

# Mar Thoma Residential School, Tiruvalla

## Assessment 2020-21

CLASS XI

PHYSICS

MARKS : 30

TIME: 45mts

### Read the question carefully and write the answer:

1. The SI unit of stress is -----, (1/2)
2. Which type of elasticity is involved in the following cases  
i) Compressing of gas  
ii) Compressing of liquid.  
iii) Stretching a wire.  
iv) Tangential push on the upper face of a block. (2)
3. What happens to the work done in stretching a wire? (1/2)

### SHORT ANSWER QUESTIONS

4. i) Define compressibility.  
ii) Write its SI unit and dimensional formula? (1 ½)
5. State Hooke's law. (1)
6. What is Poisson's Ratio? Write an expression for it? (1 ½)
7. Plot a Stress v/s Strain graph for a metal wire. (2)
8. Why are girders given in 'I' shape? (2)
9. Define different types of moduli of elasticity. Write their units? (4)
10. Define elastic hysteresis with the help of a graph. Mention its 2 application. (4)
11. Define stress and strain and derive their units? (2)

### LONG ANSWER QUESTIONS

12. i) Define an expression for the elastic potential energy stored in a stretched wire under stress.  
ii) Define the terms elastic after effect & elastic fatigue. (5)

## NUMERICALS

13. The length of a suspended wire increases by  $10^{-4}$  of its original length when a stress of  $10^7 \text{ Nm}^{-2}$  is applied on it. Calculate the Young's modulus of the material of the wire. (2)

14. The pressure of a medium is changed from  $1.10 \times 10^5$  to  $1.165 \times 10^5 \text{ Pa}$  and change in volume is 10% keeping temperature constant. Find the bulk modulus of the medium. (2)