CIVIL ENGINEERING (Paper-I)

Section-I: (Objective)

1. Bulk modulus is denied as the ration of
   (A) direct stress to direct stain
   (B) direct stress to shear stain
   (C) direct stress to lateral stain
   (D) direct stress to value metric stain
2. Maximum shear stress in a thin cylinder of thickness t and diameter d subjected to an internal fluid resource p is equal to
   (A) $\frac{pd}{8t}$ (B) $\frac{pd}{4t}$
   (C) $\frac{pd}{2t}$ (D) none of these
3. The maximum positive Bending Moment in a fixed beam of span 8 m and subjected to a central point load of 120 kN is (in kN-m)
   (A) 240 (B) 120
   (C) 80 (D) none of these
4. The ratio maximum shear stress to average shear stress in a beam of circular cross-section is
   (A) 1.5 (B) 2
   (C) 1.33 (D) 1.88
5. Core is a zone in which stresses are purely
   (A) compressive (B) tensile
   (C) shear (D) bending
6. A two hinged are h of span 40 m carries a point load of 62.8 kN at its crown. The horizontal thrust in the arch is (in kW)
   (A) 20 (B) 40
   (C) 31.0 (D) 62.8
7. Sum of distribution factors at a joint is
   (A) – 0.50 (B) +1.0
   (C) + 0.50 (D) – 1.0
8. The length of a suspension cable of span 10 m ana dip 10 m is
   (A) 100 (B) 110
   (C) 102.67 (D) 105
9. The permissible bending stress for MIS grade concrete is (in N/mm^2)
   (A) 15 (B) 30
   (C) 5 (D)7.5
10. The modular ratio m for M20 grade concrete
    (A) 18.67 (B) 15
    (C) 19 (D) 13.33
11. The minimum of grade of concrete to be adopted for a pretensioned PSC beam is
    (A) M40 (B) M30
    (C) M 15 (D) M45
12. In two-way slabs. The main reinforcement is provided along
    (A) In short span direction
    (B) In long span direction
    (C) both short and long span direction
    (D) In comes
13. The number of plastic hinges required to cause collapse of a simply supported beam is
    (A) 0 (B) 1
    (C) 2 (D) 3
14. The gross diameter of a 20 mm rivet is
    (A) 20 (B) 25
    (C) 21.5 (D) 22
15. The effective length of a balanced column can be increase by .....of the corresponding effective length of similar laced column.
    (A) 5% (B) 8%
    (C) 15% (D) 10%
16. The ratio of lateral strain to linear strain is defined as
    (A) Poisson's ration (B) transverse strain
    (C) deformation (D) none of these
17. The type of stress developed in circular shaft under pure torque is
    (A) short stress (B) tensional stress
    (C) twisting (D) bending
18. In I-section usually flanges resist
    (A) tension (B) compression
    (C) shear (D) bending moment
19. The share force and bending moment in a conjugate beam represent respectively
    (A) slope deflection (B) deflection, slope
    (C) deflection slip (D) none of these
20. The maximum bending moment in simply supported beam occurs where shear force is
    (A) maximum (B) zero
    (C) minimum (D) none of these.
21. The core of hollow circler section of internal and external diameters of 60 mm and 80 mm respectively is circle of radius (in mm)
    (A) 40 (B) 70
    (C) 80 (D) none of these
22. If the end conditions of along column are changed form both ends hinged to both ends fixed the strength column increases by. . .times.
    (A) 4 (B) 2
    (C) 8 (D) None of these
23. A simply supported beam is of span 8 in and carries a point load of 80 kN at 2m from left support. The next B. M. in the beam is .....kNm. /
    (A) 120 (B) 100

(C) 102.67 (D) 80

24. Three hinged arches are statically ..... structure.
(A) determinate (B) indeterminate
(C) stoic (D) none of these

25. All compression members in trusses are called
(A) struts (B) ties
(C) stanchions (D) purling

26. The rivets in a lap joint will be in .....shear.
(A) single (B) double
(C) tearing (D) bearing

27. In ISMB 400. 400 represents the .....of the section.
(A) flange width (B) depth
(C) weight (D) none 9f these

28. The minimum thickness of web in plate girder is .....mm.
(A) 6 (B) 8
(C) 10 (D) 12

29. Purloins in roof trusses are designed as ..... members.
(A) bending (B) tension
(C) compression (D) axial

30. Lacing bars in steel column are to be designed for ..... % of the axial load of column.
(A) tensile (B) compressive
(C) 2.5 (D) 3.0

31. In MIS. 15 stands for .....compressive strength of concrete in N/ mm2
(A) cube (B) cylinder
(C) symbol (D) characteristic.

32. Young's modulus of concrete for M25 grade concrete is.. kN/ mm^2.
(A) 28.5 (B) 18
(C) 20 (D) none of these

33. The width of stem in cantilever retaining wall is usually kept as .....mm.
(A) 100 (B) 200
(C) 230 (D) none of these.

34. Skin reinforcement in beams is provided wen depth exceeds …… mm
(A) 750 (B) 800
(C) 700 (D) none of these

35. Prestressing is an act of introducing predetermined ….. forces in to the member.
(A) compressive (B) tensile
(C) bursting (D) none of these

36. The ratio of volume of fluids to the total volume of a given soil mass is called
(A) porosity (B) void ratio
(C) air content (D) none of these

37. The coefficient of uniformity of a soil is expressed as the ratio of
(A) $\frac{D10}{D60}$ (B) $\frac{D30}{D60}$
(C) $\frac{D60}{D10}$ (D) $\frac{D60}{D30}$

38. Unconsolidar A untrained test is also called
(A) slow test (B) c-u test
(C) quick test (D) none of these

39. The shape of pyretic line is
(A) parabolic (B) hyperbolic
(C) ellipse (D) spiral

10. The specific gravity of sandy soil is unequal to
(A) 3.15 (B) 2.6
(C) 2.2 (D) 2.8

41. The upper limit of the size of the fine grained soils-in mm
(A) 0.75 (B) 1.75
(C) 0.075 (D) 7.5

42. When a plasticity index of a siil is zero. The soil is
(A) silly (B) clay
(C) silly-clay (D) sandy.

43. Rate of consolidation increases.
(A) with increase in temperature
(B) with decrease in temperature
(C) even at a constant temperature
(D) none of these

14. The share strength of a soil sample is determined in the laboratory by conducting the
(A) triaxial sherar test (B) vane sheare test
(C) direct sheare test (D) none of these

45. The coefficient of active earth pressure (k) is equal to
(A) $\frac{1+\sin\phi}{1-\sin\phi}$ (B) $\frac{1+\tan\phi}{1-\tan\phi}$
(C) $\frac{1-\sin\phi}{1+\sin\phi}$ (D) $\frac{1-\tan\phi}{1+\tan\phi}$

46. A foundation may be called a shallow one if its depth to width ratio is
(A) greater than 2 (B) less than 2
(C) greater than 4 (D) less than 4

47. In a fault, inclination of the fault plane with the vertical is called
(A) hang (B) hade
(C) throw (D) none of these.

48. When the degree of consolidation is 50% the time factor is
(A) 2 (B) 1
(C) 0.2 (D) 0.1

49. An example of cohesesionless soil is
(A) sand (B) clay
(C) silt (D) sily-clay

50. Liquid limit and plastic limit exist in .....soils.
(A) cohesive (B) cohesion less
(C) rocks (D) none of these