102/2014

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. The international nautical mile is same as :
   (A) 18.52 Km/hr (B) 1.609 Km/hr
   (C) 1.852 Km/hr (D) 16.09 Km/hr

2. The true weight of a granular material is its :
   (A) Specific Gravity × Weight of Water (B) m × a
   (C) Density × Volume (D) Mass / volume

3. The Property of a solid to sustain shock load without permanent deformation :
   (A) Tenacity (B) Quenching
   (C) Milling (D) Resilience

4. The pH value of strong caustic soda is about :
   (A) 7 (B) 13
   (C) 1 (D) 5

5. The measuring or recording wheel of a Planimeter is divided into ———— parts.
   (A) 10 (B) 100
   (C) 1000 (D) 50

6. The North end of a compass needle deflect downwards in which hemisphere :
   (A) Southern hemisphere (B) Northern hemisphere
   (C) East (D) West

7. Invar tape is made up of alloy of :
   (A) Steel (68%) Nickel (32%) (B) Steel (60%) Nickel (40%)
   (C) Steel (64%) Nickel (36%) (D) Steel (56%) Nickel (44%)

8. In Orthographic Projection the rays are assumed to be :
   (A) Diverge from Station Point (B) Converge from Station Point
   (C) Parallel (D) None of these

9. The recommended method of Dimensioning of a sphere with diameter 50 mm is :
   (A) $\phi 50\,S$ (B) $S50\phi$
   (C) $50\phi S$ (D) $S\phi 50$

10. Termites found in coastal regions of South India are called :
   (A) Subterranean (B) Drywood
   (C) Soldiers (D) Queen

11. Box Sextant is an instrument used for measuring angles :
   (A) Upto 60° with one minute accuracy (B) Upto 180° with a second accuracy
   (C) Upto 120° with a minute accuracy (D) Upto 90 ° with a minute accuracy

12. The magnitude of super elevation depends on :
   (A) Speed of vehicle / radius of curve (B) Speed of vehicle / camber
   (C) Density of traffic / radius of curve (D) Road capacity / radius of curve

13. 1 acre = ———— m^2.
   (A) 4047 (B) 1222
   (C) 2047 (D) 40.47

14. The area in which a crop is grown at a particular time or crop season is known as :
   (A) Gross commanded area (B) Culturable cultivated area
   (C) Culturable uncultivated area (D) Catchment area

15. The Soundness test of cement by Le-Chateliers apparatus gives unsoundness due to :
   (A) Free lime only (B) Magnesia only
   (C) Both free lime and magnesia (D) Alumina only

16. The shape of stress-strain curve for concrete prescribed by IS 456–1978 is :
   (A) Rectangular (B) Parabolic
   (C) Rectangular-Parabolic (D) None of these

17. The economic spacing of a roof truss depends upon :
   (A) Cost of purlins and cost of roof coverings
   (B) Cost of roof covering and dead loads
   (C) Dead loads and live loads
   (D) Live loads and cost of purlins

18. Ties are load carrying members of a frame which are subjected to :
(A) Transverse load
(B) Axial tension load
(C) Axial compression load
(D) Torsion load

19. Lime mortar is made by :
(A) Quick lime
(B) Fat lime
(C) Hydraulic lime
(D) White lime

20. The percentage of alumina in a good brick earth lies between :
(A) 5 – 10%
(B) 20 – 30%
(C) 50 – 60%
(D) 70 – 80%

21. The major ingredients of Portland cement are :
(A) Lime 62% and Silica 22%
(B) Lime 68% and Silica 32%
(C) Silica and alumina
(D) Lime and Iron

22. The common admixture used to accelerate the initial set of concrete is :
(A) Gypsum
(B) Calcium chloride
(C) Mixture of bitumen and inert material
(D) By-product of bitumen

23. The seasoning of timber is required to :
(A) Soften the timber
(B) Harden the timber
(C) Strengthen the timber
(D) Remove sap from the timber

24. Ply-wood is specified by :
(A) Weight
(B) Volume
(C) Thickness
(D) Number of layers

25. A semi rigid material used for making DPC is :
(A) Bitumen
(B) Metal sheet
(C) Mastic asphalt
(D) None of the above

26. The workability of concrete is influenced most by it :
(A) Water-Cement ratio
(B) Aggregate cement ratio
(C) Cement content
(D) Water content

27. The distemper is used to coat :

(A) External concrete surface

(B) Interior surface not exposed to weather

(C) Wood work

(D) Compound wall

28. The correction for sag is :

(A) Always additive

(B) Always subtractive

(C) Always zero

(D) Sometimes additive and sometimes subtractive

29. The rise and fall method of levelling is :

(A) Less accurate than height of instrument method

(B) Is not suitable for levelling with tilting levels

(C) Quicker and less tedious for large number of intermediate sight

(D) Provides a check on the reduction of intermediate point levels

30. The series of uniformly spaced contour lines represents a :

(A) Steep Slope (B) Gentle Slope

(C) Uniform Slope (D) Plane Surface

31. The bending moment at the free end of a cantilever beam carrying any type of load is :

(A) Zero (B) Minimum

(C) Maximum (D) Equal to the load

32. The depth of excavation for foundation is generally checked with :

(A) Ranging rod (B) Scale

(C) Boning rod (D) Levelling staff

33. The heading of water above its normal level while passing under the bridge is known as :

(A) Clearance (B) Free board

(C) Afflux (D) Scour

34. A temporary structure constructed to prevent water from entering an area where a permanent structure is to be constructed :

(A) Retaining wall
(B) River training work
(C) Wing wall
(D) Cofferdams

35. The minimum thickness of stone masonry is :

(A) 30 cm
(B) 20 cm
(C) 45 cm
(D) 25 cm

36. The actual size of a standard brick is :

(A) $20 \times 20 \times 10$ cm
(B) $19 \times 9 \times 9$ cm
(C) $22 \times 9 \times 11$ cm
(D) $22.9 \times 11.2 \times 7$ cm

37. Stairs of a residential building should have a minimum width of :

(A) 90 cm
(B) 100 cm
(C) 110 cm
(D) 120 cm

38. The maximum particle size of fine aggregate is :

(A) 5.25 mm
(B) 4.75 mm
(C) 4.25 mm
(D) 3.75 mm

39. The minimum thickness for plastering for random rubble masonry :

(A) 10 mm
(B) 12 mm
(C) 15 mm
(D) 20 mm

40. The point of contra flexure is a point where :

(A) Shear force changes sign
(B) Bending moment changes sign
(C) Shear force is maximum
(D) Bending moment is maximum

41. The centre of gravity of a hemisphere lies at a distance ———— from its base measured along the vertical radius.

(A) $\frac{3}{8r}$
(B) $\frac{3r}{8}$
(C) $\frac{8r}{3}$
(D) $\frac{8}{3r}$

42. The rays drawn to the points of known location from the un-plotted station occupied by the plane table are termed :

(A) Intersection (B) Medians

(C) Medullary rays (D) Resectors

43. End support of a bridge is called :

(A) Abutment (B) Wing wall

(C) Foundation (D) Basement

44. When a canal and river happen to meet at the same level then :

(A) A level crossing is used (B) A super passing is used

(C) An aqueduct is used (D) A regulator is used

45. In prismatic compass the magnetic needle used is :

(A) Edge bar needle (B) Broad form

(C) Prismatic needle (D) Straight needle

46. The smallest division of a metric levelling staff is :

(A) 0.5 m (B) 1.0 m

(C) 0.05 m (D) 0.005 m

47. The vertical distance between two consecutive contour lines is called :

(A) Horizontal equivalent (B) Contour interval

(C) Vertical difference (D) Vertical interval

48. Contractor's profit is usually :

(A) 5% (B) 10%

(C) 15% (D) 20%

49. The water consumption per capita per day is :

(A) 85 litres (B) 100 litres

(C) 135 litres (D) 150 litres

50. The initial lead for earth work is :

(A) 50 m (B) 10 m

(C) 15 m (D) 100 m

51. The resultant of two forces P and Q acting at an angle θ is making an angle α with force P then :

(A) $\tan \alpha = \frac{P \sin \theta}{P + Q \cos \theta}$

(B) $\tan \alpha = \frac{P \cos \theta}{P + Q \cos \theta}$

(C) $\tan \alpha = \frac{Q \sin \theta}{P + Q \cos \theta}$

(D) $\tan \alpha = \frac{Q \cos \theta}{P + Q \sin \theta}$

52. Maximum frictional force comes to play when a body just begins to slide over the other is :

(A) Static friction

(B) Dynamic friction

(C) Limiting friction

(D) Coefficient of friction

53. The maximum force required to slide a body of weight W on a rough horizontal plane is :

(A) $W \sin \theta$

(B) $W \cos \theta$

(C) $W \tan \theta$

(D) $W \cot \theta$

54. The velocity of a body on reaching the ground from a height h is :

(A) $2\sqrt{gh}$

(B) $\sqrt{gh}$

(C) $\sqrt{2gh}$

(D) $2g\sqrt{h}$

55. The unit of angular velocity is :

(A) m/min

(B) rad

(C) rad/sec

(D) ω^2 / min

56. Unit of power in SI unit is :

(A) Horse power

(B) Joule

(C) Watt

(D) kg-m

57. PERT stands for :

(A) Programme Estimation and Reporting Technique

(B) Process Estimation and Review Technique

(C) Programme Evaluation and Review Technique

(D) Process Evaluation and Reporting Technique

58. The carriage way is protected by ———————— wide shoulders.

(A) 0.5 to 1.25 m (B) 1.25 to 2 m

(C) 2 to 4 m (D) 4 to 6 m

59. The head quarter of Indian Road Congress is at :

(A) Mumbai (B) Kolkata

(C) Madras (D) New Delhi

60. For water bond macadam road the recommended camber is :

(A) 1 in 60 to 1 in 80 (B) 1 in 10 to 1 in 15

(C) 1 in 30 to 1 in 40 (D) 1 in 80 to 1 in 120

61. The speed of locomotive in India on broad gauge is between :

(A) 60 and 75 Km/hr (B) 75 and 96 Km/hr

(C) 96 and 120 Km/hr (D) 120 and 140 Km/hr

62. The rail section first designed in Indian Railways was :

(A) Double headed type (B) Flat footed type

(C) Ball headed type (D) I section

63. Creeping of rails can be checked by :

(A) Chairs (B) Bearing plates

(C) Anchors (D) Spikes

64. The device used for change the direction of engine is called :

(A) Turn tables (B) Turn out

(C) Buffer stops (D) Scotch block

65. The side slope of embankment for a railway track is taken as :

(A) 1 : 3.1 (B) 2 : 1

(C) 1 : 2 (D) 1.3 : 1

66. The minimum depth for Ballast for B.G tracks in India is :

(A) 20 cm (B) 25 cm

(C) 30 cm (D) 35 cm

67. Coning of wheel is done with a taper of about :

(A) 1 in 100 (B) 1 in 60

(C) 1 in 40 (D) 1 in 20

68. The first class bricks should have a minimum crushing strength of :

(A) 70 Kg/cm^2 (B) 105 Kg/cm^2

(C) 125 Kg/cm^2 (D) 140 Kg/cm^2

69. Quick lime is a :

(A) Carbonate of lime

(B) Oxide of lime

(C) Product left after calcinations of pure lime stone

(D) Lime quickly treated with water

70. Glazing is used to make earthenware :

(A) Hard (B) Soft

(C) Porous (D) Impervious

71. The previous layer consist of sand and gravel supplying drinking water is known as :

(A) Water table (B) Underground water strata

(C) Aquifers (D) Infiltration gallery

72. The slope of water table near the well due to draw down of water from well is known as :

(A) Cone of depression (B) Circle if influence

(C) Draw down curve (D) Depletion head

73. The measurement of colour in water is carried out by means of :

(A) Hydrometer (B) Turbidimeter

(C) Tinometer (D) Baylis turbidimeter

74. The permissible turbidity of drinking water is :

(A) 8 – 15 ppm (B) 5 – 10 ppm

(C) 0.6 – 0.8 ppm (D) 100 ppm

75. The structure which is constructed to connect a high level branch sewer to a low level main sewer with minimum disturbance is called :

(A) Man hole
(B) Cleanouts
(C) Drop man hole
(D) Lamp hole

76. For a residential building in a plot of an area 500 sqm the permissible covered area is :

(A) 40% of site area
(B) 50% of site area
(C) 60% of site area
(D) 33% of site area

77. Murum is an example of :

(A) Sedimentary rock
(B) Metamorphic rock
(C) Aqueous rock
(D) Igneous rock

78. The specific gravity of a good building stone should be :

(A) Greater than 2.7
(B) Greater than 2.5
(C) 2.8
(D) Greater than 2.8

79. The tiles are burnt in typical kiln is known as :

(A) Bull's trench kiln
(B) Hoffman's kiln
(C) Sialkote kiln
(D) Continuous kiln

80. The type of stone masonry adopted for the construction of residential building is :

(A) Dry rubble masonry
(B) Coursed rubble masonry
(C) Polygonal rubble masonry
(D) Random rubble masonry

81. A horizontal mortar joint on which masonry units are laid is called :

(A) Perpends
(B) Lap
(C) Bed
(D) Frog

82. The vertical member of a shutter of doors and windows is called :

(A) Rails
(B) Styles
(C) Upright
(D) Posts

83. The type of truss used for spans varying from 5 to 8 m is :

(A) Queen post
(B) King post
(C) Mansard
(D) Composit

84. Force whose lines of action meet in one point are called :

(A) Coplanar forces (B) Non coplanar forces

(C) Concurrent forces (D) Non Concurrent forces

85. The portion of road way used by the high speed and power driven vehicles :

(A) Motor way (B) Crete way

(C) Carriage way (D) Roadway

86. An ornamental projection from the phase of a wall is :

(A) Corbel (B) Cornice

(C) Coping (D) Sill

87. The type of pile which is driven at an inclination to resist inclined force is known :

(A) Friction pile (B) Sheet piles

(C) Batter pile (D) Anchor pile

88. In chain surveying perpendiculars to chain lines are set out by :

(A) Theodolite (B) A Prismatic compass

(C) A Dumpy level (D) An optical square

89. The under surface of a stair is called :

(A) Landing (B) String

(C) Tread (D) Soffit

90. Bullet proof glass is made of thick glass sheet sandwiched by a layer of :

(A) Steel (B) Stainless steel

(C) Vinyl-resin plastic (D) Chromium plate

91. The centre of the super scribed circle is called :

(A) In centre (B) Circum centre

(C) Centre of curvature (D) Centre of circle

92. For tacheometre the additive and multiplying constants are :

(A) 0 and 100 (B) 100 and 0

(C) 0 and 0 (D) 100 and 100

93. The line which passes through the foci and terminated by the ellipse is the :

(A) Major Axis (B) Minor Axis

(C) Major dia (D) Minor dia

94. The surface tension of a liquid is its property by which it enable to resist :

(A) Compressive stress (B) Tensile stress

(C) Stress (D) Proof stress

95. Sewer pipes are made of :

(A) Stone ware (B) Earthen ware

(C) Fire clay (D) Terracotta

96. In the manufacture of brick, the Pugg mill are used :

(A) Kneading (B) Moulding

(C) Drying (D) Burning

97. The slump recommended for concrete in mass concrete :

(A) 75 mm – 125 mm (B) 50 mm – 100 mm

(C) 30 mm – 125 mm (D) 25 mm – 50 mm

98. A carriage way in which a cement concrete wearing surface is provided for wheel tracks only :

(A) Pavement (B) sub crest

(C) Crete ways (D) Carpet

99. For one cubic metre 1 : 2 : 4 concrete using 20 mm metal, the quantity of course aggregate required is

(A) 1.00 m^3 (B) 1.54 m^3

(C) 1.10 m^3 (D) 0.90 m^3

100. The path traced by the projectile is called :

(A) Trajectory (B) Horizontal range

(C) Velocity of projection (D) Angle of projection