

41/2014

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. An under reinforced section is preferred than an over reinforced section because of :
 - (A) The steel reaches its maximum stress earlier
 - (B) Brittle property of concrete
 - (C) High strength of concrete
 - (D) Cost of steel is high
2. When a slab is considered as two way slab, its long span to short span ratio is :
 - (A) less than 2
 - (B) greater than 2
 - (C) less than 1.5
 - (D) none of these
3. In the shape test of aggregates the particle whose least dimension is less than 0.6 times of their mean size are termed as :
 - (A) Elongated
 - (B) Gap graded
 - (C) Close graded
 - (D) Flaky
4. A paved path provided for the purpose of allowing aircrafts to move to and from the runway and the apron is called :
 - (A) Run way
 - (B) Lounge
 - (C) Taxy ways
 - (D) Aprons
5. In Indian railways the width of broad gauge is :
 - (A) 1.767 m
 - (B) 1.676 m
 - (C) 1.751 m
 - (D) 1.810 m
6. The limiting point in the converging track beyond which the train vehicle can stand safely without colliding with the train moving on the other track is :
 - (A) Heel
 - (B) Gang beat
 - (C) Foul mark
 - (D) Crossing stations

7. A layer of concrete, masonry or stone etc. which is placed at the entrance or outlet of a culvert or waterway to prevent the scouring is called :
- (A) Abutment (B) afflux
(C) caisson (D) apron
8. Maximum ruling gradient permitted in Indian railways in plains is :
- (A) 1 in 50 (B) 1 in 100
(C) 1 in 150 (D) 1 in 200
9. The outer signal in Indian railways is provided at a minimum of _____ distance from home signal :
- (A) 1 km (B) 580 m
(C) 860 m (D) 180 m
10. The maximum value of super elevation provided in Indian railways is :
- (A) 165 mm (B) 140 mm
(C) 75 mm (D) 98 mm
11. Francis turbine is :
- (A) a radial flow impulse turbine (B) an axial flow turbine
(C) a radial flow reaction turbine (D) an impulse turbine
12. When a fluid is at rest, the shear stress is :
- (A) Unpredictable (B) Maximum
(C) Zero (D) None of these
13. Atmospheric pressure head in terms of water column is :
- (A) 7.6 m (B) 6.0 m
(C) 9.81 m (D) 10.3 m
14. Unit power developed by a turbine is defined as when :
- (A) Power on the turbine is maximum (B) Head on the turbine is unity
(C) Efficiency of the turbine is maximum (D) None of these

15. The branch of science which deals with the study of fluid in motion without considering the forces causing the motion is known as :
- (A) Dynamics (B) Statics
(C) Kinematics (D) Phreatic
16. The maximum amount of strain energy which can be stored in a unit volume without permanent set is called :
- (A) proof resilience (B) resilience
(C) creep (D) bulk modulus
17. The ratio of shear stress to shear strain within the limit of proportionality is called :
- (A) Poisson's ratio (B) Modulus of rigidity
(C) Elastic modulus (D) Young's modulus
18. The load required to cause unit deflection is called :
- (A) Strength (B) Creep
(C) Ductility (D) Stiffness
19. For a column with one end fixed and the other end hinged the effective length is :
- (A) L (B) $2L$
(C) $L/\sqrt{2}$ (D) $L/2$
20. The standard gauge length of a specimen for tensile test with initial cross section area a_0 is :
- (A) $6.56 \sqrt{a_0}$ (B) $6.65 \sqrt{a_0}$
(C) $a_0 \sqrt{6.65}$ (D) $5.65 \sqrt{a_0}$
21. The maximum bending moment for a simply supported beam which carries a uniform load 'w' through out its span 'l' is
- (A) $wl/4$ (B) $wl^2/4$
(C) $wl^2/8$ (D) $wl/8$
22. An isotropic material is one which has :
- (A) the elastic constants identical in all directions
(B) same structure in all directions
(C) obeys hook's law up to failure
(D) young's modulus and rigidity moduli are same

23. The product of Elastic modulus and moment of inertia EI is called :
(A) torsional rigidity (B) flexural rigidity
(C) rigidity modulus (D) stability
24. The polar moment of inertia of a hollow circular section with external diameter 'D' and internal diameter 'd' is :
(A) $\pi[D^2 - d^2]/64$ (B) $\pi[D^4 - d^4]/32$
(C) $\pi[D^4 - d^4]/64$ (D) $\pi[D^3 - d^3]/32$
25. When a closed coil helical spring is subjected to an axial compressive load, the material will be subjected to :
(A) shear stress (B) axial compressive stress
(C) bending stress (D) tensile stress
26. The force acting on a body moving in a circular path along the radius away from the centre of path is called :
(A) centripetal force (B) shear force
(C) centrifugal force (D) torsion
27. Contour bunding is suitable for :
(A) plain area (B) dried up area
(C) water logged area (D) hilly area
28. For no tension developed in the base of gravity dam, the eccentricity of the resultant force is within _____ where b is the base width of dam.
(A) $b/6$ (B) $b/3$
(C) $b/4$ (D) $b/2$
29. The evaporation from plants and surrounding soil together is called :
(A) vapourisation (B) hydration
(C) evapotranspiration (D) transpiration
30. Cross drainage works are not required when the canal is :
(A) contour canal (B) ridge canal
(C) regime canal (D) carrier canal

31. The level difference between the top of bank of a canal and the maximum water level is :
(A) berm (B) afflux
(C) free board (D) critical depth
32. Conductivity is directly depends on :
(A) total dissolved solids (B) volatile organic solids
(C) total solids (D) ionized dissolved solids
33. Minimum amount of dissolved oxygen desirable in any water body is less than :
(A) 2 mg/l (B) 1 mg/l
(C) 3 mg/l (D) 5 mg/l
34. The pipe carrying sewage is called :
(A) sewage (B) sewer
(C) sullage (D) sewerage
35. Plasticity index is :
(A) liquid limit – plastic limit (B) plastic limit – shrinkage limit
(C) water content – plastic limit (D) liquid limit – shrinkage limit
36. The ratio of unconfined compression strength in natural state to that in the remoulded state is :
(A) permeability (B) flow index
(C) sensitivity (D) thixotrophy
37. The difference between the total stress at a point and the pore water pressure at that point is :
(A) total stress (B) effective stress
(C) neutral stress (D) shear stress
38. When a retaining wall moves towards the backfill when the wall tends to compress the soil Horizontally, is due to :
(A) At-rest pressure (B) Active earth pressure
(C) Passive earth pressure (D) Effective pressure

39. The hydrometer analysis is based on the principle of :
- (A) Stoke's law (B) Darcy's law
(C) Mannings law (D) Newton's law
40. The maximum water content of the soil at which no further reduction in the volume of soil mass is called :
- (A) Plastic limit (B) Liquid limit
(C) Water limit (D) Shrinkage limit
41. The difference between plastic limit and shrinkage limit is called :
- (A) fluidity index (B) shrinkage index
(C) plasticity index (D) density index
42. Quick sand is :
- (A) pure silica sand
(B) a sand act as a quick filter
(C) a condition when cohesion decreases
(D) a condition in which cohesionless soil loses its shear strength due to the upward flow of water
43. Consolidation is a process in which :
- (A) sudden compression of soil (B) gradual expulsion of pore water
(C) abnormal shrinking of soil (D) tilting and failure of soil
44. The minimum depth of exploration in the case of gravity dam is :
- (A) base width of dam (B) twice the base width
(C) twice the height of the dam (D) height of dam
45. Samples from auger boring are :
- (A) non representative sample (B) undisturbed sample
(C) representative sample (D) none
46. Vane shear test is used for measuring :
- (A) voids ratio of soil (B) shear strength of cohesive soil
(C) bearing capacity of soil (D) all the above

47. The material that is retained by a retaining structure is generally called as :
(A) surcharge (B) soil slope
(C) backfill (D) all these
48. Shallow footing is on whose depth is :
(A) equal to width (B) less than width
(C) more than width (D) none of these
49. Yellow (amber) colour of a coloured light traffic signal in a junction indicates :
(A) go (B) stop
(C) be ready to go (D) clearance time
50. The first railway train in India ran between :
(A) Chennai and Bangaluru (B) Mumbai and Thana
(C) Calcutta and Delhi (D) Howrah and Dadar
51. The standard length of rail section for broad gauge rail is :
(A) 12 m (B) 10 m
(C) 13 m (D) 15 m
52. The maximum degree of curve in a broad gauge is :
(A) 10° (B) 12°
(C) 13° (D) 14°
53. The principle constituents of argillaceous rocks is :
(A) lime (B) silica
(C) clay (D) sand
54. The indentation provided in a face of the brick is called :
(A) pallet (B) strike
(C) bullnose (D) frog
55. The phenomenon of increasing the volume of a moist sand is called :
(A) bleeding (B) bulking
(C) segregation (D) thawing

56. The volume of one bag (50 kg) of cement is :
(A) 0.04 m^3 (B) 0.034 m^3
(C) 0.045 m^3 (D) 0.025 m^3
57. The age of a tree can be judged from :
(A) diameter (B) leaf
(C) annual rings (D) height
58. Snowcem is a :
(A) cement paint (B) oil paint
(C) enamel paint (D) cellulose paint
59. Asphalt is a mixture of
(A) bitumen and asbestos (B) bitumen and cement
(C) tar and asbestos (D) bitumen and inert mineral matter
60. The height of slump cone in slump test is :
(A) 40 cm (B) 45 cm
(C) 30 cm (D) 38 cm
61. The tendency of the mineral to split along a certain plane is called :
(A) cleavage (B) fractive
(C) lusture (D) softness
62. The exterior corner of a wall is known as :
(A) jamb (B) frog
(C) bullnose (D) quoin
63. The row of arches in continuation is called :
(A) archline (B) arcade
(C) conclave (D) multiple arch
64. The vertical distance between the top of two successive treads is :
(A) going (B) flight
(C) rise (D) run

65. The vertical intermediate member of the frame which divides the window vertically is :
 (A) mullion (B) cross style
 (C) pillion (D) rail
66. The vertical window provided on the sloping roof is known as :
 (A) lantern window (B) gable window
 (C) dormer window (D) bay window
67. A dog legged stair connecting two floors with floor to floor height is 4.2 m and with a rise of 15 cm. Then the total number of treads in that stair is :
 (A) 26 (B) 25
 (C) 28 (D) 27
68. An instrument used to measure the depth of foundation is :
 (A) Ranging rod (B) T-square
 (C) Leveling staff (D) Boning rod
69. A cut made in the frame of a door to receive the shutter is :
 (A) louver (B) groove
 (C) gang (D) rebate
70. A propped cantilever with uniformly distributed load 'w/m' and span 'l', then the prop reaction is :
 (A) $3wl/8$ (B) $5wl/8$
 (C) $wl/8$ (D) $wl/2$
71. A pin jointed perfect frame is to satisfy _____ where 'n' is number of members and 'j' is the number of joints.
 (A) $n > 2j - 3$ (B) $n < 2j - 3$
 (C) $n = 2j - 3$ (D) $n = 2j + 3$
72. A partition wall is designed to carry :
 (A) live loads (B) imposed load
 (C) vertical loads (D) no external loads
73. In the limit state method of design the maximum compressive strain in concrete is taken as :
 (A) 0.0035 (B) 0.035
 (C) 0.002 (D) 0.02

74. In singly reinforced beam if the concrete is stressed to its allowable limit earlier than steel the section is said to be :
(A) over reinforced beam (B) balanced section
(C) under reinforced section (D) critical section
75. For a simply supported beam, the maximum deflection permitted is :
(A) $1/300$ of the span (B) $1/325$ of span
(C) $1/350$ of span (D) $1/400$ of span
76. Isogonics lines are the lines having the same :
(A) bearing (B) dip
(C) declination (D) elevation
77. A bench mark is a :
(A) Reference point
(B) Point of known elevation
(C) The very first station
(D) The last station where the survey closes
78. Point of tangency is the :
(A) end of the curve
(B) beginning of the curve
(C) common point where the radius changes
(D) common point where the direction changes
79. The instrument used to reproduce plans to a different scale is called :
(A) planimeter (B) pantograph
(C) clinometers (D) box sextant
80. The approximate weight of one cubic metre of mild steel is :
(A) 2400 kg (B) 1440 kg
(C) 7850 kg (D) 2500 kg
81. Which of these metals is the best conductor of heat?
(A) Aluminium (B) Iron
(C) Copper (D) Silver

82. Which among the following is not an example of Rabi crop?
(A) Wheat (B) Barley
(C) Rice (D) Mustard
83. The first talkie film in Malayalam 'Balan' was directed by :
(A) J.C. Daniel (B) Ramu Karyat
(C) S. Nottani (D) V.Vincent
84. The highest dam in India, the Thehri dam is built in which river :
(A) Bagiradhi (B) Narmada
(C) Brahmaputra (D) Sutlej
85. 'Kozhinha Ilakal' is the autobiography of :
(A) M.P. Paul (B) Joseph Mundassery
(C) S.K. Pottakkat (D) C. Kesavan
86. Which among the following is a disease caused by virus :
(A) Measles (B) Diphtheria
(C) Leprosy (D) Tuberculosis
87. The poem 'Jathikkummi' which criticized the caste system in Kerala was written by :
(A) Kumaranasan (B) K. Ayyappan
(C) K.P. Karuppan (D) Kuttippurath Kesavan Nair
88. The Malayalam writer who is selected for Kendra Sahitya Academy fellowship in 2013 :
(A) Sara Joseph (B) C. Radhakrishnan
(C) Sachidanandan (D) M.T. Vasudevan Nair
89. The first state in India which is declared as tobacco free state :
(A) Uttaranchal (B) Himachal Pradesh
(C) Haryana (D) Odisha
90. Rangaswami cup is associated with which of the following games :
(A) Badminton (B) Hockey
(C) Football (D) Cricket
91. The editor of 'Nasrani Deepika' started publication in 1887 from Mannanam was :
(A) Poykayil Yohannan (B) Nidhirikkal Manikathanar
(C) Arnos Pathiri (D) Father Hanxelden

92. The investors meeting conducted by Kerala Government in 2012 :
(A) GIM (B) Vision Kerala 2030
(C) Emerging Kerala (D) Kerala conference of investors
93. The primary memory of a computer is :
(A) CPU (B) C.D. ROM
(C) RAM (D) Hard disk
94. The renaissance leader of Kerala who was the deciple of Brahmananda Sivayogi :
(A) Vagbhadananda (B) Ayyankali
(C) Vaikunda Swamikal (D) Dr. Palpu
95. International ciber safety day is :
(A) December 10 (B) October 24
(C) September 16 (D) November 30
96. Which of these vitamins is soluble in water?
(A) Vitamin E (B) Vitamin D
(C) Vitamin A (D) Vitamin B
97. The constitutional amendment which made 'Right to Education' a fundamental right :
(A) 73rd (B) 86th
(C) 126th (D) 21st
98. The congress session which passed 'Poorna Swaraj' resolution :
(A) Bombay (B) Calcutta
(C) Lucknow (D) Lahore
99. Which among the following is not a work by Vallathol Narayana Menon?
(A) Umakeralam (B) Badhiravilapam
(C) Chitrayogam (D) Sahityamanjari
100. The editor of the newspaper 'Mitavadi' published in Travancore :
(A) C. Krishnan (B) Vakkom Abdul Khadar Moulavi
(C) K. Ramakrishna Pilla (D) G.P. Pilla