

**Class Material ● Strength of Material ● Date: 28.07.2019****Torsion Continuous beam, Fixed Beam**

1. Torsional sectional modulus is also known as _____

- a) Polar modulus b) Sectional modulus
c) Torsion modulus d) Torsional rigidity

Ans.(a)

2. The angle of twist can be written as _____

- a) TL/J b) CJ/TL
c) TL/CJ d) T/J

Ans.(c)

3. The power transmitted by shaft in SI system is given by _____

- a) $2\pi NT/60$ b) $3\pi NT/60$
c) $2\pi NT/45$ d) $NT/60 W$

Ans.(a)

4. A shaft is designed for

- a) Strength alone b) Stiffness alone
c) Both for strength d) None
and stiffness

Ans.(c)

5. Equivalent torque in a shaft subjected to axial load P, torque T and bending moment M is

- a) $T_{eq} = (Pa^2 + M^2 + T^2)$
b) $T_{eq} = (Pa^2 + M^2 + T^2)^{0.5}$
c) $T_{eq} = (M^2 + T^2)^{0.5}$
d) None

Ans.(c)

6. Equivalent bending moment in a shaft subjected to axial load P, torque T and bending moment M is

- a) $M_{eq} = 0.5 [M + (M^2 + T^2)^{0.5}]^{0.5}$
b) $M_{eq} = 0.5 [M + (M^2 + T^2)^{0.5}]$
c) $M_{eq} = (M^2 + T^2)^{0.5}$
d) None

Ans.(b)

7. Variation of shear stress in a shaft is

- a) Parabolic b) Linear
c) Cubical d) None

Ans.(b)

8. Which of the following, is also known as multi span beam _____

- a) Cantilever beam b) Simply supported beam
c) Fixed beam d) Continuous beam

Ans.(d)

9. In deflection of a continuous beam, when loaded, there will be convexity upwards over _____ supports.

- a) End b) Alternate
c) Intermediate d) Every

Ans.(c)

10. The _____ is more over the supports than at midspan in continuous beams.

- a) Slope b) Bending moment
c) Deflection d) Shear force

Ans.(b)

11. Fixed beam is also known as _____

- a) Encaster beam
b) Constricted beam
c) In built beam
d) Constricted beam

Ans.(a)

12. In fixed beams, the slope at the supports be _____

- a) Minimum b) Zero
c) Maximum d) Throughout

Ans.(b)

13. _____ changes induce large stresses in a fixed beam.

- a) Lateral b) Deflection
c) Temperature d) Slope

Ans.(c)

14. A beam 6 metres long is fixed at its ends. It carries a udl of 5 kN/m. Find the maximum bending moment in the beam.

- a) 15 kNm
- b) 20 kNm
- c) 35 kNm
- d) 40 kNm

Ans.(a)

15. Calculate the maximum deflection of a fixed beam carrying udl of 5 kN/m. The span of beam is 6 m. Take $E = 200\text{kN/m}^2$ and $I = 5 \times 10^7 \text{ mm}^4$.

- a) 1.865 m
- b) 2.235 m
- c) 1.6875 m
- d) 2.5 m

Ans.(c)

16. Calculate the load intensity of fixed beam if the maximum deflection shall not exceed $1/400$ of the span. Take $EI = 10^{10} \text{ kN mm}^2$.

- a) 40 kN
- b) 35 kN
- c) 45 kN
- d) 60 kN

Ans.(c)
