

CIVIL ENGINEERING

1. The technique used to cross a deep gorge or wide stream, while maintaining continuity of leveling is

1. Radical leveling
2. Fly leveling
3. Profile leveling
4. Reciprocal leveling

2. Tangential method of tachometry is

1. Slower than Stadia hair method
2. Faster than Stadia hair method
3. Preferred as involving less computations to get reduced distances
4. Preferred as chances of operational error are less compared Stadia hair methods

3. Beaman's arc is

1. A device to illuminate triangulation signals
2. As instrument for setting circular arcs
3. A movable hair tachometer
4. An attachment to theodolite for simplify its reduction of readings in Stadia Surveying.

4. The rational method of triangulation adjustment involves the use of

1. Principle of least squares
2. Weighted arithmetic mean
3. Chord gradients
4. Parallax correction

5. The sign of combined correction for curvature and refraction for an angle of elevation is

1. Zero
2. Negative
3. Positive
4. No correction needed

6. True meridians at different places converge

1. from South Pole to North Pole
2. from the equator to North and South poles
3. from North Pole to South Pole
4. from the equator to east pole

7. Electronic distance measurement is based on following approaches

1. Electro optic method and electromagnetic method
2. Electromagnetic method natural sextant
3. Electro optic method and spherical trigonometry
4. Electro optic method and method of least squares

8. Latitude of a place is the triangular distance

1. from the Greenwich to the place
2. from the equator
3. from the equator to the nearest pole
4. from the equator towards nearer pole along the meridian of the place

9. The absolute positioning of GPS

1. Relies upon single receiver station
2. Relies upon second receiver known as reference point
3. Differential geographical positioning system
4. Realtime kinetic fixed

10. Surface tension is expressed in

1. N/m
2. N/m²
3. N/m³
4. N-m

11. The fundamental S.I unit of pressure is N/m²; this is also known as

1. Pascal
2. Stoke
3. Poise
4. Newton

12. Hot wire Anemometer is used for measuring

1. Viscosity
2. Velocity of gases
3. Pressure of gases
4. Velocity of fluids

13. Flow in a pipe where average flow parameters are considered for analysis is an example of

1. Incompressible flow
2. One-Dimensional flow
3. Two-Dimensional flow
4. Three Dimensional flow

14. The total energy represented by the Bernoulli's equation has the units

1. N-m/sec
2. N-sec/m
3. N-m/m
4. N-m/N

15. An error of 1% in measuring head (H) will Produce.....error in discharge over a triangular notch or weir

1. 1%
2. 1.5%
3. 2%
4. 2.5%

16. The sum of potential head and the pressure head at any point is called

1. Velocity Head
2. Datum Head
3. Piezometric Head
4. Loss of Head

17. The maximum efficiency corresponding to maximum power transmission through pipes is

1. 66.7%
2. 67.6%
3. 76.6%
4. 77.6%

18. The water surface slope dy/dx in case of uniform flow in the channel is equal to

1. 0
2. 2. 1
3. 3.00
4. 4. +1

19. If N is Manningsrugosity coefficient and R is hydraulic radius, the equation for chezy's constant (C) is

1. $C = NR^{\frac{1}{6}}$
2. $C = \frac{1}{N} R^{\frac{1}{6}}$
3. $C = \frac{N}{R^{\frac{1}{6}}}$
4. $C = N^{1/6}R$

20. If SHP is shaft horse power, Mechanical efficiency of a centrifugal pump is given by

1. Power at the impeller/SHP
2. SHP/ Power at the impeller
3. Power possessed by water/ Power at the impeller
4. Power possessed by water/ SHP

21. The driving or motive force in a Francis turbine is attributed to

1. Change in velocity
2. Change in pressure
3. Change in momentum
4. Change in angular momentum

22. Find the delta for a crop when its duty is 864 hectares/ cumee on the field, the base period of this crop is 120 days

1. 100 cm
2. 110 cm
3. 120 cm
4. 125 cm

23. Average water depth (Delta) required for Sugarcane is

1. 45 cm
2. 60 cm
3. 75 cm
4. 90 cm

24. The relation between Return period (T) and Exceedence Probability (P) is

1. $P = e^T$
2. $T = e^P$
3. $T = 1/P$
4. $T = \log P$

25. Station Year method is used

1. To estimate the missing rainfall data
2. To estimate the average depth of rainfall over a basin
3. To check the consistency of rainfall data
4. To find annual rainfall data at a particular station

26. The rise in the maximum flood level upstream of the weir caused due to the construction of the weir across the river is called

1. Attenuation
2. Afflux
3. Recuperation
4. Haunting

27. Trough spillway or open channel spillway is also known as

1. Ogee spillway
2. Chute spillway
3. Shaft spillway
4. Syphon spillway

28. To prevent the base material from passing through the pores of the filter of earthen dams the ratio of D_{fg} of filter to D_{gg} of base material does not exceed

1. 4 to 5
2. 5 to 6
3. 6 to 7
4. 7 to 8

29. If the allowable stress of the dam material is 340 t/m^2 , specific gravity of the dam material is 2.4, specific weight of the water is 1 t/m^3 , and the limiting height of the dam is

1. 34m
2. 98m
3. 100m
4. 24m

30. When the full supply level of the canal is sufficiently below the bottom of the train trough, so that the canal water flows freely under the gravity, the structure is known as

1. Aqueduct
2. Syphon Aqueduct
3. Canal Syphon
4. Super passage

31. If 'd' is average particle size in mm, the equation for Lacey's silt factor 'f' is given by

1. $f = 7.15d$
2. $f = 1.75\sqrt{d}$
3. $f = 1.75 d$
4. $f = 7.15 \sqrt{d}$

32. Bulk modulus is

1. Inversely proportional to modulus of Elasticity
2. One third of the modulus of Elasticity
3. Half of the modulus of Elasticity
4. Directly proportional to modulus of Elasticity,

33. For a 12 mm diameter steel rod test specimen, the suitable gauge length is

1. 24mm
2. 36mm
3. 72mm
4. 60mm

34. Stress necessary to cause a non proportional or permanent extension equal to a defined percentage of gauge length is called as

1. Rupture stress
2. Proof stress
3. Working stress
4. Allowable stress

35. A mild steel specimen is tested under tension and a continuous graph between load and extension is obtained. A load at which there is considerable extension without increase in resistance is called

1. Ultimate load
2. Breaking load
3. Lower yield load
4. Upper yield load

36. The strength of beam depends upon

1. Modulus of elasticity
2. Bending moment
3. Section modulus
4. Radius of curvature

37. For a certain material Poisson's ratio is 0.25. Then the ratio of modulus of elasticity to the modulus of rigidity for the material is

1. 4
2. 2.5
3. 4
4. 0.5

38. A round bar A of length L and diameter D is subjected to an axial force producing stress σ . Another round bar B of the same material but diameter 2D and length 0.5 L is also subjected to the same stress σ . The ratio of strain energy in bar A to the strain energy bar B is given by

1. 2.0
2. 1.5
3. 1.0
4. 0.5

39. A load of 1KN suddenly acts on a bar with 0.8 cm² area of cross section and length 10 cm. The maximum stress developed in the bar is

1. 12.5 N/ mm² N.
2. 25 N/ mm²
3. 75 N/ mm²
4. 125 N/ mm²

40. The strain energy in a bar under certain loading is 40 joules. The area of the bar is 400 mm² and length l is 2 m. The modulus of resilience in mm-N/mm³ is

1. 0.05
2. 0.5
3. 5.0
4. 0.005

41. A material which has the elastic constants ! identical in all directions is called as

1. Isotropic
2. Homogeneous
3. Elastic
4. Ductile

42.The curvature of the axis of a beam under bending is:

1. Inversely proportional to bending moment
2. Inversely proportional to flexural rigidity
3. Directly proportional to flexural rigidity
4. Doesn't related to flexural rigidity

43. A free body diagram is

1. The Diagram Of The Body Freed From All The Forces | That Have Been Acting
2. The Diagram Of The Body Or A Part Of The Body Ia | Isolated Equilibrium
3. The Diagram Of The Body With No Supports At All
4. The Diagram Showing Support Reactions Only

44. Compared to bending deformation, shear | deformation is

1. Large
2. Small
3. Very large
4. Zero

45. Shear stress is maximum, when:

1. Bending stress is minimum
2. Bending stress is maximum
3. Bending stress is zero
4. Bending stress is negative

46. Shear stress for a shaft being subjected to | torque T is minimum:

1. at half of radius from the axis
2. at axis of the shaft
3. at equal radial distances from the axis
4. at it's both ends

47. A simply supported beam 10m long carries poin loads. When S.F. diagram is drawn, there are 1 rectangles of the size 10KN x 2m. one is startir from one end and above the base. The o starting from the other end but below the bas line. The B.M. at the centre of the beam is

1. 60kNm
2. 50kNm
3. 30 kNm
4. 20 kNm

48. The following section is the most efficient carrying bending moments

1. Rectangular section
2. Elliptical section
3. I-section
4. T-section

49. In the case of T section, the maximum bendir stress will occur at

1. Junction of web and flange
2. Extreme fibre in the flange
3. Extreme fibre in the web
4. Neutral axis

50. For a triangular section, shear stress is maximum

1. at a height of $H/4$ from base
2. at a height of $2H/3$
3. at a height of $H/3$ base
4. at a height of $H/2$ bass

51. A rectangular section has dimensions of 100mm x 200mm. The ratio of the moment of inertia about x-axis passing through its centroid to the moment of inertia about y-axis passing through its centroid is equal to

1. 8
2. 4
3. 6
4. 2

52. If the diameter of a long column is reduced by 20%, the percentage reduction in buckling load will be

1. 4
2. 36
3. 49
4. 59

53. The minimum percentage of reinforcement in R.C.C. short column is

1. 1.301
2. 0.8
3. 1.0
4. 1.5

54. Ties are load carrying members of a frame, which are subjected to

1. Transverse loads
2. Axial tensile loads
3. Axial compressive loads
4. Torsional loads

55. For a long column with hinged ends, the critical section is

1. More than the yield stress
2. Less than the yield stress
3. Equal to the yield stress
4. Zero

56. The moment of resistance of an over-reinforced section is determined on the basis of

1. Tensile force developed in steel
2. Compressive force developed in concrete
3. Shear developed in steel
4. Tension and compression developed in steel

57. In Limit state of Collapse the maximum strain concrete at the outer most compression edge in bending is taken as

1. 0.002
2. 0.035

3. 0.0035

4. 0.02

58. The ratio of ultimate load to the working load is called as

1. Safe load
2. Factor of safety
3. Load factor
4. Partial safety factor

59. The characteristic mean strength of M30 grade concrete in N/mm² is 1.

1. 5 2. 20 3. 30 4. 25

60. Limiting percentage of steel for M25 grade concrete for steel of $f_y = 415$ N/mm² is

1. 72 2. 20 3. 1.20 4. 1.44

61. If the area is covered v by a series of surveys lines near the boundary, it called as

1. Triangulation
2. Theodolite surveying
3. Traversing
4. Grids an system

62. The total area of the side reinforcement distributed equally along the two faces of a beam when the depth of the web exceeds 750mm

1. Shall be 1.0 percent of the web area
2. Shall not be more than 0.10 percent of the web area
3. Shall not be less than 0.10 percent of the web area
4. Shall not be more than 0.05 percent of the web area

63. The number of equilibrium equations for a two dimensional system is:

1. 6
2. 3
3. 2
4. 1

64. A solid shaft of diameter d and length l is subjected to twisting moment T . Another shaft B of the same material and diameter d and length $0.5l$ is also subjected to the same twisting moment T . If the angular twist in shaft A is θ , the angular twist in shaft B is

1. 2θ
2. θ
3. 0.5θ
4. 0.25θ

65. A simply supported beam of span L carrying a u.d.l. registers a deflection of y cm at the centre. If the span of the beam is doubled, the deflection at the centre for the same u.d.i. would be

1. 4y
2. 6y
3. 8y
4. 16y

66. A simply supported beam of span l carries a u.d.l. of w kg/m. What is the magnitude of concentrated load to be applied at the centre of this beam which would produce the same deflection as the u.d.l.?

1. $\frac{3}{8}wl$
2. $\frac{1}{2}wl$
3. $\frac{5}{8}wl$
4. $\frac{7}{8}wl$

67. Columns of same length, cross section and material different values of buckling loads and different end conditions. The strongest column is one whose

1. One end is fixed and the other end is hinged
2. One end is fixed and the other end is free
3. Both the ends fixed
4. Both the ends hinged

68. The radius of gyration of a circular section of diameter 50mm is

1. 25mm
2. 50mm
3. 12.5mm
4. 20mm

69. The crippling stress varies

1. Directly proportional to slenderness ratio
2. Inversely proportional to slenderness ratio
3. Inversely proportional to the cubic power of slenderness ratio
4. Inversely proportional to the square of slenderness ratio

70. In the case of logn columns the maximum permissible stress depends on

1. The ultimate crushing strength of the material
2. The maximum slenderness ratio
3. Radius of gyration only
4. Effective length only

ANSWERS

1.4 2.1 3.4 4.1 5.3 6.2 7.1 8.4 9.1 10.1 11.1 12.2 13.2 14.4 15.4 16.3
17.1 18.1 19.2 20.1 21.4 22.3 23.4 24.3 25.1 26.2 27.2 28.1 29.3 30.4 31.2 32.4
33.4 34.2 35.4 36.3 37.2 38.4 39.2 40.2 41.1 42.2 43.2 44.2 45.3 46.2 47.4 48.3
49.3 50.4 51.2 52.4 53.2 54.2 55.2 56.2 57.3 58.3 59.3 60.3 61.3 62.3 63.2 64.3
65.4 66.3 67.3 68.3 69.4 70.2