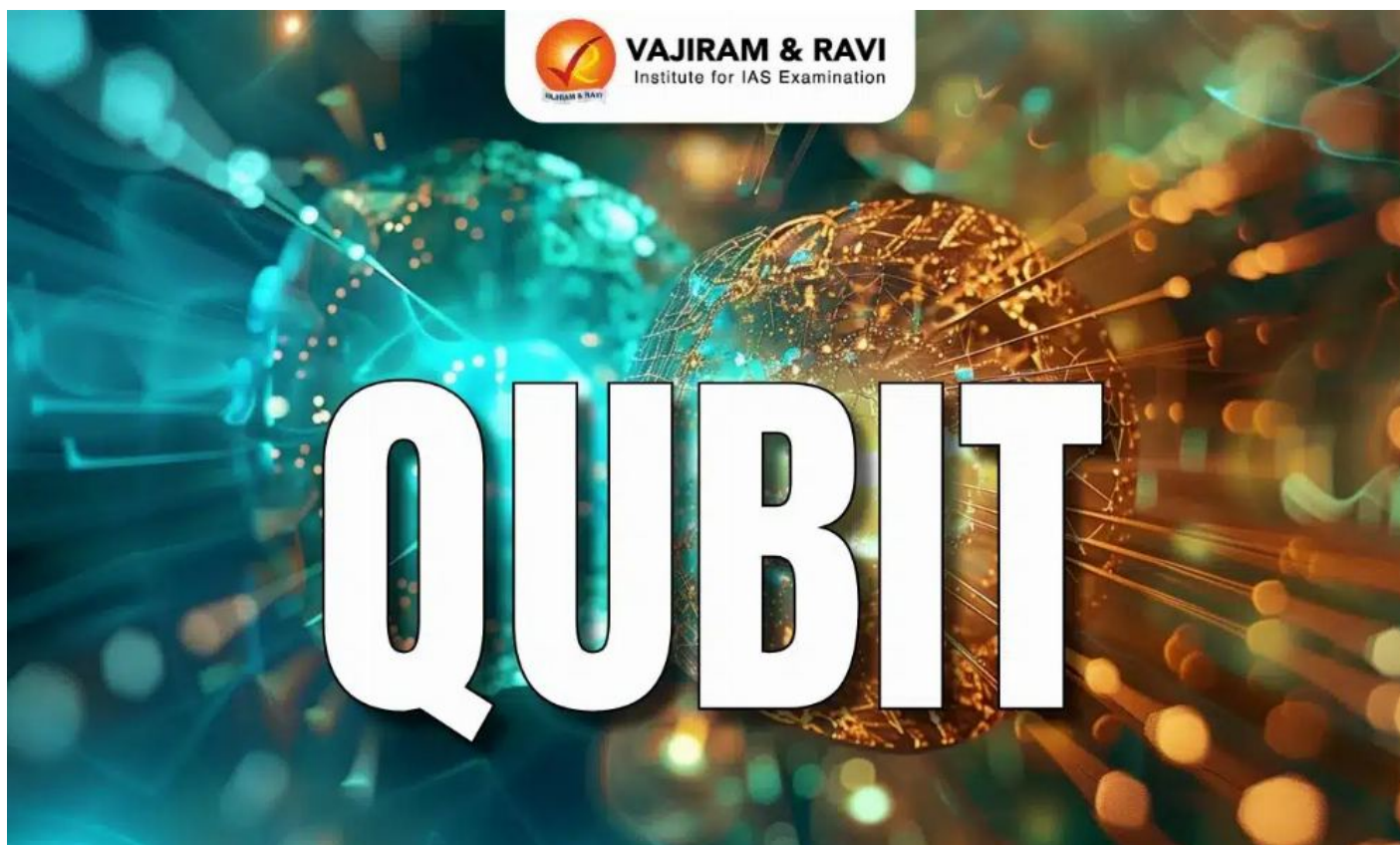


Qubit

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Qubit Latest News

Caltech has built the world's largest neutral-atom qubit array—6,100 qubits—pushing quantum computers closer to error correction and full-scale computation.

About Qubit

- A qubit, or **quantum bit**, is the **basic unit of information used to encode data in quantum computing**.
- It can be best understood as the **quantum equivalent of the traditional bit used by classical computers** to encode information in binary.
 - In **classical computing** the information is encoded in bits, where **each bit can have the value zero or one**.
 - In quantum computing the information is encoded in qubits. A **qubit** is a **two-level quantum system** where the **two basis qubit states are usually written as $|0\rangle$ and $|1\rangle$** .

- A qubit **can be in state $|0\rangle$, $|1\rangle$, or (unlike a classical bit) in a linear combination of both states.**
- The **name of this phenomenon is superposition.**
- The term “qubit” is attributed to American theoretical physicist Benjamin Schumacher.
- Qubits are generally, although not exclusively, **created by manipulating and measuring quantum particles** (the **smallest known building blocks of the physical universe**), such as photons, electrons, trapped ions, superconducting circuits and atoms.
- Enabled by the unique properties of quantum mechanics, **quantum computers use qubits to store more data than traditional bits, vastly improve cryptographic systems and perform very advanced computations** that would take thousands of years (or be impossible) for even classical supercomputers to complete.

Source: STD

Source: <https://vajiramandravi.com/current-affairs/qubit/>

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