Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Metamorphic rocks are formed by :
   (A) Coding molten lava
   (B) Change of physical and chemical property of rocks
   (C) Deposition of weathered rocks
   (D) Solidification of rock minerals

2. Sand stone is an example of :
   (A) Sedimentary rock
   (B) Metamorphic rock
   (C) Igneous rock
   (D) Foliated rock

3. Pug mill is associated with the production of :
   (A) Cement
   (B) Floor tiles
   (C) Brick
   (D) Concrete

4. What metal ingredient in stainless steel makes it corrosion resistant?
   (A) Copper
   (B) Chromium
   (C) Tungsten
   (D) Nickel

5. Melting point of mild steel is about :
   (A) 1400°C
   (B) 1600°C
   (C) 400°C
   (D) 350°C

6. Which metal is used for galvanising iron pipes and sheets?
   (A) Copper
   (B) Tin
   (C) Aluminium
   (D) Zinc

7. Asbestos is banned in most of the countries due to :
   (A) Thermal discomfort
   (B) Use of mere cement
   (C) Carcinogenic fibre
   (D) High cost

8. What is underpinning?
   (A) Process of giving pin foundation
   (B) Construction of new foundation below existing one
   (C) Stabilisation of foundation
   (D) Type of Pile foundation

9. What is head room?

(A) Room for storage

(B) Stair case room

(C) Lift room

(D) Vertical distance between tread and ceiling

10. Which test is not related to workability of concrete?

(A) Consistency test

(B) Compaction factor test

(C) Slump test

(D) Vee-bee consistometer test

11. Which is the type of reaction develops in setting and hardening of cement?

(A) Oxydation

(B) Hydration

(C) Calcination

(D) Reduction

12. Who established a relationship between water-cement ratio and strength of concrete?

(A) Cassagrade

(B) Atterberg

(C) Dutt Abrahms

(D) Karl Terzaghi

13. Workability is mainly related to :

(A) Cement content

(B) Aggregate ratio

(C) Super plasticizers

(D) Water content

14. As per Indian Standards the recommended value of initial setting time of OPC is :

(A) Not less than 30 minutes

(B) More than 6 hrs

(C) Not more than 30 minutes

(D) Less than 30 minutes

15. Reason for soaking bricks in water before testing for compressive strength :

(A) To fill the air voids

(B) To reduce dust

(C) To distribute load uniformly

(D) To get the minimum strength

16. 7 days, 14 days, 21 days and 28 days results are considered for concrete compressive strength. What is the importance of 7 days interval between the tests in codes?

(A) To get gradual strength increment

(B) To compare result with codal values

(C) To perform test on working days

(D) Repetition of existing standards

17. What is the density of cement in bulk form?

(A) 2400 kg/m^3

(B) 1440 kg/m^3

(C) 2500 kg/m^3

(D) 1700 kg/m^3

18. Le-Chatliers equipment is used to find :

(A) Soundness
(B) Consistency
(C) Initial setting time
(D) Final setting time

19. Which of the following Benchmarks, is assumed for a small project?

(A) GTS Benchmark
(B) Permanent Benchmark
(C) Arbitrary Benchmark
(D) Temporary Benchmark

20. The instrument used for setting right angles in chain survey is :

(A) Compass
(B) Prism
(C) Alidade
(D) Cross-staff

21. What is declination in compass survey?

(A) Angle between true and magnetic meridians
(B) Angle between fore bearing and back bearing
(C) Vertical angle between magnetic needle and horizontal
(D) Angle between WCB and Quadrant bearing

22. WCB of a line is 180°, its quadrant bearing is :

(A) S-90°-E
(B) S-90°-W
(C) N-0°-W
(D) S-0°-E

23. Transit rule for correction of traverse is adopted when?

(A) Linear measurements are accurate
(B) Angular measurements are accurate
(C) Both angular and linear measurements are accurate
(D) Both angular and linear measurements have errors

24. What is a contour line?

(A) Line with equal declination
(B) Line with equal dip
(C) Line with equal elevation
(D) Line along the meridian

25. What is the salvage value of building?

(A) Value of building after its utility period
(B) Rent of building per year
(C) Value of scrap after dismantling building
(D) Fund reserved for reconstruction

26. Euler's equation is ideal for finding load carrying capacity of :

(A) Long column
(B) Short column
(C) Medium column
(D) Eccentric column

27. Point of contra flexure is the point on beam where :

(A) Shear force is zero
(B) Bending moment is zero
(C) Shear force is maximum
(D) Shear force and bending moment are zero

28. What is a beam of uniform strength?

(A) Beam with uniform cross section
(B) Beam with homogeneous material
(C) Beam with uniform loading over the entire span
(D) Beam with uniform fibre stress in all cross sections

29. What is the relationship between maximum shear stress and average shear stress over a cross section of beam with rectangular section?

(A) Maximum shear stress = 2 × average shear stress
(B) Maximum shear stress = average shear stress
(C) Maximum shear stress = 1.5 × average shear stress
(D) Maximum shear stress = 3 × average shear stress

30. What is the core of section for column?

(A) Inner area of cross section
(B) Loaded area of cross section
(C) Centre of cross section where load acts
(D) Area where load can be applied without tension on column face

31. Modular ratio of two materials is the ratio of :

(A) Linear strain to lateral strain
(B) Linear stress to linear strain
(C) Their Young's modulus values
(D) Their modulus of rigidity values

32. The ratio of lateral strain to linear strain :

(A) Young's modulus
(B) Rigidity modulus
(C) Poisson's ratio
(D) Slenderness ratio

33. A metallic rod is heated and allowed to expand, the nature of stress induced is :

(A) Compressive
(B) No stress
(C) Shear stress
(D) Tensile stress

34. Clapeyron's theorem of three moments, is used to analyse :

(A) Fixed beam
(B) Continuous beam
(C) Portal frame
(D) Over hanging beam

35. What is the general equation for deflection?

(A) $M = EI \cdot \frac{d^2y}{dx^2}$
(B) $\frac{M}{I} = \frac{f}{y}$
(C) $\frac{T}{J} = \frac{C\theta}{l}$
(D) $\frac{M}{EI} = \frac{dy}{dx}$

36. A material is isotropic means :

(A) Uniform material throughout its body
(B) Stress is uniform over cross section
(C) Strain is uniform over the length
(D) Elastic constants are same in all directions

37. The minimum grade of concrete recommended as per Indian Standards for R.C.C. works :

(A) M15
(B) M20
(C) M25
(D) M30

38. Which I.S. code is referred to the ductile detailing of R.C.C. structures subjected to seismic loads?

(A) IS 13920
(B) IS 1893
(C) IS 456
(D) IS 875

39. The modulus of elasticity of concrete as per IS 456-2000, with characteristic compressive strength fck :

(A) $Ec = 5500\sqrt{fck}$
(B) $Ec = 3300\sqrt{fck}$
(C) $Ec = 0.7\sqrt{fck}$
(D) $Ec = 5000\sqrt{fck}$

40. The flexural strength of concrete in terms of fck is given by the relation :

(A) $0.3\sqrt{fck}$
(B) $0.5\sqrt{fck}$
(C) $0.7\sqrt{fck}$
(D) $1.1\sqrt{fck}$

58. Hydraulic mean depth of a circular pipe of diameter D is :

(A) 2.D
(B) D/2
(C) D/4
(D) D/3

59. The usual form of continuity equation of liquid flow is :

(A) $Q_1 V_1 = Q_2 V_2$
(B) $a_1 V_1 = a_2 V_2$
(C) $P_1 V_1 = P_2 V_2$
(D) $\frac{P_1}{w} = \frac{P_2}{w}$

60. Theoretical velocity of water with available head 'h' and acceleration due to gravity 'g' :

(A) $2\sqrt{gh}$
(B) $\sqrt{2gh}$
(C) $2g\sqrt{h}$
(D) $2gh$

61. What is the maximum theoretical possible suction head for centrifugal pump?

(A) 8.8 m
(B) 6.6 m
(C) 12.4 m
(D) 10.33 m

62. Governor is used in turbines to :

(A) Control the speed
(B) Increase the speed
(C) Improve efficiency
(D) Reduce the speed

63. On roads if V is the speed of vehicles in km/hr and R is the radius of curvature, then the super elevation required is :

(A) $\frac{R^2}{225\,V}$
(B) $\frac{V^2}{125\,R}$
(C) $\frac{V^2}{225\,R}$
(D) None

64. Head-on collisions are avoided on multi lane roads using :

(A) Wide medians
(B) Yellow markings
(C) Reflectors
(D) Barrier

65. The bottom most portion of a flexible road pavement is :

(A) Base coarse
(B) Sub grade
(C) Base
(D) Sub-base

66. Psychological widening is provided on :

(A) Vertical curves
(B) Hill roads
(C) City roads
(D) Horizontal curves

67. Wind Rose diagram is related to :

(A) Sail route
(B) Harbour design
(C) Run way alignment
(D) Air routes

68. Sounding is used to get :

(A) Noise of air craft
(B) Height of flight
(C) Depth of sea bed
(D) Speed of boat

69. Head wind component is the wind :

(A) Across run-way
(B) Along run-way
(C) Over air port
(D) Over sea port

70. Who is considered to be the father of modern soil mechanics?

(A) Rankine
(B) Atterberg
(C) Bousinesque
(D) Karl Terzaghi

71. Consolidation of soil is :

(A) Reduction of volume due to removal of air voids
(B) Reduction of volume due to mechanical rearrangement
(C) Reduction of volume due to chemical reaction
(D) Reduction of volume due to removal of water

72. The relationship between void ratio 'e' and porosity 'n' of soil is :

(A) $n=\frac{1+e}{e}$
(B) $n=\frac{e}{1+e}$
(C) $n=\frac{2e}{1+e}$
(D) $n=\frac{3e}{1+3e}$

73. Which of the following is an engineering property of soil?

(A) Porosity
(B) Void ratio
(C) Permeability
(D) Field density

74. What is OMC (Optimum Moisture Content)?

(A) Water content at which maximum dry density is developed by compaction

(B) Water content at which maximum volume is developed

(C) Water content at which minimum porosity is developed

(D) Water content at which maximum shear strength is developed

75. In management dummy activity is used :

(A) To form the network

(B) To determine the project time

(C) To find critical path

(D) To reduce the project time

76. Which of the following is not an activity in construction management?

(A) Construction of super structure

(B) Levelling of ground

(C) Completion of plastering

(D) Polishing of door panels

77. The time required to finish an activity is called :

(A) Float

(B) Duration

(C) Total float

(D) E.F.T

78. A critical activity in a network has :

(A) Maximum float

(B) Minimum float

(C) Critical float

(D) Zero float

79. In architecture rythm means :

(A) Repetition

(B) Balancing

(C) Focus

(D) Style

80. Which of the following garden styles, is used in Taj Mahal?

(A) Mughal garden

(B) English garden

(C) French garden

(D) Japanese garden

81. The first Woman High Court Judge of India :

(A) Justice Fathima Beevi

(B) Justice Sreedevi

(C) Justice Annachandi

(D) Justice Manjula Chellur

82. Who is known as the 'Birdman of India'?

(A) Dr. Salim Ali

(B) R.K. Narayanan

(C) Manoj Das

(D) A.P.J. Abdul Kalam