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1. The standard dimension of brick as per Indian standard is :
   - (A) $20 \times 10 \times 10$ cm
   - (B) $22.5 \times 11.5 \times 8$ cm
   - (C) $19 \times 9 \times 9$ cm
   - (D) $18 \times 9.5 \times 9.5$ cm

2. The aggregate is fine if it is completely retained on :
   - (A) 0.15 mm sieve
   - (B) 0.30 mm sieve
   - (C) 4.75 mm sieve
   - (D) 1.18 mm sieve

3. One arc is :
   - (A) 1 m^2
   - (B) 100 m^2
   - (C) 1000 m^2
   - (D) 10 m^2

4. The WCB of a line OA is 132° its quadrantal bearing is :
   - (A) S 48°E
   - (B) S 48°W
   - (C) N 312°W
   - (D) E 48°S

5. Checy's formula is given as :
   - (A) $v = i\sqrt{mc}$
   - (B) $v = c\sqrt{mi}$
   - (C) $v = m\sqrt{ci}$
   - (D) $v = mc\sqrt{i}$

6. The algebraic sum of the moments taken about any point in the plane of forces is zero is known as :
   - (A) Law of polygon of forces
   - (B) Lamis theorem
   - (C) Newton's law of force
   - (D) Laws of moments

7. The resultant hydrostatic force acts through a points is known as :
   - (A) centre of gravity
   - (B) centre of buoyancy
   - (C) centre of pressure
   - (D) centroid

8. The centre of gravity of quadrant of circle is at a distance of :
   - (A) $\dfrac{3r}{4\pi}$ from the axis
   - (B) $\dfrac{4r}{3\pi}$ from the axis
   - (C) $\dfrac{3r}{8\pi}$ from the axis
   - (D) $\dfrac{8r}{3\pi}$ from the axis

A

3

9. If the Poisson's ratio of a material is 0.25, the ratio of modulus of rigidity to the Young's modulus is :

(A) 2   (B) 4   (C) 2.5   (D) 0.4

10. The point of contraflexture is the point where :

(A) Shear force is zero   (B) The bending moment is zero

(C) Beam is supported   (D) The bending changes its sign

11. Any trap should have :

(A) water seal   (B) sullage   (C) a bend   (D) grating

12. Eco system is :

(A) habitat   (B) community and environment

(C) community   (D) biosphere and habitat

13. The outer signal is provided at a minimum distance of :

(A) 1 km from home signal   (B) 580 m from home signal

(C) 860 m from home signal   (D) 180 m from home signal

14. A thin cylinder of diameter 100 mm and thickness 5 mm is subjected to a internal fluid pressure of 10 N/mm^2. The hoop stress is :

(A) 150 N/mm^2 (B) 10 N/mm^2 (C) 15 N/mm^2 (D) 100 N/mm^2

15. In a theodolite traversing the angular error should not exceed using a 20" least count theodolite and 'n' number of sides :

(A) $20''\sqrt{n}$ (B) $20'' \times n^2$ (C) $20'' \times \sqrt{n^2}$ (D) $20'' \times 2n$

16. A horizontal force 40 kgf is applied on a body of weight 120 kg placed in a horizontal plane. If the body is just in the point of motion, the angle of friction be :

(A) 20°   (B) 18°26'   (C) 10°   (D) 25°

17. An equation for a deficient frame :

(A) $n = 2j + 3$ (B) $n = 2j - 3$ (C) $n = j + 3$ (D) $n = j - 3$

18. The process of applying cement mortar under pressure through a nozzle is called :

   (A) Pressurising   (B) Prestressing   (C) Guniting   (D) Compressing

19. A example of endogenous tree is :

   (A) bamboo   (B) teak   (C) deodar   (D) oak

20. The purpose of soundness list is to determine :

   (A) the presence of free lime   (B) setting time

   (C) sound proof quality of cement   (D) the fineness

21. The maximum permissible excentricity of load on a rectangular foundation with width B is equal to :

   (A) $\dfrac{B}{3}$ (B) $\dfrac{B}{6}$ (C) $\dfrac{B}{2}$ (D) $\dfrac{B}{4}$

22. The portion of the brick obtained by cutting into two portion longitudinally is called :

   (A) bat   (B) king closer   (C) queen closer   (D) bevelled closer

23. The inner curve of an arch is :

   (A) spandril   (B) extradose   (C) soffit   (D) arcade

24. Lift become essential in a building when the number of floors exceeds :

   (A) 2   (B) 3   (C) 4   (D) 6

25. The moment of inertia of a rectangular section having b - width and d - depth about x - axis is given by :

   (A) $\dfrac{bd^3}{12}$ (B) $\dfrac{b^3d}{12}$ (C) $\dfrac{b^2d^2}{6}$ (D) $\dfrac{bd^3}{6}$

26. The ratio of volume of voids to the total volume of given soil is :

   (A) voids ratio   (B) porosity   (C) air volume   (D) air area

27. A pull of 20 t is suddenly applied to a rod of cross - sectional area 40 cm². The stress produced in the rod is equal to :

   (A) 0.5 t/cm²   (B) 1.0 t/cm²   (C) 2.0 t/cm²   (D) 4 t/cm²

28. In a fixed beam, the slopes at the ends are :

   (A) minimum   (B) maximum
   (C) same as at centre   (D) zero

29. A desirable pH value for water is :

   (A) 7   (B) 6 to 8   (C) 5 to 9   (D) 7 to 8.5

30. The magnetic bearing of a line AB is 212°30' and the declination 2°15' east. What is true bearing of the line ?

   (A) 210°15'   (B) 214°45'   (C) 210°45'   (D) 132°30'

31. The process of proper and accurate measurement of concrete ingredients for uniformity of proportion is known as :

   (A) batching   (B) grading   (C) mixing   (D) blending

32. The distance to the neutral axis from the top compression fibre of a singly reinforced rectangular beam is :

   (A) $x_u = \dfrac{0.36\ fck\ b}{0.87\ fy\ Ast}$ (B) $x_u = \dfrac{0.3\ fy\ b}{0.87\ fck\ Ast}$

   (C) $x_u = \dfrac{0.87\ fy\ Ast}{0.36\ fck\ b}$ (D) $x_u = \dfrac{0.87\ fck\ b}{0.36\ fy\ Ast}$

33. The bearing stiffeners in plate girders are provided at :

   (A) mid span   (B) quarter points (C) supports   (D) equal intervals

34. The most economical section for a column is :

   (A) square   (B) circular   (C) channel   (D) tubular

35. Bearing of OA = 20°30' and bearing of OB = 120°00', ∠AOB is :

   (A) 99°30' (B) 100°30' (C) 140°30' (D) 280°00'

36. The value of dismantled material less the cost of dismantling is called :

   (A) Scrap value (B) Salvage value (C) Book value (D) Marhit value

37. Back washing is highly effective in case of :

   (A) Slow sand filters (B) Rapid sand filters

   (C) Pressure filters (D) Rapid and slow sand filters

38. Colour of fresh sewage :

   (A) brown (B) gray (C) pink (D) black

39. If 'W' is the weight per volume, 'P' safe bearing capacity and ϕ is the angle of repose of soil retained by the retaining wall. The minimum depth of foundation is :

   (A) $\dfrac{P}{W}\left(\dfrac{1-\sin\phi}{1+\sin\phi}\right)^2$

   (B) $\dfrac{P}{W}\left(\dfrac{1+\sin\phi}{1-\sin\phi}\right)^2$

   (C) $\dfrac{P}{W}\left(\dfrac{1-\sin\phi}{1+\sin\phi}\right)$

   (D) $\dfrac{P}{W}\left(\dfrac{1+\sin\phi}{1+\sin\phi}\right)$

40. The bending moment in a beam will be maximum where :

   (A) the shear force is uniform (B) the shear force is maximum

   (C) the shear force is zero (D) the shear force is minimum

41. A steel wire of 5 mm diameter is bend into a circular shape of 5 m radius. Young's modulus E = 200 GPa. The maximum stress induced in the wire is :

   (A) 100 N/mm^2 (B) 1000 N/mm^2 (C) 10 N/mm^2 (D) 1 N/mm^2

42. A unit is working in anaerobic action is :

   (A) Activated sludge process (B) Tricling filter

   (C) Contact bed (D) Septic tank

43. The primary function of steeper is :

   (A) to maintain guage   (B) to take loads from rails

   (C) to give cushioning action   (D) to give stability of the train

44. ABCD is a square. The bearing of AB is 50°. The bearing of DC is :

   (A) 140°   (B) 190°   (C) 50°   (D) 290°

45. The sum of interior angles of a closed traverse is :

   (A) $(2n - 4)90$ (B) $(2n + 4)90$ (C) $(2n - 4)180$ (D) $(2n + 4)180$

46. Current meter is used for measuring :

   (A) Velocity   (B) Viscosity   (C) Current   (D) Pressure

47. The quantity of cement required for the ratio of 1 : 5 in cement mortar is :

   (A) 288 kg   (B) 240 kg   (C) 178 kg   (D) 206 kg

48. In a problem the algebraic sum of all horizontal (ΣH) is 16 N and the algebraic sum of all
   vertical force (ΣV) is 32 N. The resultant force is :

   (A) 48.5 N   (B) 35.8 N   (C) 38.5 N   (D) 40 N

49. The process of adding water to lime and convert it into hydrated lime is called :

   (A) watering   (B) baking   (C) hydration   (D) slaking

50. Francis turbine is :

   (A) impulse turbine   (B) radial flow impulse turbine

   (C) axial flow turbine   (D) reaction radial flow turbine

51. A curve consists of two arcs of equal or different radii bending in opposite direction is :

   (A) Simple curve   (B) Compound curve

   (C) Reverse curve   (D) Transition curve

52. The latitude and departure of any point with reference to the preceding point is known as :

(A) Independent co-ordinate
(B) Consecutive co-ordinate
(C) Total latitude
(D) Total departure

53. Bernoullis theorem deals with the law of conservation of :

(A) mass
(B) momentum
(C) energy
(D) velocity

54. For a simply supported beam, the maximum deflection permitted is :

(A) $\frac{1}{300}$ of the span
(B) $\frac{1}{325}$ of the span
(C) $\frac{1}{350}$ of the span
(D) $\frac{1}{400}$ of the span

55. In a cantilever retaining wall for height 'H', the horizontal pressure of the earth will act at a distance of :

(A) H/3 from the top
(B) H/3 from the base
(C) H/2 from the top
(D) H/4 from the base

56. Core-cutter method is used for :

(A) determining density of soil
(B) obtaining samples for direct shear test
(C) determining bearing capacity of soil
(D) compacting soil

57. The indentation provided in a face of the brick is called :

(A) Plank
(B) Pallet
(C) Striker
(D) Frog

58. In limit state method of design, the over reinforced sections :

(A) are not permitted
(B) are permitted
(C) are permitted only in extreme fibres
(D) permitted in any case

59. Polar moment of inertia of a solid shaft of diameter D is :

(A) $\frac{\pi}{16} D^3$ (B) $\frac{\pi}{16} D^4$ (C) $\frac{\pi}{32} D^3$ (D) $\frac{\pi}{32} D^4$

60. A chain 20 m long is 20 cm too short was used to measure a line and the result was 190 m. The true length is :

(A) 188.1 m   (B) 191.5 m   (C) 193 m   (D) 190 m

61. Combined correction for refraction and curvature of 1 km is :

(A) 0.0112 m   (B) 0.0673 m   (C) 0.0785 m   (D) 0.0673 km

62. A 15 cm theodolite means :

(A) length of the telescope is 15 cm   (B) height of standards is 15 cm

(C) diameter of lower plate is 15 cm   (D) radius of upper plate is 15 cm

63. CPM stands for :

(A) Computer Programming Mode   (B) Critical Project Management

(C) Critical Path Method   (D) Controlling, Planning and Maintenance

64. The approximate weight of 1 m^3 of mild steel is :

(A) 1000 kg   (B) 240 kg   (C) 14000 kg   (D) 7850 kg

65. In a closed travers the algebraic sum of deflection angle is :

(A) $0°$ (B) $360°$ (C) $(2n+4) \times 9$ (D) $(n-2)180$

66. For a level section area of a trapezoidal cut when base width 'B', side slope 'S' and depth 'd' :

(A) $Bd + Sd^2$ (B) $Bd^2 + Sd$ (C) $Bd - Sd^2$ (D) $Bd^2 - Sd$

67. In a riveted joint, when the number of rivets decreases from the innermost to the outermost row the joint is said to be :

(A) Chain   (B) Zig-Zag riveted

(C) Diamond riveted   (D) Single riveted

68. The best type of ballast is :

(A) granite   (B) sandstone   (C) limestone   (D) quartzite

69. A small reflecting instrument is used to fixing up intermediate points on the line is called :

(A) Line ranger   (B) Ranging road   (C) Open cross staff   (D) Offset rod

70. Hydraulic ram is a pump which works :

(A) on the principle of water hammer

(B) on the principle of centrifugal action

(C) principle of reciprocating action

(D) direct action

71. When a water table is within the root zone depth and is determined to the plant life, the land is said to be :

(A) basin flooding   (B) water logged   (C) over nourished   (D) super saturated

72. The best pipe for water mains for long life is :

(A) steel   (B) cement concrete   (C) cast iron   (D) asbestos cement

73. The best system of a railway highway crossing is :

(A) level crossing   (B) road over rail track

(C) road under rail track   (D) both road over and under bridges

74. The process of taking out stones from natural rock is :

(A) dressing   (B) seasoning   (C) quarrying   (D) pitching

75. If the higher values are outside, series of closed contours on a plane indicate a :

(A) hill   (B) depression   (C) valley   (D) ridge

76. The surface of a still lake is an example of :

(A) Horizontal surface   (B) Datum surface

(C) Level surface   (D) Horizontal plane

77. Two forces P and Q are acting at an angle θ, their resultant R is given by :

(A) $R = \sqrt{P^2 + Q^2 + 2PQ \sin\theta}$

(B) $R = \sqrt{P^2 + Q^2 + 2PQ \cos\theta}$

(C) $R = \sqrt{P^2 - Q^2 + 2PQ \cos\theta}$

(D) $R = \sqrt{P^2 + Q^2 - 2PQ \cos 2\theta}$

78. The road connecting district headquarters of a state is :

(A) State highway

(B) National highway

(C) District major roads

(D) Minor district roads

79. Pile foundations are normally used :

(A) in soft clayey soils

(B) in heavy load situations

(C) when the bearing area required is not available

(D) in loose sandy soil

80. A simply supported beam of span 'l' carries a point load 'w' at its centre and rigidity of beam is 'EI'. The maximum deflection at the centre is :

(A) $\dfrac{wl^2}{16EI}$

(B) $\dfrac{wl^3}{16EI}$

(C) $\dfrac{wl^2}{48EI}$

(D) $\dfrac{wl^3}{48EI}$

81. The Headquarters of FIFA is located at _____.

(A) New York

(B) Munich

(C) Zurich

(D) London

82. Conaru Hampi's name is associated with _____.

(A) Chess

(B) Badminton

(C) Snooker

(D) Tennis

83. The Chief Minister of Maharashtra is _____.

(A) Ashok Chavan

(B) Deshmukh

(C) Devendra Fadnavis

(D) Ajith Pawar

84. The 8th G - 20 Summit held at _____.

(A) New Delhi

(B) Moscow

(C) Geneva

(D) Sri Lanka

85. 'Conversations with my life' was written by _____.
   (A) Man Mohan Singh   (B) R.K. Narayan
   (C) P.V. Narasimha Rao   (D) Nelson Mandela

86. Poyikayil Yohanan's name is associated with _____.
   (A) PRDS   (B) SYDD
   (C) Yogakshema Sabha   (D) SNDP

87. The East flowing rivers of Kerala are the tributaries of River _____.
   (A) Periyar   (B) Bharathapuzha (C) Pampa   (D) Kaveri

88. The leader of 'Malayalee Memorial' was _____.
   (A) Dr. Palpu   (B) G.P. Pillai   (C) N. Raman Pillai (D) R. Ranga Rao

89. Who among the following founded the organization 'Samathwa Samajam' ?
   (A) Vaikunda Swamikal   (B) Mannathu Padmanabhan
   (C) Sree Narayana Guru   (D) Kumaranashan

90. Yogakshema Prasthanam started in the year _____.
   (A) 1906   (B) 1908   (C) 1912   (D) 1914

91. Lucknow city is situated on the banks of the river _____.
   (A) Gomati   (B) Yamuna   (C) Ganga   (D) Padma

92. Which district in Kerala has the largest forest area ?
   (A) Wayanadu   (B) Iduki   (C) Malappuram   (D) Kasarkodu

93. The first concrete dam in India is _____.
   (A) Bhakranangal (B) Hirakud   (C) Mattupetti   (D) Malambuzha

94. Which temple is known as 'Dakshina Kashi' ?
   (A) Guruvayoor   (B) Sabarimala
   (C) Vaikom Siva Temple   (D) Panachikadu Temple

95. Who among the following is known as 'The Father of Indian Renaissance' ?
    (A) Bankim Chandra Chaterjee   (B) Ram Mohan Roy
    (C) Debendranath Tagore   (D) Gopalkrishna Gokhale

96. SNDP was formed in the year _____.
    (A) 1901   (B) 1903   (C) 1905   (D) 1908

97. Who among the following was the first President of All India Trade Union Congress ?
    (A) Tilak   (B) Gokhale   (C) Lala Lajpath Rai (D) S.N. Banerjee

98. Communist Party of India was formed in the year _____.
    (A) 1920   (B) 1923   (C) 1925   (D) 1927

99. 'Kevala Devu National Park' is situated at _____.
    (A) Rajasthan   (B) Uttarakhand
    (C) Punjab   (D) Himachal Pradesh

100. Guruvayoor Sathyagraha was in the year _____.
    (A) 1923   (B) 1924   (C) 1925   (D) 1931

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