

JEE MAIN MECHANICAL PROPERTIES OF SOLIDS — ELASTIC POTENTIAL ENERGY — PYQS

Max. Marks: 8

Questions: 2

Section B (Numerical) — 2 questions

- Q.1** A copper wire of length 3 m is stretched by 3 mm by applying an external force. The volume of the wire is $600 \times 10^{-6} \text{ m}^3$. The elastic potential energy stored in the wire in stretched condition would be _____ J.

(Given Young modulus of copper = $1.1 \times 10^{11} \text{ N/m}^2$) [JEE Main 2026 (Online) 5th April Evening Shift]

Scan or tap for the
full solution



- Q.2** A steel wire of length 2 m and Young's modulus $2.0 \times 10^{11} \text{ N m}^{-2}$ is stretched by a force. If Poisson's ratio and transverse strain for the wire are 0.2 and 10^{-3} respectively, then the elastic potential energy density of the wire is _____ $\times 10^5$ (in SI units).

[JEE Main 2025 (Online) 2nd April Morning Shift]

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ANSWER KEY

Ques.	1	2										
Ans.	33	25										