M.E. Civil Engg. (Construction Technology & Management)

1. Of the total estimated cost, the contractor's profit usually accounts for
   A) 10% B) 15% C) 20% D) 25%

2. If the whole circle bearing of a line is 270°, its reduced bearing will be
   A) N90°W B) S90°W C) W90°N D) W90°S

3. Plotting of inaccessible point on plane table is done by
   A) Intersection B) Traversing C) Radiation D) Ranging

4. The equivalent length of a column fixed at both ends is
   (Assume L as the clear span between fixed ends)
   A) 0.5L B) 0.7L C) 2L D) 1.5L

5. Modulus of rigidity is defined as the ratio of
   A) Longitudinal stress to longitudinal strain B) Shear stress to shear strain
   C) Stress to strain D) Stress to volumetric strain

6. If the width 'b' and depth 'd' of a simply supported beam with a concentrated load at centre are interchanged, the deflection at the centre of the beam will change in the ratio of
   A) b/d B) d/b C) $(d/b)^2$ D) $(b/d)^2$

7. The deflection due to couple M at the free end of a cantilever of length L is
   A) ML/EI B) 2ML/EI C) $ML^2/2EI$ D) $M^2L/2EI$

8. For a truss of number of members *m,* number of joint *j* and number of external reactions *r,* if $(m + r) > 2j$, the truss will be known as
   A) Redundant B) Deficient C) Determinate D) Balanced

9. When force acts normal to the displacement, the work done (W) is
   A) Infinity B) Zero C) Positive D) Negative

10. A floating body attains stable equilibrium, if the metacentre is
    A) At the Centroid B) Above the Centroid C) Below the Centroid D) Anywhere

11. Sullage does not contain waste from
    A) Bathroom B) Washbasin C) Kitchen Sinks D) Toilets

12. If D.O. concentration falls down to zero anywhere in a stream, it indicates
    A) Zone of Degradation B) Zone of active decomposition
    C) Zone of recovery D) Zone of clear water

13. A Standard BOD test is
    A) BOD for 1 Day at 30°C B) BOD for 2 Day at 20°C
    C) BOD for 3 Day at 27°C D) BOD for 5 Day at 25°C

14. The Detention time of a settling tank may be defined as the time required for
A) A particle to travel along its length

B) A particle to travel from top surface to bottom sludge Zone

C) The flow of sewage to fill the tank.

D) The flow of sewage to empty the tank

15. Cohesionless soil is
A) Sand B) Silt C) Clay D) Clay &Sift

16. The coefficient of active earth pressure K_a is 1/3, then the coefficient of passive earth Pressure K_p shall be
A) 1/3 B) 2/3 C) 3 D) 3/2

17. For the construction of RCC slabs, beams, columns and walls, the grade of concrete mix used is
A) 1:3:6 B) 1:1.5:3 C) 1:2:4 D) 1:1:2

18. Expansion joints are provided, if length of concrete structure exceeds
A) 50m B) 45m C) 35m D) 40m

19. The shuttering of a hall measuring 4m × 5m can be removed after
A) 5 days B) 7 days C) 14 days D) 21 days.

20. Gypsum is added to the cement for

A) Colour B) Strength

C) Controlling setting time D) Increasing durability

21. If the diameter of a reinforcing bar is 'd', the anchorage value of hook shall be
A) 4d B) 8d C) 12d D) 16d

22. The diameter of longitudinal bars of a column should never be less than
A) 6 mm B) 8 mm C) 10mm D) 12 mm

23. The Shear reinforcement in RCC beam is provided to resist
A) Vertical Stress B) Horizontal Shear

C) Diagonal Compression D) Diagonal Tension

24. Poisson's Ratio for steel within elastic limit ranges from

A) 0.15-0.20 B) 0.25-0.33 C) 0.33-0.35 D) 0.45-0.50

25. For simply supported beam, maximum permissible deflection is
A) 1/325 of the span B) 1/425 of the span
C) 1/150 of the span D) 1/36 of the span

26. The difference in level between the top of a bank and FSL of water in canal is called

A) Berm B) Free Board C) Height of Bank D) Depth

27. In a canal siphon, flow is
A) Under Atmospheric Pressure B) Pipe Flow
C) With Critical Velocity D) Under Negative Pressure

28. In a sharda type fall, the rectangular crest may be used for discharge up to
A) 6 cumec B) 10 cumec C) 14 cumec D) 20 cumec

29. In Concrete Roads, Camber provided is
A) 1 in 20 to1 in 24 B) 1 in 36 to 1 in 48
C) 1 in 60 to 1 in 72 D) 1 in 48 to 1 in 60

30. The minimum width of pavement of a National Highway should be
A) 4.7 m B) 5.7 m C) 6.7 m D) 8.0m

31. Bar charts are suitable for
A) Minor works B) Major works
C) Very Large projects D) Scheduled projects

32. For completion of a project, the critical path network represents
A) Minimum time B) Maximum time
C) Minimum cost D) Maximum cost.

33. Cost-benefit analysis of a project is essential
A) To monitor the expenditure
B) To evaluate the viability and usefulness
C) To estimate the escalation in cost
D) To assess the total cost

34. The main principle of surveying is
A) Part to Whole B) Whole to Part
C) Traversing D) Triangulation

35. FTN in water quality is used to indicate
A) Colour B) Odour C) Taste D) Turbidity

36. Fore and Back Bearing of a line should differ by
A) 360° B) 180° C) 90° D) None of these

37. The horizontal angle between True North and Magnetic North at any place is known as

A) Dip B) Declination C) Bearing D) Local attraction

38. Curing of Cement concrete work is done for
A) Water absorption B) Hydration
C) Keeping it wet D) Workability

39. Dry Rot in Timber is caused due to
A) Excessive Drying B) Fungus
C) Termite D) Rupture of Tissues

40. Abrasion test on aggregates is conducted to find the
A) Hardness B) Impact value C) Toughness D) Permeability

41. The position occupied by the centre line of a road is called
A) Superelevation B) Road Alignment C) Camber D) Shoulder

42. Dump Truck is also called
A) Tipper B) Dumper C) Crane D) Dozer

43. Hook's Law holds good up to
A) Yield point B) Elastic Limit C) Plastic Limit D) Breaking Point

44. The Unit of Modulus of elasticity is same as those of
A) Stress, Strain and Pressure
B) Stress, Force and Modulus of Rigidity
C) Stress, Force and Pressure
D) Stress, Pressure and Modulus of Rigidity

45. A steel bar of 5 mm is heated from 15° to 40°c and it is free to expand. The bar will induce A) No stress B) Shear Stress
C) Tensile Stress D) Compressive Stress

46. The planes which carry no shear stress are known as
A) Principal planes B) Oblique planes
C) Inclined planes D) Minor planes

47. The Bending moment diagram for a simply supported beam carrying a uniformly distributed load of w per unit length will be
A) A horizontal Line B) A vertical Line
C) An inclined Plane D) A parabolic Curve

48. A beam of T-Section is subjected to a shear force of F. The Maximum Shear force will occur at the
A) Top of the Section
B) Bottom of the Section
C) Neutral Axis of the section
D) Junction of Web and Flange

49. Transverse Fillet Welds are designed for
A) Tensile Strength
B) Compressive Strength
C) Shear Strength
D) Bending strength

50. A Column that fails due to direct stress is called
A) Short column
B) Long Column
C) Weak Column
D) Medium Column

51. The loss of stress with time at constant strain is called
A) Relaxation B) Creep C) Shrinkage D) Ductility

52. The propagation of a shear crack in a Pre-stressed concrete member depends upon
A) Tensile Reinforcement
B) Compression Reinforcement
C) Shear Reinforcement
D) Shape of the cross-section of the Beam

53. The bending stress in a beam at Neutral Axis is
A) Zero B) Minimum C) Maximum D) Average

54. The steel beam of light sections placed in plain cement concrete are called
A) Joists
B) Simple Joists
C) Filler Joists
D) Concrete Joists

55. Gantry girders are designed to resist
A) Lateral Load
B) Longitudinal Loads
C) Lateral and Longitudinal Loads
D) Lateral, Longitudinal and vertical Loads

56. CPM is
A) Activity oriented
B) Event oriented
C) Time oriented
D) Resource oriented

57. The minimum Dissolved Oxygen required in water to save the aquatic life is
A) 1 mg/L B) 2 mg/L C) 4 mg/L D) 8 mg/L

58. The sewage is treated by anaerobic bacterial action in
A) Septic tank B) Trickling filter C) Oxidation pond D) ASP

59. A saturated soil sample has a water content of 49%. If the specific gravity of solids is 2.7, the void ratio of the soil sample will be
A) 1.32 B) 0.8 C) 1 D) 2.2

60. The specific gravity and in situ void ratio of a soil deposit are 2.71 and 0.85, respectively. The value of the critical hydraulic gradient is:

A) 0.82 B) 0.85 C) 0.95 D) 0.92

61. A brick, which is cut in such a way that the width of one of its end is half that of a full brick is called
A) Bevelled closer B) Queen closer C) Quoin D) King closer

62. Car is moving at a speed of 72 km/hr on a road having 2% upward gradient. The driver applies brakes when he sees an obstruction. If his reaction time is 1.5 seconds, assuming that the co-efficient of friction between the pavement and tire as 0.15, calculate the distance traversed before the car finally stops.
A) 24m B) 150m C) 1056 m D)324 m

63. Rapid curing cutback bitumen is produced by blending bitumen with
A) Kerosene B) Benzene C) Diesel D) Petrol

64. Width of carriageway for a single lane is recommended to be
A) 7.5m B) 2.5 m C) 3.75m D) 5.5 m

65. The revolutions of wheels of a vehicle without any forward or backward movement on the road is termed as
A) Slipping B) Skidding C) Travelling D) Turning

66. Junction between the flange and web of a beam is known as
A) Lap Joint B) Butt Joint C) Fillet D) Shear Joint

67. The strength of a riveted joint is equal to the
A) Strength of joint against shearing of the rivets
B) Strength of joint against bearing of the rivets
C) Strength of plate in tearing
D) Least of the values obtained in A, B, C

68. If A is the cross-sectional area of an eccentrically loaded column and Z is the sectional modulus, then the bending factor is equal to
A) Z/A B) A/Z C) 2A/Z D) A/2Z

69. In roof trusses, the most frequently used section is
A) Two-angle sections placed back to back
B) Two- channel sections placed back to back
C) Two channel section placed at a distance apart
D) Four angle section

70. If a crop requires total depth 125 cm of water for a base period of 120 days, then the duty

of the crop in hectares/cumec is

A) 250 B) 245 C) 657 D) 830

71. A water treatment plant treats 5000 cubic meters of water per day. If it consumed 20 kg of chlorine per day, then the chlorine dosage would be

A) 10 mg/L B) 4 mg/L C) 0.40 mg/L D) 0.25 mg/L

72. Time taken by run-off to reach the culvert from the remotest point in the drainage basin is called as

A) Time of reaching B) Time of collection

C) Time of concentration D) Time of delay

73. Which of the following has the maximum water application efficiency?

A) Surface irrigation B) Sprinkler irrigation

C) Lift irrigation D) Furrow irrigation

74. Which of the following does not affect self purification of streams?

A) Fish Population B) Turbulence of river

C) Sunlight D) DO deficit

75. The best hydraulic section for an open channel flow is

A) Rectangular B) Trapezoidal

C) Semi-circular D) Circular

x-x-x