

ASSIGNMENT NO: 01

1. What is strain energy.
2. Derive the expression for “Strain energy due to bending”.
3. Write the application of strain energy as well as complimentary energy.
4. What is the strain energy caused due to self-weight in a cylindrical bar?
 - a. $(W^2 L) / (6 AE)$
 - b. $(W L) / (8 AE)$
 - c. $(\tau^2 / 2G)V$
 - d. $(\tau^2 / G)V$
5. What is the maximum stress induced in a bar 2500 mm^2 , when a load of 2000 kN is applied suddenly?
 - a. 400 N/mm^2
 - b. 800 N/mm^2
 - c. 1600 N/mm^2
 - d. Insufficient data
6. Strain energy stored in a uniform bar is given as _____
 - a. $(\sigma E / 2A)$
 - b. $(\sigma L / 2AE)$
 - c. $(\sigma^2 AL / 4E)$
 - d. $(\sigma^2 AL / 2E)$
7. Stress on an object due to sudden load is _____ the stress induced when the load is applied gradually.
 - a. equal to
 - b. half
 - c. twice
 - d. thrice
8. What is the strain energy stored in a simply supported beam due to bending moment?
 - a. $\int (M^2/EI)$
 - b. $\int (M^2/2EI)$
 - c. $\int (M/2EI)$
 - d. $\int (2M/EI)$
9. Modulus of resilience is the ratio of _____
 - a. minimum strain energy and unit volume
 - b. maximum stress energy and unit volume
 - c. proof resilience and unit volume
 - d. resilience and unit area
10. Energy stored in a body within an elastic limit is called as _____
 - a. resilience
 - b. strain energy
 - c. both a. and b.
 - d. none of the above