

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
RAJYA SABHA
UNSTARRED QUESTION NO. 2123
ANSWERED ON 06/08/2026

QUANTUM TECHNOLOGY RESEARCH IN THE COUNTRY

2123 SHRI AKHILESH PRASAD SINGH:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) whether Government has reviewed India's progress in quantum computing, quantum communication and quantum sensing technologies;
- (b) whether research institutions possess adequate scientific infrastructure and skilled manpower to compete globally;
- (c) the measures taken to strengthen industry-academia collaboration and indigenous technology development in the quantum sector; and
- (d) whether a long-term roadmap has been prepared to position India as a global leader in quantum technologies?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE
MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) The Government periodically reviews the progress of quantum technologies under the National Quantum Mission (NQM), being implemented by the Department of Science and Technology (DST). Under the Mission, four Thematic Hubs have been established in the areas of Quantum Computing, Quantum Communication, Quantum Sensing & Metrology, and Quantum Materials & Devices. Progress is monitored through regular meetings of the Mission Governing Board (MGB), Mission Technology Research Council (MTRC), on-site reviews and other established monitoring mechanisms.

(b) to (c): The Government has taken several measures to strengthen scientific infrastructure, skilled manpower, industry-academia collaboration and indigenous technology development in quantum technologies under the National Quantum Mission (NQM). Four Thematic Hubs (T-Hubs) have been established, comprising 14 Technical Groups and 17 Project Teams involving 152 researchers from 43 institutions, bringing together academia, national laboratories, industry and startups. The hubs are located at the Indian Institute of Science (IISc), Bengaluru, in association with C-DAC for Quantum Computing; the Indian Institute of Technology (IIT) Madras, in association with C-DOT, New Delhi, for Quantum Communication; the Indian Institute of Technology (IIT) Bombay for Quantum Sensing & Metrology; and the Indian Institute of Technology (IIT) Delhi for Quantum Materials & Devices. The major initiatives taken under the Mission include:

- i. Development of indigenous quantum algorithms and software through 17 dedicated Project Teams under the Quantum Algorithms Technical Group.
- ii. Establishment of advanced fabrication and central facilities at IISc Bengaluru, IIT Bombay, IIT Kanpur and IIT Delhi to support indigenous development of quantum processors, sensors, materials and devices.
- iii. Capacity building through the launch of Undergraduate Minor and M.Tech. programmes in Quantum Technologies in collaboration with AICTE and establishment of 23 Quantum Teaching Laboratories across the country.

- iv. Formulation of national guidelines for supporting startups in the area of quantum technologies. Seventeen startups have been supported under the Mission.

Ministry of Electronics and Information Technology (MeitY) has developed Qniverse, a unified quantum computing platform integrated with High Performance Computing (HPC) systems, providing students, researchers and startups access to quantum computing resources for designing, simulating and executing quantum algorithms across multiple quantum hardware platforms.

Defence Research and Development Organisation (DRDO) has established the Quantum Technology Research Centre (QTRC) to undertake research in quantum technologies. DRDO also collaborates with academic institutions and industry through various schemes such as the Centre for Advanced Research Scheme (CARS), Extramural Research & Intellectual Property Rights (ER&IPR), DRDO-Industry-Academia Centres of Excellence (DIA-CoEs), Technology Development Fund (TDF) and Dare to Dream Programme (DcPP).

Department of Biotechnology has started a Quantum Biotechnology initiative in 2025 for development of indigenous quantum-based technologies in the Biotech sector. The initiative encourages drug-industry and academia collaboration in these technologies.

Centre for Development of Telematics (C-DoT) under the Department of Telecommunications (DoT) has established labs in the area of Quantum Key Distribution (QKD) and Post Quantum Cryptography (PQC).

(d) The National Quantum Mission provides a long-term roadmap up to 2030–31 for developing indigenous capabilities in quantum technologies. The Mission lays down targets for development of quantum computers with 50-1000 physical qubits over 8 years across multiple hardware platforms, including superconducting and photonic technologies; satellite- and fibre-based secure quantum communication over a distance of 2,000 km; development of high-sensitivity quantum magnetometers; and design and synthesis of quantum materials and devices.
