

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  $\times$  Weight of Water (B)  $m \times a$   
(C) Density  $\times$  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  $60^\circ$  with one minute accuracy (B) Upto  $180^\circ$  with a second accuracy  
 (C) Upto  $120^\circ$  with a minute accuracy (D) Upto  $90^\circ$  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  $\theta$  is making an angle  $\alpha$  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)  $\omega^2 / \text{min}$

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<sup>2</sup> (B) 105 Kg/cm<sup>2</sup>  
(C) 125 Kg/cm<sup>2</sup> (D) 140 Kg/cm<sup>2</sup>
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