

109/2021

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. The standard size of D1 drawing boards as per BIS (1444 –1977), in mm :
(A) $500 \times 350 \times 15$ (B) $1000 \times 700 \times 25$
(C) $1500 \times 1000 \times 25$ (D) $700 \times 500 \times 15$
2. Bow compasses are used for drawing :
(A) Small circles upto 25 mm dia. (B) Large circles upto 100 mm dia.
(C) Large circles more than 100 mm dia. (D) Small circles more than 25 mm dia.
3. What is the size of A1 Drawing Sheet in mm :
(A) 841×1189 (B) 841×594
(C) 420×594 (D) 594×841
4. In Engineering drawing, 2 : 1 is :
(A) Full Scale (B) Reduced Scale
(C) Enlarged Scale (D) Plane Scale
5. It is the thin solid line used to indicate the feature with which a dimension, note or symbol is associated :
(A) Reference line (B) Dimension line
(C) Leader line (D) Extension line
6. Hidden lines are drawn as :
(A) Dashed narrow lines (B) Dashed wide lines
(C) Long dashed dotted lines (D) Long dashed double lines
7. How are pencils graded?
(A) Hardness or Softness of the lead (B) Hardness or Blackness of the lead
(C) Softness or Blackness of the lead (D) Blackness or Darkness of the lead
8. What is the area of AO Drawing Sheet?
(A) 1 cm^2 (B) 1 m^2
(C) 1 mm^2 (D) 10 m^2

A

3

[P.T.O.]

9. A _____ has opposite sides equal and angles not right angles.
- (A) Rhombus (B) Rhomboid
(C) Trapezoid (D) Trapezium
10. _____ is the part of a circle bounded by an arc and a chord.
- (A) Segment (B) Sector
(C) Secant (D) Tangent
11. Which is a derived unit?
- (A) Time (B) Mass
(C) Amount of substance (D) Area
12. In a well conditioned triangle, no angle is greater than :
- (A) 30° (B) 60°
(C) 90° (D) 120°
13. The preliminary inspection of the area to be surveyed is called :
- (A) Preliminary Survey (B) Reconnaissance Survey
(C) Pacing survey (D) Ranging
14. The temperature variation is _____ error in surveying.
- (A) Personal error (B) Compensating error
(C) Cumulative error (D) Instrumental error
15. The size of field book in cm is :
- (A) 20×12 (B) 12×20
(C) 200×12 (D) 120×200
16. If the whole circle bearing of a line is 180° , its reduced bearing is :
- (A) S 0° E (B) S 0° W
(C) S (D) N
17. The horizontal angle between true meridian and magnetic meridian is known as :
- (A) Magnetic declination (B) Bearing
(C) Dip (D) Angle

18. A fixed reference point of known elevation is :
- (A) Datum (B) Bench Mark
(C) Elevation (D) Altitude
19. If L is in kilometres, the curvature correction is :
- (A) $58.2 L^2$ mm (B) $64.8 L^2$ mm
(C) $74.8 L^2$ mm (D) $78.4 L^2$ mm
20. Scale plate of a Theodolite is known as :
- (A) Lower plate (B) Upper plate
(C) Triangular plate (D) Tribrach
21. Contour lines are lines drawn on a map connecting points of equal :
- (A) Rainfall (B) Temperature
(C) Distance (D) Elevation
22. Full form of GPS :
- (A) Global Position Satellites (B) Global Positioning System
(C) Great Position System (D) Grand Position System
23. How long does it take a GPS satellite to orbit the earth?
- (A) 2 hours (B) 8 hours
(C) 12 hours (D) 24 hours
24. How are GPS Satellites powered?
- (A) Electricity (B) Electromagnetic energy
(C) Gas (D) Solar power
25. Full form of EDM is :
- (A) Electric Direction Management (B) Electronic Distance Measurement
(C) Electronic Direction Management (D) Electronic Direction Measurement
26. Full form of CAD :
- (A) Computer Auto Drawing (B) Compact Aided Design
(C) Computer Aided Drawing (D) Computer Aided Design

27. In the context of CAD, What does UCS means?
- (A) User Control System (B) User Coordinate System
(C) User Connecting System (D) User Cover System
28. To fit all drawing object in the visible drawing area, What do you need to select?
- (A) Zoom extents (B) Window
(C) Limits (D) Display
29. What is the keyboard shortcut to turn ON/OFF the ORTHO mode in Auto CAD?
- (A) F₃ (B) F₅
(C) F₈ (D) F₉
30. _____ are the instructions you provide to CAD software to achieve the end result.
- (A) Tools (B) Tabs
(C) Icons (D) Commands
31. Some CAD programs have a command line, this is where (a/as) _____ can be typed to activate it.
- (A) Variables (B) Numeric value
(C) Command (D) Alphabet
32. A _____ is a drawing file with pre configured used settings.
- (A) Begin (B) New command
(C) Template (D) Save command
33. _____ is a command, it makes multiple copies of selected objects in a rectangular or circular pattern.
- (A) Trim (B) Extend
(C) Chamfer (D) Array
34. Monk bond is related to :
- (A) Flemish garden wall bond, in which each course contains one stretcher to 5 headers
(B) English garden wall bond
(C) Dutch bond
(D) Flemish garden wall bond in which each course contains one header to two stretchers

35. While using Rankine's formula to find the minimum depth of foundation, if angle of repose of the soil is 30° , then depth of foundation in metre is?
- (A) $0.25 \times \frac{P}{W}$ (B) $2.25 \times \frac{P}{W}$
 (C) $0.11 \times \frac{P}{W}$ (D) $0.33 \times \frac{P}{W}$
36. Lower pitch of mansard truss varies from :
- (A) 30° to 40° (B) 60° to 70°
 (C) 60° to 80° (D) 15° to 20°
37. The intermediate supports for the binders in a triple joist timber floor is :
- (A) Furring piece (B) Strutting
 (C) Bridging joist (D) Girders
38. Which flooring is known as composition flooring?
- (A) Linoleum (B) Magnesite
 (C) Cork and bitumen (D) Glass and asbestos
39. A type of pointing in which a projection is formed in shape of 'V' is :
- (A) Vee pointing (B) Tuck pointing
 (C) Weathered pointing (D) None of these
40. The slump recommended for mass concrete work is :
- (A) 25 to 50 mm (B) 20 to 40 mm
 (C) 80 to 150 mm (D) 50 to 100 mm
41. The temporary vertical support to the walls, roofs, floors etc. when lower portion is to be removed for the purpose of providing openings or rebuilding is :
- (A) Raking shore (B) Dead shore
 (C) Flying shore (D) None of these
42. The defect of the timber, in which the outer surface of the timber is under compression and interior surface is under tension, is :
- (A) Twist (B) Warp
 (C) Split (D) Case hardening

43. The test which is conducted to find out the workability of stiff concrete mix having very low workability is :
- (A) Compaction test (B) Slump test
(C) Vee-bee test (D) All of these
44. Which of the following statement is true in connection with 'FRC'?
- (A) It has thick section (B) It has thin section
(C) Less durable (D) Production cost is more
45. The attrition test is done to determine
- (A) Presence of CaCO_3
(B) Percentage of water absorption of test stone
(C) To determine the rate of wear of stone
(D) All of these
46. Grades of concrete for RCC shall not be less than :
- (A) M_{10} (B) M_{15}
(C) M_{20} (D) $M_{7.5}$
47. The portion of a standard brick cut in such a way that an angle other than right angle is formed in plan is called :
- (A) Coping brick (B) Cow-nose brick
(C) Bull-nose brick (D) Squint brick
48. The name of the timber piece whose breadth and thickness exceed 50 mm but the length is less than 200 mm is :
- (A) Quartering (B) Deal
(C) Scantling (D) Baulk
49. The process by which lime is converted into hydrated lime by adding water into it is :
- (A) Slaking (B) Setting
(C) Hydration (D) All of these
50. Rapid hardening cement has high percentage of :
- (A) Silica (B) Sulphur
(C) Alumina (D) Lime

51. The type of finish in which irregular type of sinking is done in the central portion of the stone is :
- (A) Punched finish (B) Reticulated finish
(C) Vermiculated finish (D) Picked finish
52. Ordinary cement achieves about 70% of its final strength in :
- (A) 7 days (B) 14 days
(C) 28 days (D) One year
53. Which compound is responsible for the initial setting of portland cement?
- (A) Tri-calcium aluminate (B) Dicalcium silicate
(C) Tetra calcium alumino ferrite (D) Tri-calcium silicate
54. Which of the following tiles having semi-circular corrugations in longitudinal directions?
- (A) Pot tiles (B) Pan tiles
(C) MP tiles (D) Sial kot tiles
55. Storage occupancy building includes the category of :
- (A) Group 'E' (B) Group 'H'
(C) Group 'F' (D) Group 'G1'
56. The mean horizontal distance between the front and rear plot boundaries is :
- (A) Depth of plot (B) Width of plot
(C) Side set back (D) None of these
57. While specifying for earth work in foundation trenches, drains etc. the initial lift is taken as :
- (A) 1.20 m (B) 2 m
(C) 1.00 m (D) 1.50 m
58. Generally total volume of dry mortar for pointing in brick work for 10 m² is :
- (A) 0.06 m³ (B) 0.80 m³
(C) 0.60 m³ (D) 0.07 m³
59. If the age of the building is 10 to 20 years, then total depreciation is :
- (A) 0.75 (B) 9%
(C) 15% (D) 7.50%

60. The life span of iron work in roofing is :
 (A) 80 years (B) 75 years
 (C) 65 years (D) 85 years
61. The out – turn of the mason in stone arch work is :
 (A) 0.30 m³ (B) 0.40 m³
 (C) 0.50 m³ (D) 0.60 m³
62. Clear cover in reinforcement for foundation slabs and beams is :
 (A) 30 mm (B) 40 mm
 (C) 50 mm (D) 60 mm
63. Scrap value of a building is :
 (A) 10% of its total cost of construction (B) 8% of its total cost of construction
 (C) 6% of its total cost of construction (D) 12% of its total cost of construction
64. For painting or varnishing of Venetian doors, one surface area should be multiplied by :
 (A) One time one surface area for both sides
 (B) Two times one surface area for both sides
 (C) Two and half times one surface area for both sides
 (D) Three times one surface area for both sides
65. For the complete work of ornamental or large cornice, the payment is done :
 (A) Per m (B) Per m²
 (C) Per m³ (D) None of these
66. The incidental expenses of miscellaneous character in an estimate is :
 (A) 2 to 5 % of estimated cost (B) 1 to 3 % of estimated cost
 (C) 5 to 8 % of estimated cost (D) 3 to 5 % of estimated cost
67. Weight of one cubic feet portland cement is :
 (A) 50 kg (B) 41 kg
 (C) 31 kg (D) 45 kg
68. Covered area of the building depends on :
 (A) Plinth area (B) Carpet area
 (C) Size of the plot (D) Floor area Ratio

69. When mezzanine floor is used for residential purposes, its floor area should not be less than?
 (A) 8.50 m² (B) 7.50 m²
 (C) 9.50 m² (D) 10.50 m²
70. Quantity of 20 mm coarse aggregate in a cement concrete mix 1 : 2 : 4 for 10 m³ is :
 (A) 9 m³ (B) 7 m³
 (C) 4 m³ (D) 10 m³
71. For plastering and pointing, no deduction is made for opening upto :
 (A) 0.30 m² (B) 0.40 m²
 (C) 0.50 m² (D) 0.60 m²
72. Weight of 12 mm diameter MS bar in kilogram for 10 m is :
 (A) 8.90 kg (B) 14.40 kg
 (C) 12 kg (D) 10.12 kg
73. For the supply of stiff paint, unit of measurement in MKS system is :
 (A) kg (B) Litre
 (C) Per bottle (D) None of these
74. Surface tension of liquid is expressed in :
 (A) N/m² (B) N/m
 (C) KN/m² (D) N/mm²
75. Find the quantity of cement required for 10 m³ of brick masonry in cement sand mortar of proportion 1 : 3 is :
 (A) 14 bag (B) 18 bag
 (C) 22 bag (D) 16 bags
76. The period of Kharif season is in between :
 (A) 30th April to 1st September (B) 1st October to 31st March
 (C) 31st March to 31st August (D) 1st April to 30th September
77. The weight of the silt flowing in the canal is expressed in :
 (A) kg/m² (B) kg/second
 (C) kg/minute (D) kg/hour

78. Which of the following statement is true, in the case of 'fern leaf catchment area'?
- (A) It gives greater run off
 - (B) Time of flow is smaller and same
 - (C) Time of concentration is more
 - (D) Discharge is distributed over a short period
79. When 'groynes' are pointed towards upstream side of the river, it is called?
- (A) Attractive groynes
 - (B) Repelling groynes
 - (C) Deflecting groynes
 - (D) Tee-groynes
80. The number of blades provided in a Kaplan turbine runner is :
- (A) 16 to 24 Nos.
 - (B) 8 to 12 Nos.
 - (C) 4 to 8 Nos.
 - (D) 2 to 6 Nos.
81. Which of the following, works on the principle of water hammer?
- (A) Hydraulic intensifier
 - (B) Hydraulic crane
 - (C) Hydraulic lift
 - (D) Hydraulic ram
82. The discharge of minor distributaries are usually :
- (A) Less than 0.25 cumecs
 - (B) Greater than 0.25 cumecs
 - (C) Less than 0.50 cumecs
 - (D) Greater than 0.50 cumecs
83. The reason of forming the 'viscosity' of a liquid is :
- (A) Surface tension of liquid
 - (B) Density of the liquid
 - (C) Cohesion and interaction between particles of liquid
 - (D) Capilarity of liquid
84. The intensity of pressure at any point in a fluid at rest is same in all directions. This statement is associated with :
- (A) Newton's law
 - (B) Euler's law
 - (C) Pascal's law
 - (D) Bernoulli's law
85. A dam which consists of number of piers, and dividing the space into a number of spans is :
- (A) Arch dams
 - (B) Gravity dams
 - (C) Rock fill dams
 - (D) Buttress dams

86. A canal syphon is most suitable if....?
- (A) The canal bed level is sufficiently above the HFL of the drainage
 - (B) The canal bed level is slightly below the HFL of the drainage and the drainage is small
 - (C) The canal bed and the drainage bed are almost, at the same level
 - (D) The 'FSL' of the canal is slightly above the bed level of the drainage and the canal is of small size
87. Which of the following statement is true?
- (A) Divide walls are the part of storage head works
 - (B) Proper reach is not required while selecting a site for head works
 - (C) The river section at the site of head work should be widened
 - (D) The main function of under sluices is to divert the silt in the river bed
88. 'Hyetograph' represents :
- (A) Discharge is plotted in 'Y' axis and time is plotted in 'X' axis
 - (B) Discharge is plotted in 'X' axis and time is plotted in 'Y' axis
 - (C) Graphical representation of average rainfall and rain fall excess
 - (D) Graphical representation of rain fall and its specified area of catchment
89. Internal dimensions of a water tank is 5 m, 6 m, 7 m respectively. What is the capacity of tank in litres?
- (A) 210
 - (B) 18
 - (C) 21000
 - (D) 210000
90. The unit of work in CGS system is :
- (A) Dyne
 - (B) Erg
 - (C) Newton
 - (D) Watt
91. How many square pieces of side 40 mm can be cut from a rectangular sheet of size 55 cm × 45 cm?
- (A) 143
 - (B) 154
 - (C) 6187
 - (D) 618
92. What is the linear strain if a bar 150 cm long stretches out to 152 cm when a load of 6300 kg is applied?
- (A) 0.0333
 - (B) 0.0133
 - (C) 0.333
 - (D) 0.1333

93. The sum of circumference and diameter of a circle is 116 cm. The radius of the circle is:
- (A) 14 (B) 28
(C) 15.97 (D) 19.36
94. A machine displaces a load of 150 kg through a distance of 0.4 m, when an effort of 20 kg acts through a distance of 5 m. The percentage efficiency of the machine is :
- (A) 0.6359 (B) 75
(C) 45 (D) 60
95. A vehicle starts from rest and attains a velocity of 50 km/hr in 20 sec. Its acceleration is _____ m/s².
- (A) 0.6944 (B) 2.5
(C) 0.7539 (D) 0.9357
96. The ratio of change in dimension to the original dimension is called :
- (A) Linear dimension (B) Lateral dimension
(C) Strain (D) Stress
97. A boy of mass 50 kg runs up a staircase of 45 steps each having 15 cm height in 9 sec. Then the power in KW is :
- (A) 367.8 (B) 0.3678
(C) 36787.5 (D) 36.787
98. A beam which is rigidly fixed at one end and free at the other end is called :
- (A) Simply supported beam (B) Overhanging beam
(C) Cantilever beam (D) Built in beam
99. Area of a regular hexagon of side 8 cm is _____ cm² :
- (A) 164.28 (B) 166.28
(C) 136.74 (D) 165.9
100. A load of 1 Tonne is lifted by an effort of 250 kg. Then the Mechanical Advantage is :
- (A) 200 (B) 50
(C) 5 (D) 4

SPACE FOR ROUGH WORK

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