

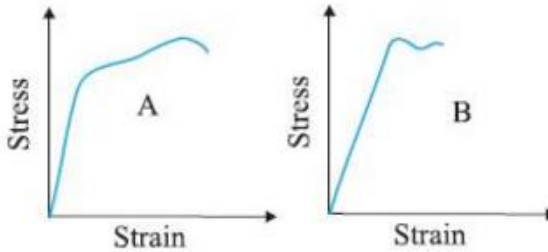
Chapter : Mechanical Properties of Solid

Marks : 15

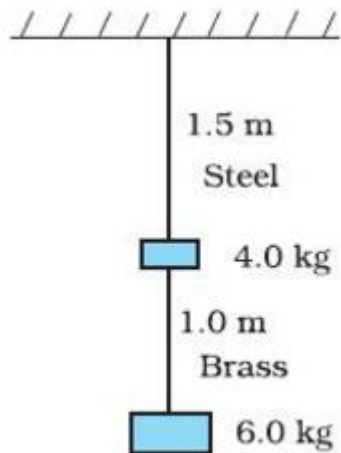
Time:30 Minutes

Date:

1. State Hooke's Law. [1]
2. What are ductile and brittle materials. [1]
3. An elastic wire is cut to half its original length. How would it affect the maximum load that the wire can support? [1]
4. Which is more elastic rubber or steel? Explain [1]
5. Draw stress Vs strain curve for a metal. [1]
6. A copper wire of length 2.2 m and steel wire of length 1.6 m, both of them of diameter 3.0 mm, are connected end to end. When stretched by the load, the net elongation is found to be 0.70 mm. Obtain the load applied. [2]
7. The stress-strain graphs for material A and B are shown in below figure. [2]
The graphs are drawn to same scale.
 - a) Which of the material has greater Young's modulus ?
 - b) Which of the two is the stronger material ?



8. Two wires of diameter 0.25 cm, one made of steel and the other made of brass are loaded as shown in below figure. The unloaded length of steel wire is 1.5 m and that of brass is 1.0 m. Compute the elongation of steel and brass wires. [3]



9. The Young's modulus of steel is $2.0 \times 10^{11} \text{ N/m}^2$. If the interatomic spacing for the metal is $2.8 \times 10^{-11} \text{ m}$, find the increase in the interatomic spacing for a force of 10^9 N/m^2 and the force constant? [3]