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Q5

Discuss the work of 'Bose-Einstein Statistics' done by Prof. Satyendra Nath Bose and show how it revolutionized the field of Physics. (150 Words, 10 Marks).

UPSC Civil Services Mains 2018 · GS III · 10 marks · Indian Economy

Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Facts & figures for this PYQ only.

Numbers move. Confirm the latest Budget, Economic Survey or census round. This sheet is for revision, not a substitute for the model answer.

<https://wrapexams.com/upsc/mains-answers/gs-3/2018/discuss-the-work-of-bose-einstein-statistics-done-by-prof-satyendra-nath-bose-and-show-how-it-revolutionized-the-field-of-physics-150-words-10-marks/>

Bose 1924

Paper on Planck's law using photon statistics; Einstein communicated and generalised it in Zeitschrift fur Physik.

Boson

Integer-spin particle that obeys Bose-Einstein statistics; named by Dirac after S. N. Bose.

BEC

Bose-Einstein condensate: macroscopic occupation of one quantum state by a cold boson gas; laboratory realisation in 1995.

Pauli exclusion

Rule that fermions cannot share a quantum state; bosons are not bound by it, which is the statistical contrast.

Higgs boson

Standard Model scalar boson observed at CERN in 2012; the boson label follows Bose-Einstein classification of integer-spin particles.

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