GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 3172

TO BE ANSWERED ON THURSDAY, MARCH 19, 2026

SPACE DOCKING TECHNOLOGY

3172. SHRI SUJEET KUMAR:

Will the PRIME MINISTER be pleased to state:

(a) whether ISRO is pursuing further orbital docking experiments after the SPADEX mission;
(b) if so, the details of upcoming docking missions planned;
(c) how this capability would support India's Gaganyaan and future space station programmes;
(d) whether academic institutions and national laboratories are involved in these docking technology developments; and
(e) if so, the details thereof?

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) Yes. ISRO is studying two orbital docking experiments viz., SPADEX-2 replicating the docking in highly elliptical orbit meeting Chandrayaan-4 (Lunar Sample Return)

mission and SPADEX-3 replicating docking in circular orbit as a precursor mission for docking in Bharatiya Space Station;

(b) Proposed objectives of the upcoming docking mission under studies are:

i. docking and undocking of two spacecraft in highly elliptical orbit and sample transfer between two modules; and

ii. docking and undocking of two spacecraft in circular orbit between two pressurized modules using Bharatiya Docking System (BDS).

(c) The SPADEX mission demonstrates complex technologies related to rendezvous and docking, which is critical for crewed mission in crew transfer, propellant/fluid/power transfer, etc. Validating such technologies in orbit, paves way for undertaking complex operations such as docking of Gaganyaan module to space stations like Bharatiya Antariksh Station (BAS), routine crew transfer, etc.;

(d) Yes. Scope exists for academic institutes and national laboratories in developing these technologies such as payload development, algorithm developments, plant experiment technologies etc.;

(e) Academic institutions participate in space missions, in general, through identified research proposals funded by the Department. Further academic institutes / national laboratories have also contributed to missions such as Aditya-L1 through payload realization. Scope exists for greater involvement of academic institutes for supporting the Indian space programmes.

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