

Mechanical Properties of Solids

NEET previous year questions · Physics

2 questions from the official papers: NEET 2026 (1), NEET 2020 (1). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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1. NEET 2026 · Q2

Match List I with List II and choose the correct answer from the options given below:

List I	List II
P) Young's Modulus	I) $\frac{\Delta d}{\Delta L} \left(\frac{L}{d} \right)$
Q) Compressibility	II) $\frac{FL}{A(\Delta L)}$
R) Bulk Modulus	III) $-\frac{1}{\Delta P} \left(\frac{\Delta V}{V} \right)$
S) Poisson's Ratio	IV) $-P \left(\frac{V}{\Delta V} \right)$

- (1) P-IV, Q-I, R-II, S-III (2) P-III, Q-II, R-I, S-IV
(3) P-I, Q-IV, R-III, S-II (4) P-II, Q-III, R-IV, S-I

Answer (4)

Sol. Young's modulus is stress/strain = $\frac{FL}{A\Delta L}$ (II); compressibility is the reciprocal of bulk modulus = $-\frac{1}{\Delta P} \frac{\Delta V}{V}$ (III); bulk modulus = $-P \frac{V}{\Delta V}$ (IV); and Poisson's ratio is lateral strain over longitudinal strain = $\frac{\Delta d}{\Delta L} \frac{L}{d}$ (I). Hence P-II, Q-III, R-IV, S-I, which is option (4).

2. NEET 2020 · Q137

A wire of length L , area of cross section A is hanging from a fixed support. The length of the wire changes to L_1 when mass M is suspended from its free end. The expression for Young's modulus is

- (1) $Mg(L_1-L)/(AL)$ (2) $MgL/(AL_1)$
(3) $MgL/[A(L_1-L)]$ (4) $MgL_1/(AL)$

Answer (3)

Sol. Young's modulus $Y = \frac{\text{Stress}}{\text{Strain}} = \frac{F/A}{\Delta L/L}$. Substituting,
 $Y = \frac{Mg}{A} \times \frac{L}{L_1-L} = \frac{MgL}{A(L_1-L)}$. Chapter: Mechanical Properties of Solids.

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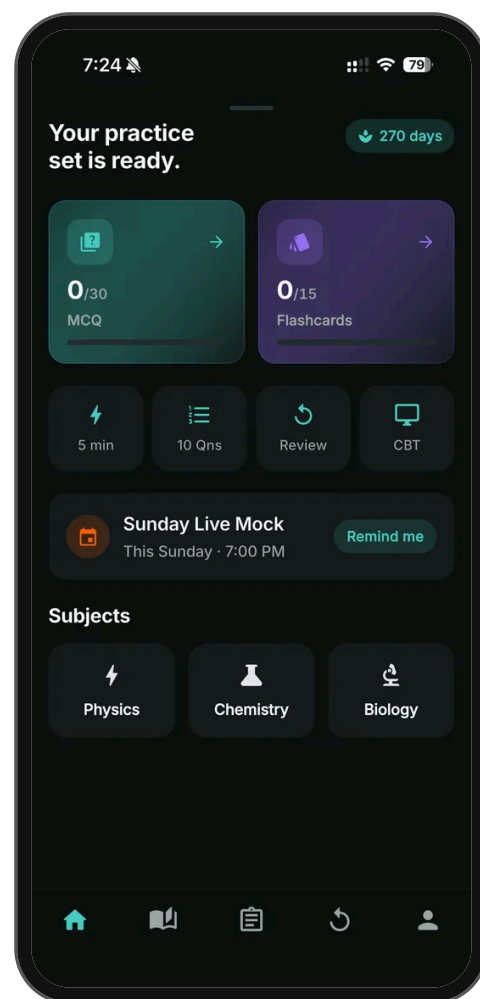
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