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TODAY'S IMPORTANT CURRENT AFFAIRS

UPSC PRELIMS

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TODAY'S DROPS OF NEWS:

SUBJECT	IN NEWS
POLITY	---
ECONOMY	---
GEOGRAPHY	---
HISTORY AND ART & CULTURE	---
ENVIRONMENT	---
SCIENCE & TECH	---
MISCELLANEOUS	Nobel prize for physics for Their experiments on a chip revealed quantum physics in action.

MISCELLANEOUS

In news: Nobel prize for physics for Their experiments on a chip revealed quantum physics in action.

A major question in physics is the maximum size of a system that can demonstrate quantum mechanical effects. This year's Nobel Prize laureates conducted experiments with an electrical circuit in which they demonstrated both quantum mechanical tunnelling and quantised energy levels in a system big enough to be held in the hand.

Major principles in Quantum mechanics:

Quantum entanglement is a phenomenon where two or more quantum particles become linked, such that they behave as a single system, regardless of their separation. Measuring a property of one entangled particle instantaneously determines the corresponding property of the other(s), even across vast distances.

Quantum superposition is the ability of a quantum particle to exist in multiple states—such as multiple positions or velocities—simultaneously until a measurement forces it into a single, definite state.

Applications:
Quantum mechanics is essential for many daily technologies, including modern electronics like smartphones and computers (based on transistors and semiconductors), GPS navigation (using atomic clocks), medical imaging (with MRI scanners), lasers (found in everything from barcode scanners to medical treatments), and solar cells (which rely on the quantum photoelectric effect).

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