GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 2205

TO BE ANSWERED ON THURSDAY, AUGUST 07, 2025

INDIA'S CHANDRAYAAN-4 MISSION

2205. SHRI AYODHYA RAMI REDDY ALLA:

Will the PRIME MINISTER be pleased to state:

(a) the manner in which the Chandrayaan-4 mission would ensure the safe handling and storage of lunar samples to prevent contamination and the protocols in place to preserve the integrity of the samples for scientific analysis; and

(b) the specific technological advancements and innovations which the Chandrayaan-4 mission would employ to overcome the challenges of lunar sample return and the manner in which the mission's complexity will be managed to ensure successful execution?

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) Chandrayaan-4 mission will ensure the safe handling and storage of lunar sample to prevent contamination by transferring the leak proof sample canisters to sample curation facility with contamination control features. Establishment of Curation Facility (Class 100 & 1000 clean room environment as per ISO standard) is planned with advanced instrument to preserve the integrity of the sample for scientific analysis. As per COSPAR (Committee on Space Research) Planetary Protection policy, lunar missions fall under the category where it does not demand stringent requirement for biological contamination.

(b) Chandrayaan-4 mission will employ the specific Technological advancements, which include precise rendezvous and docking systems, navigation and attitude control for orbit management, robotic drill and scoop for sample collection and sealing, robotic arm for sample transfer, autonomous ascent systems, heat shield technology for re-entry module, deceleration systems to overcome the challenges of lunar sample return. Department has institutional mechanisms in place for conducting simulations, ground tests and reviews to ensure successful execution of mission

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