

76/2014

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Closed contours of decreasing values towards their centre means :
(A) a level road (B) a cliff
(C) a depression (D) a hill
2. Coning of wheels in locomotives to :
(A) prevent lateral movement of wheels
(B) provide smooth running trains
(C) avoid excessive wear of inner faces of rail
(D) all the above
3. The earth's water circulatory system is known as :
(A) Monsoon cycle (B) Hydrological cycle
(C) Water cycle (D) None of the above
4. If the porosity of a soil sample is 20% the void ratio is :
(A) 1.0 (B) 0.8
(C) 0.20 (D) 0.25
5. Point of contra flexure is the point where :
(A) shear force is zero (B) bending moment is maximum
(C) couple is maximum (D) bending moment changes its sign
6. Carriage way width for single lane traffic is :
(A) 3.75 M (B) 6.00 M
(C) 3.25 M (D) 4.25 M
7. The characteristic compressive strength of M30 concrete is :
(A) 28N/mm^2 (B) 28.77N/mm^2
(C) 20N/mm^2 (D) 30N/mm^2
8. Bourdon tube gauge is used to measure :
(A) potential difference of an electric circuit
(B) discharge velocity
(C) consolidation pressure
(D) medium and high pressures of water

9. For laying or paving 400 sq.m area by using 20 cm × 20 cm size paving tiles, the number of tiles required will be :
- (A) 10000 (B) 1000
(C) 400 (D) 4000
10. The weight per metre length of 20 mm diameter mild steel bar is approximately equal to :
- (A) 2 times the weight per metre length of 12 mm dia-mild steel bars
(B) 2 times the weight per metre length of 10 mm dia-mild steel bars
(C) 4 times the weight per metre length of 10 mm dia-mild steel bars
(D) 4 times the weight per metre length of 12 mm dia-mild steel bars
11. Plate girders are usually used :
- (A) as a tie member in a steel truss of small span
(B) over very small openings in residential buildings
(C) for railway bridges
(D) as a fish plate
12. The height of a wash basin above floor level is :
- (A) 600 to 650 mm (B) 900 to 950 mm
(C) 750 to 800 mm (D) 1000 to 1200 mm
13. The most reliable estimate is :
- (A) rough cost estimate (B) preliminary estimate
(C) plinth area estimate (D) detailed estimate
14. As per standards in India, water required per head per day for domestic purpose is :
- (A) 80 litres (B) 105 litres
(C) 220 litres (D) 135 litres
15. Vicat's apparatus is generally used to measure :
- (A) conductivity of water (B) consistency of cement
(C) shear strength of soil (D) soundness of cement
16. The grade of concrete which is not recommended for reinforced concrete work is :
- (A) M30 (B) M25
(C) M10 (D) M20

17. The standard size of first class wire cut brick is :
- (A) 19 cm × 9 cm × 9 cm (B) 21.5 cm × 11.4 cm × 7.3 cm
(C) 20 cm × 10 cm × 10 cm (D) 20 cm × 10 cm × 5 cm
18. Differential manometer is used to measure :
- (A) very low pressure (B) difference in pressure at two points
(C) atmospheric pressure (D) none of the above
19. The test strength of concrete cubes obtained as samples from a major concrete work is the average strength of :
- (A) 16 specimen cubes (B) 3 specimen cubes
(C) 4 specimen cubes (D) 28 specimen cubes
20. Cause ways are defined as :
- (A) a raised roadway crossing water or marshy land
(B) a small opening in a canal to control the flow of water
(C) a type of flow through an open channel
(D) none of the above
21. Temporary hardness is caused by the presence of :
- (A) Nitrates of Ca and Mg (B) Sulphates of Ca and Mg
(C) Bi-Carbonates of Ca and Mg (D) Chlorides of Ca and Mg
22. The rectangular moment of inertia of a circular section of diameter D about its own centroidal axis is :
- (A) $\frac{\pi D}{4}$ (B) $\frac{\pi D^3}{32}$
(C) $\frac{\pi D^2}{16}$ (D) $\frac{\pi D^4}{64}$
23. Hydrographic survey deals with the mapping of :
- (A) large water bodies (B) mountaineous region
(C) movement of clouds (D) heavenly bodies
24. Steel structures are ideally suitable for impact loads because they have :
- (A) plastic modulus (B) design stress
(C) ductility (D) toughness value
25. The tapered movable rail, connected at its thickest end to running rail is called :
- (A) guard rail (B) tongue rail
(C) stock rail (D) leader rail

26. The whole circle bearing of a line is 300 degrees its reduced bearing is :
(A) N 30°E (B) N 30°W
(C) N 60°W (D) S 60°E
27. For linear measurements of highest precision, the tape which is to be recommended is :
(A) linen tape (B) metallic tape
(C) steel tape (D) invar tape
28. For important works, moist curing on the exposed surface of concrete is done at least for a period of :
(A) 14 days (B) 28 days
(C) 7 days (D) 3 days
29. Generally adopted nominal size of coarse aggregate for reinforced concrete construction is :
(A) 20 mm (B) 10 mm
(C) 12 mm (D) 40 mm
30. A water is said to be acidic, when its p^H value :
(A) greater than 7 (B) greater than 14
(C) less than 7 (D) equal to 7
31. In a well-conditioned triangle no angle greater than :
(A) 100° (B) 60°
(C) 120° (D) 75°
32. The force acting along the circumference will cause stress in the walls in a direction normal to the longitudinal axis of cylinder, this stress is termed as :
(A) longitudinal stress (B) hoop stress
(C) yield stress (D) ultimate stress
33. The shear strength of a beam can be increased by :
(A) using binding wires
(B) using more water on concrete during its mixing
(C) providing stirrups
(D) rubbing the bars with emery paper before placing.
34. A surge tank is provided to :
(A) release the entrapped air
(B) eliminate smell and odour
(C) keep the constant pressure
(D) relieve the pressure due to water hammer

35. The constant vertical distance between two adjacent contour is called :
- (A) contour interval (B) horizontal equivalent
(C) horizontal interval (D) none of the above
36. A planimeter is used for :
- (A) the measurement of distance (B) carpentry works
(C) enlarging and reducing plans (D) measurement of plan areas
37. The value of modulus of elasticity of steel is :
- (A) $0.002 \times 10^6 \text{ N/mm}^2$ (B) $0.02 \times 10^5 \text{ N/mm}^2$
(C) $0.2 \times 10^5 \text{ N/mm}^2$ (D) $2 \times 10^5 \text{ N/mm}^2$
38. The velocity of a fluid particle at the centre of a pipe section is :
- (A) maximum (B) minimum
(C) equal everywhere (D) none of the above
39. Latitude of a traverse line is obtained by multiplying its length by :
- (A) Tangent of its reduced bearing (B) Cosine of its reduced bearing
(C) Deflection angle in radians (D) Sine of its reduced bearing
40. Modulus of rigidity is :
- (A) $\frac{\text{Shear force}}{\text{Bending moment}}$ (B) $\frac{\text{Linear stress}}{\text{Linear strain}}$
(C) $\frac{\text{Lateral strain}}{\text{Linear strain}}$ (D) $\frac{\text{Shear stress}}{\text{Shear strain}}$
41. The well-known Nagpur plan is associated with :
- (A) Construction of Shipyards in India
(B) Construction of Railways in India
(C) Construction of Highways in India
(D) Construction of Airports in India
42. The quantity of cement required for 12mm thick cement sand plastering in the ratio 1:5 one coat for 10 Sq.m is :
- (A) 49 kg (B) 47 kg
(C) 57 kg (D) 43 kg

43. Net Income \times years purchase is equal to :
- (A) Book value (B) Scrap value
(C) Capitalized value (D) Depreciated value
44. Due to the attack of dry rot, the timber :
- (A) Shrinks (B) Swells
(C) Cracks (D) Reduces to powder
45. Galvanizing means, covering Iron with a thin coat of :
- (A) Poly urethane (B) Tin
(C) Zinc (D) Chromium
46. Generally, in a steel member, maximum deflection should not be greater than :
- (A) $\frac{\text{span}}{750}$ (B) $\frac{\text{span}}{325}$
(C) $\frac{\text{span}}{500}$ (D) $\frac{\text{span}}{225}$
47. Well foundations are commonly used for :
- (A) Water tank of capacity 500 litres
(B) Bridges
(C) Residential buildings
(D) For the foundation of centrifugal pump
48. Soil is dried beyond its shrinkage limit, it will show :
- (A) Large volume change (B) No volume change
(C) Low volume change (D) Moderate volume change
49. An area of one hectare is :
- (A) 10m^2 (B) 100m^2
(C) 1000m^2 (D) 10000m^2
50. The deflection at the free end of a cantilever beam carrying concentrated load W at the free end and having span L and flexural rigidity EI is equal to :
- (A) $\frac{WL^3}{3EI}$ (B) $\frac{WL^3}{8EI}$
(C) $\frac{WL^4}{6EI}$ (D) $\frac{WL^3}{2EI}$

51. Sieve analysis is a procedure used to determine :
- (A) Slump value of concrete
 - (B) Flakiness index number of coarse aggregate
 - (C) To remove larger size particles
 - (D) Particle size distribution of a granular material
52. Drop man holes are provided in sewerage system when there is :
- (A) A change from gravity system to pressure system
 - (B) A change in the alignment of sewer line
 - (C) Change in the elevation of ground level
 - (D) Change in the size of sewer
53. IRC recommended Camber value on bituminous roads for heavy rainfall area :
- (A) 1.7%
 - (B) 2%
 - (C) 2.5%
 - (D) 4%
54. The best method of interpolation of contour is by :
- (A) Computation
 - (B) Graphical means
 - (C) Estimation
 - (D) Empirical methods
55. If A is the cross section area of a R.C.C. slab and if HYSD bars and M20 concretes are used, The minimum percentage of steel provided is :
- (A) 0.48% of A
 - (B) 0.42% of A
 - (C) 0.12% of A
 - (D) 0.15% of A
56. The lateral ties in a reinforced rectangular column under axial compression are used :
- (A) For confinement of concrete
 - (B) To reduce axial deformation
 - (C) To provide adequate shear capacity
 - (D) To avoid buckling of the longitudinal steel area under compression
57. The amount shown in the account book after allowing necessary depreciation is :
- (A) Scrap value
 - (B) Book value
 - (C) Net value
 - (D) Gross value

58. Barometers are used to measure :
- (A) Pressure in water channels
 - (B) Very low pressure
 - (C) Difference in pressure at two points
 - (D) Atmospheric pressure
59. Plotting of inaccessible points on a plane table is done by the method of :
- (A) intersection
 - (B) radiation
 - (C) traversing
 - (D) all the above
60. A type of rock formed by the deposition of materials at the earth's surface by the action of water, wind and other natural agencies :
- (A) Plutonic rock
 - (B) Magmatic rock
 - (C) Sedimentary rock
 - (D) Volcanic rock
61. Bitumen felt is :
- (A) Used as a water proofing material
 - (B) Used as a damp proofing material
 - (C) Made from bitumen and Hessian fibre
 - (D) All the above
62. The characteristic strength of concrete is defined as the compressive strength below which not more than :
- (A) 20% results are expected to fall
 - (B) 5% results are expected to fall
 - (C) 2% results are expected to fall
 - (D) 15% results are expected to fall
63. The radius of gyration k of a section of area A , the least moment of inertia I about the centroidal axis is obtained from the relation :
- (A) $I = A^2K$
 - (B) $I = \sqrt{AK}$
 - (C) $I = A^2\sqrt{K}$
 - (D) $I = AK^2$
64. A type of survey in which the curvature of earth is taken into consideration is :
- (A) Geodetic survey
 - (B) Plane table survey
 - (C) Topographical survey
 - (D) Military survey
65. The standard trimmed size of AO drawing sheet is :
- (A) 841 × 1189 mm
 - (B) 625 × 880 mm
 - (C) 300 × 240 mm
 - (D) 450 × 625 mm

66. A fixed beam AB of span L and carrying uniformly distributed load w/m on the entire span, its fixing moment values M_A and M_B are equal and is given by the expression :

(A) $\frac{WL^2}{8}$

(B) $\frac{WL^2}{12}$

(C) $\frac{WL^2}{2}$

(D) $\frac{WL}{4}$

67. The gradual accumulation of amount by way of deposits for the replacement of the structure at the end of its useful period is called :

(A) Annuity

(B) Depreciation

(C) Sinking fund

(D) Solatium

68. A material which shows same elastic properties in all the directions at the point is said to be :

(A) Orthotropic

(B) Isotropic

(C) Homogeneous

(D) Isogonic

69. A truss containing j joints and m members will be a perfect simple truss if :

(A) $j = 3m - 2$

(B) $j = 2m - 3$

(C) $m = 2j - 3$

(D) $m = 3j - 2$

70. The magnitude of shear stress due to shear force F on a rectangular section of area A at Neutral axis is :

(A) $\frac{F}{A}$

(B) $\frac{F}{2A}$

(C) $\frac{2F}{3A}$

(D) $\frac{3F}{2A}$

71. The function of ballast in railway track is to :

(A) Facilitate drainage

(B) Provide the necessary resilience against dynamic effect of the loads

(C) Serve as an elastic support for the track structure

(D) All the above

72. A structure in which the number of reactive components is equal to number of available conditions is known as :

(A) Determinate structure

(B) Indeterminate structure

(C) Intermediate structure

(D) Improper structure

73. In a Vernier theodolite more angular accuracy is achieved by taking observations by the method called :
- (A) Reiteration (B) Repetition
(C) Double observation (D) Face right observation
74. Atmospheric pressure is equal to a fresh water column head by :
- (A) 9.81 m (B) 10 m
(C) 7.85 m (D) 10.30 m
75. According to Indian standards, the method of measurements shall be in the order of :
- (A) Height, Length, Breadth (B) Length, Breadth, Height
(C) Breadth, Length, Height (D) All the above
76. Damp proof course is measured in :
- (A) M^3 (B) dM^3
(C) M^2 (D) M^4
77. A relatively fixed point of known elevation above datum is called :
- (A) Bench mark (B) Reduced level
(C) Reference point (D) Cardinal points
78. The density of ordinary port land cement is :
- (A) 2450 kg/m^3 (B) 7850 kg/m^3
(C) 1200 kg/m^3 (D) 1440 kg/m^3
79. The graphical representation of average rainfall and rainfall excess rates over a specified area during successive unit time intervals during a storm is called :
- (A) Seismograph (B) Pentagraph
(C) Hyetograph (D) Mass curve
80. The centre of gravity of a hemisphere of radius R from its base is located at a distance :
- (A) $\frac{3}{8}$ R. from base (B) $\frac{3}{4}$ R. from base
(C) $\frac{4}{3}$ R. from base (D) $\frac{3}{7}$ R. from base
81. Which mountain ranges in the Himalayas described as the "Backbone of the Himalayas"?
- (A) Himachal (B) Himadri
(C) Karakoram (D) Siwalik

82. Which Indian state has high density of population according to 2011 census?
(A) Bihar (B) West Bengal
(C) Uttar Pradesh (D) Kerala
83. Which river in India creates the world's largest delta "Sudarbans"?
(A) Indus (B) Brahmaputra
(C) Ganga (D) Yamuna
84. Who proclaimed as the emperor of India by the revoltors of 1857?
(A) Shah Alam II (B) Bahadur Shah I
(C) Khan Bahadur (D) Bahadur Shah II
85. In which movement Gandhiji gave the mantra "Do or Die" :
(A) Quit India movement (B) Non-Co operation movement
(C) Civil disobedience movement (D) Khilafat movement
86. Name the typhoon that devastated the Philippines in November 2013 :
(A) Phailin (B) Fanapi
(C) Hato (D) Haiyan
87. Recently India signed in the 'Border Defence Co-operative agreement' with which country :
(A) Pakistan (B) Bangladesh
(C) China (D) Bhutan
88. The legendary Indian playback singer who passed on October 2013 :
(A) Noel Harrison (B) Prabodh Chandra Dey
(C) Najmal Babu (D) Shanshad Begum
89. First zero landless district in India :
(A) Kollam (B) Kannur
(C) Thane (D) Kottayam
90. Who win the Wibilton championship for Gentleman's singles in 2013?
(A) Daniel Nestor (B) Mike Bryan
(C) Ivan Dodig (D) Andy Murray
91. Which is the largest fresh-water lake in Kerala?
(A) Pookot Lake (B) Ashtamudi
(C) Sasthamkotta (D) Vembanad

92. In which year Kerala Coast affected by Indian Ocean Tsunami :
- (A) 2004 (B) 2003
(C) 2005 (D) 2006
93. Where is Kerala Forest Research Institute is located?
- (A) Peechi (B) Munnar
(C) Kottayam (D) Peerumedu
94. Kaladi the birth place of Sankaracharya stands on the banks of the river :
- (A) Pamba (B) Kaveri
(C) Periyar (D) Bharatapuzha
95. Who was the founding editor of Vivekodayam monthly?
- (A) C.R. Kesavanvaidya (B) Sree Narayana Guru
(C) Swami Vivekananda (D) Kumaranasan
96. Sadhujana Paripalana Sangham founded by :
- (A) Chattambi Swamikal (B) Ayyankali
(C) Swami vagbhatananda (D) K. Ayyappan
97. Which Renaissance leader of Kerala honoured with the title "Bharata Kesari" by president of India?
- (A) Mannath Padmanabham (B) R. Sankar
(C) Dr. Palpu (D) Chattambi Swami
98. Who was popularly known as "Superindent Ayya" among his co-workers?
- (A) Ayya Vaikunda (B) Thycaud Ayya
(C) Ayyappa Panikar (D) Ayyankali
99. Who is known as "Lincoln of Kerala"?
- (A) Vagbhatananda (B) Vakkom Moulavi
(C) Pandit Karuppan (D) Kumaranasan
100. Who wrote the play 'Adukkalayil ninnu arangathekku'?
- (A) Thoppil Bhasi (B) M.T. Vasudevan Nair
(C) Thikkodiyar (D) V.T. Bhattathiripad