vision for Space Programme where in Bharatiya Antariksha Station by 2035 and Indian Moon Landing by 2040 were envisioned. Future missions for Bharatiya Antariksha Station and Indian Moon Landing will also involve humans.

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