CHAPTER-7 | Mechanical Properties of Solids

QUIZ PART-01

1. The property of a body to regain its original shape and size after removal of deforming force is called:
   A. Plasticity B. Elasticity
   C. Elastic fatigue
   D. Restoring force (B)

Explanation : Elasticity is defined as the ability of a body to return to its original state when the deforming force is removed.

2. Which of the following is the nearest example of a perfectly elastic body?
   A. Wax B. Clay
   C. Quartz D. Rubber (C)

Explanation : Quartz is the closest natural example of a perfectly elastic body.

3. The maximum deforming force up to which a body regains its original shape after removal of the force is known as:
   A. Elastic fatigue B. Limit of elasticity
   C. Plastic limit
   D. Restoring limit (B)

Explanation : Beyond this limit, the body cannot return to its original state.

4. emporary loss of elasticity caused by repeated application and removal of force is termed:
   A. Creep B. Elastic fatigue
   C. Shear strain
   D. Compressive stress (B)

Explanation : Elastic fatigue is the temporary loss of elasticity when a force is varied frequently.

5. Stress is mathematically expressed as:
   A. $\Delta L/L$ B. F/A
   C. $\Delta V/V$ D. $\Delta\theta/\theta$ (B)

Explanation : Stress is defined as the internal restoring force per unit area of cross-section.

6. Which type of stress is produced when the length of a body increases due to applied force?
   A. Shearing stress
   B. Compressive stress
   C. Tensile stress
   D. Volume stress (C)

Explanation : Tensile stress is the longitudinal stress produced due to an increase in length.

7. If a body is subjected to equal forces from all directions, the stress experienced is:
   A. Shearing stress B. Volume stress
   C. Tensile stress
   D. Restoring stress (B)

Explanation : Force applied uniformly from all sides produces hydrostatic or volume stress.

8. Which type of stress arises when a deforming force acts tangentially to a surface?
   A. Longitudinal stress B. Volume stress
   C. Shearing stress D. Tensile stress (C)

Explanation : Tangential force per unit area produces shearing stress, leading to a change in shape.

9. Strain is defined as:
   A. Force per unit area
   B. Ratio of change in dimension to original dimension
   C. Stress per unit strain
   D. Energy stored per unit volume (B)

Explanation : Strain has no units and is given as change in dimension / original dimension.

10. Which of the following correctly describes intermolecular forces?
    A. Always attractive B. Always repulsive
    C. Negligible at very large distance, attractive at intermediate distance, repulsive at very small distance
    D. Repulsive at large distances and attractive at small distances (C)

Explanation : The behavior of intermolecular forces follows this distance-dependent pattern.