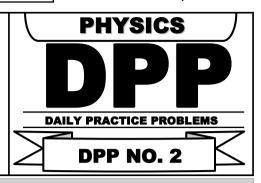


TARGET: NEET (UG) 2024

Course: SARANSH (Youtube Live CRASH COURSE)



PHYSICS: Elastcity and Viscosity

DPP No. : 2					
1.	Two identical rods in geometry but of different materials having co-efficients of thermal expansion α_1 and				
	α_2 and Young's modulli Y_1 and Y_2 respectively are fixed between two rigid massive walls. The rods are				
	heated such that they undergo the same increase in temperature. There is no bending of the rods. If α_{1}				
	α_2 = 2 : 6 the thermal stresses developed in the two rods are equal provided Y_1 : Y_2 is equal to :				
	(1) 2 : 3	(2) 1 : 1	(3) 3 : 1	(4) 4 : 9	
2.	If a rubber ball is taken at the depth of 200 m in a pool its volume decreases by 0.1%. If the density of				
	the water is 1×10^3 kg/m ³ and g = 10 m/s ² , then the volume elasticity in N/m ² will be :				
	(1) 108	$(2) 2 \times 10^8$	(3) 10 ⁹	$(4) \ 2 \times 10^9$	

- **3.** A ball of mass m and radius r is released in a viscous liquid. The value of its terminal velocity is proportional to:
 - (1) $\frac{1}{r}$
- (2) $\frac{m}{r}$
- (3) $\sqrt{\frac{m}{r}}$
- (4) m only
- 4. A steel wire of 1 m long and 1 mm² cross section area is hang from rigid end. When weight of 1 kg is hung from it then change in length will be (given $Y = 2 \times 10^{11} \text{ N} / \text{m}^2$)
 - (1) 0.5 mm
- (2) 0.25 mm
- (3) 0.05 mm
- (4) 5 mm
- 5. The mean distance between the atoms of iron is 3×10^{-10} m and interatomic force constant for iron is 7 N/m. The Yong's modulus of elasticity for iron is
 - (1) $2.33 \times 10^5 \text{ N/ m}^2$
- (2) $23.3 \times 10^{10} \,\text{N/m}^2$
- (3) $233 \times 10^{10} \text{N/m}^2$
- (4) $2.33 \times 10^{10} \,\text{N/m}^2$
- **6.** According to Hooke's law of elasticity, if stress is increased, the ratio of stress to strain
 - (1) Increases
- (2) Decreases
- (3) Becomes zero
- (4) Remains constant
- 7. Calculate the work done, if a wire is loaded by 'Mg' weight and the increase in length is ' ℓ '
 - (1) Mgℓ
- (2) Zero
- (3) Mgℓ/2
- (4) 2Mgℓ



Pre Medical Division: CG Tower-2, A-51(A) IPIA, Behind City Mall, Jhalawar Road, Kota (Raj.)-324005

- 8. If a spring extends by x on loading, then the energy stored by the spring is (if T is tension in the spring and k is spring constant)
 - (1) $\frac{T^2}{2x}$
- (2) $\frac{T^2}{2k}$
- $(3) \ \frac{2x}{T^2}$
- (4) $\frac{2T^2}{k}$
- **9.** On stretching a wire, the elastic energy stored per unit volume is
 - (1) Fℓ/2AL
- (2) FA/2L
- (3) FL/2A
- (4) FL/2

10. Assertion: Steel is more elastic than rubber.

Reason: Under a given deforming force, steel is deformed less than rubber.

Read the assertion and reason carefully to mark the correct option out of the options given below:

- (1) If both assertion and reason are true and the reason is the correct explanation of the assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of the assertion.
- (3) If both assertion is true but reason is false.
- (4) If the assertion and reason both are false.