21. Shape factor is a property which depends
    a. Only on the ultimate stress of the material
    b. Only on the yield stress of the material
    c. Only on the geometry stress of the material
    d. Only on the yield stress and ultimate stress of material

22. The statical method of plastic analysis satisfies
    a. Equilibrium and mechanism conditions
    b. Equilibrium and plastic moment conditions
    c. Mechanism and plastic moment conditions
    d. Equilibrium conditions only

23. The mechanism method of plastic analysis satisfies
    a. Equilibrium and mechanism conditions
    b. Equilibrium and plastic moment conditions
    c. Mechanism and plastic moment conditions
    d. Equilibrium conditions only

24. Plastic section modulus for a circular section of diameter d is
    a. $\frac{d^3}{3}$ b. $\frac{d^3}{4}$
    c. $\frac{d^3}{6}$ d. $\frac{d^3}{8}$

25. Load factor is
    a. Always equal to factor of safety
    b. Always less than factor of safety
    c. Always greater than factor of safety
    d. Sometimes greater then factor of safety

26. The ratio of plastic section modulus to elastic section modulus
    a. Is equal to 1
    b. Is always less than 1
    c. Is always greater than 1
    d. Can be less than 1

27. Other conditions being same, the load factor in indeterminate structure is
    a. Equal to load factor in determinate structure
    b. More than the load factor in determinate structure
    c. Less than the load factor in determinate structure
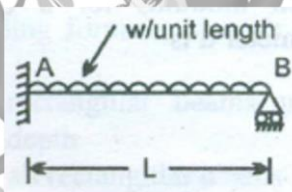   d. Unpredictable

28. Which of the following conditions is to be satisfied both in elastic and plastic analysis ?
    a. Equilibrium condition
    b. Yield condition
    c. Plastic moment condition
    d. Mechanism condition

29. In the virtual work method, the virtual quantity is
    a. Displacement
    b. Load
    c. Slope
    d. moment

30.

In a propped cantilever loaded as shown in fig. the plastic hinged will form at

    a. B
    b. At L/2 from B
    c. At 0.414 L from B
    d. At 0.414 L from A

21. The minimum thickness of plates in a steel stack should be
    a. 4 mm
    b. 5 mm
    c. 6 mm
    d. 8 mm

22. Maximum pitch of rivets, used in steel stacks, limited to
    a. 6 t
    b. 10 t
    c. 12 t
    d. 16 t

Where t is thickness of thinner plate being connected

23. The diameter of base of conical flare of a steel stack is
    a. Less than d
    b. Equal to d
    c. More than d
    d. Any of the above

Where d is the diameter of a cylindrical part

24. hudson's formula gives the dead weight of a truss bridge as a function of
    a. Bottom chord area
    b. Top chord area
    c. Effective span of bridge
    d. Heaviest axle load of engine

25. If the loaded length of span in metres of a railway steel bridge carrying a single track is 6 m, then impact factor is taken as
    a. 0
    b. 0.5
    c. Between 0.5 and 1.0
    d. 1.0

26. If the floor is supported at or near the bottom but top chords of a bridge are not braced, then the bridge is called
    a. Deck type
    b. Through type
    c. Half through type
    d. Double deck type

27. The centrifugal force due to curvature of track is assumed to act on the bridge at a height of
    a. 1.23 m above the rail level
    b. 1.50 m above the rail level
    c. 1.83 m above the rail level
    d. 2.13 m above the rail level

28. The effect of racking forces is considered in the design of
    i. Lateral braces
    ii. Chord members
    The correct answer is
    a. Only (i)
    b. Only (ii)
    c. Both (i) and (ii)
    d. None of the above

29. When the secondary stresses are taken into account alongwith primary stresses. Then the allowable stress is increased by
    a. $16\frac{2}{3}\%$
    b. 25 %
    c. $33\frac{1}{3}\%$
    d. 50 %

30. The portal bracing in a struss bridge is used to
    a. Transfer load from top of end posts to bearings
    b. Keep the rectangular shape of the bridge cross-section
    c. Stiffen the structure laterally
    d. Prevent the sidesway bucking of top chord