INTERNATIONAL INDIAN SCHOOL BURAIDAH

WORKSHEET FOR THE ACADEMIC YEAR 2026-27

Class-11 Subject: Physics

CH#8 MECHANICAL PROPERTIES OF SOLID

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1. The Young's modulus of a wire of length L and radius r is Y N/m^2. If the length and radius are reduced to L/2 and r/2, then its Young's modulus will be

(a) Y (b) 2Y (c) 4Y (d) Y/2

2. The increase in length is 'ℓ' of a wire of length 'L' by the longitudinal stress. Then the stress is proportional to

(a) L/ ℓ (b) ℓ/L (c) ℓxL (d) L^2

3. Out of the following the most plastic material is

(a) iron (b) wood (c) rubber (d) plasticine

4. Substances which can be stretched to cause large strains are called

(a) isomers (b) plastomers (c) elastomers (d) polymers

5. Which of the following quantity has the dimensions of stress?

(a) Strain (b) Compressibility (c) Energy (d) Pressure

6. Young's modulus of a perfect plastic body is

(a) Finite (b) infinite (c) 1 (d) zero

7. Stress in a solid body is defined as _____ per unit area.

a) external force applied b) strain

c) pressure d) internal forces developed due to externally applied forces

8. Select the correct order with regard to elasticity of materials.

a) Steel > Glass > Rubber

b) Glass > Rubber > Steel

c) Rubber > Glass > Steel

d) Rubber > Steel > Glass

9. A wire has a young's modulus of 10^5N/m^2, length 1m & radius 3mm. Assuming a uniform cross sectional area, find the radius of wire after it is under a force of 1N from both ends.

a) 2.58m b) 2.30m c) 3.54m d) 2.24m

10. Strain can be negative. True or False?

a) True b) False

11. State Hook's law.

12. A cable is cut to half of its original length, what will be the maximum load that it can support?

13. Differentiate Brittle and ductile based on stress- strain curve

14. Derive the expression for [i] Young's modulus [ii] bulk modulus [iii] rigidity modulus

15. Two pieces of wires A and B of the same material have their lengths in the ratio 1:2 and diameters are in the ratio 2:1.If they are stretched by same force , what will be the ratio of their elongation ?