

Easy

Assistant Engineer (Electrical), Class 2025

Building Department

When the momentum of a body is doubled, its kinetic energy _____

A

Remains the same

B

Drops to zero

C

Becomes four times its initial kinetic energy

Correct

D

Becomes ten times its kinetic energy

Correct Answer: C

Full Detailed Explanation

Concept & Reasoning: Momentum $p = mv$ and kinetic energy $K = \frac{1}{2}mv^2$. Eliminating v gives $K = \frac{p^2}{2m}$. This square dependence is the quickest way to compare energy after a momentum change without calculating velocity explicitly. How to Solve It in the Exam: Momentum $\propto \sqrt{\text{kinetic energy}}$ for same mass. Important Exam Point: Use final key C; provisional highlighting was revised. Editorial / Answer-Key Note: The official GPSC final answer key revised the provisional outcome for this question from A to C. Related Revision Path: This question sits in the revision path Power Plant Engineering, Engineering Mechanics, Work and Energy.

Open live question on website:

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