Practice Test

1. Shear force for a cantilever carrying a uniformly distributed load over its length, is

- (A) Triangle
- (B) Rectangle
- (C) Parabola
- (D) Cubic parabola

2. The weight of a body is due to

- (A) Centripetal force of earth
- (B) Gravitational pull exerted by the earth
- (C) Forces experienced by body in atmosphere
- (D) Gravitational force of attraction towards the centre of the earth

3. For structural analysis of forces, the method refers to

- (A) Moment-area-theorem
- (B) Three-moment equation
- (C) Maxwell's reciprocal theorem
- (D) None of these

4. The section modulus of a rectangular section is proportional to

- (A) Area of the section
- (B) Square of the area of the section
- (C) Product of the area and depth
- (D) Product of the area and width

5. Pick up the incorrect statement from the following:

- (A) The C.G. of a circle is at its center
- (B) The C.G. of a triangle is at the intersection of its medians
- (C) The C.G. of a rectangle is at the intersection of its diagonals
- (D) The C.G. of a semicircle is at a distance of r/2 from the center

6. According to Unwin's formula, the diameter *'d'* of a rivet of plate of thickness *'t'* is :

- (A) $d = 6.05 \sqrt{t}$
- (B) $d = 1.5\ t + 4$

- (C) $d = \sqrt{5}\, t$
- (D) $d = \sqrt{t} + 1.5$

---

7. For a beam having fixed ends, the unknown element of the reactions, is

- (A) Horizontal components at either end
- (B) Vertical components at either end
- (C) Horizontal component at one end and vertical component at the other
- (D) Horizontal and vertical components at both the ends

---

8. If a rigid body is in equilibrium under the action of three forces, then

- (A) These forces are equal
- (B) The lines of action of these forces meet in a point
- (C) The lines of action of these forces are parallel
- (D) Both (B) and (C) above

---

9. The materials which have the same elastic properties in all directions, are called

- (A) Isotropic
- (B) Brittle
- (C) Homogeneous
- (D) Hard

---

10. A solid circular shaft of diameter *d* is subjected to a torque *T*. The maximum normal stress induced in the shaft, is

- (A) Zero
- (B) $16T/\pi d^3$
- (C) $32T/\pi d^3$
- (D) None of these

---

11. Frictional force encountered after commencement of motion is called

- (A) Post friction
- (B) Limiting friction
- (C) Kinematic friction
- (D) Dynamic friction

---

12. A three-hinged arch is said to be:

- (A) Statically determinate structure
- (B) Statically indeterminate structure

- (C) A bent beam
- (D) None of these

---

13. The areas of cross-section of a square beam and a circular beam subjected to equal bending moments, are same.

- (A) Circular beam is more economical
- (B) Square beam is more economical
- (C) Both the beams are equally strong
- (D) Both the beams are equally economical

---

14. A single force and a couple acting in the same plane upon a rigid body

- (A) Balance each other
- (B) Cannot balance each other
- (C) Produce moment of a couple
- (D) Are equivalent

---

15. If the shear force along a section of a beam is zero, the bending moment at the section is

- (A) Zero
- (B) Maximum
- (C) Minimum
- (D) Average of maximum-minimum