

108/2022

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Which is the standard code specifies the sizes and layout of drawing sheet?

- (A) IS 696-1972 (B) IS 9609-2001  
(C) IS 10711-1983 (D) IS 10714-2001

2. Which is the ratio of drawing sheet in width to length?

- (A)  $1 : \sqrt{2}$  (B)  $\sqrt{2} : 1$   
(C) 1:3 (D) 1:4

3. What is the designation of  $297 \times 420$  mm size paper as per BIS?

- (A) A1 (B) A2  
(C) A3 (D) A4

4. Hatching line should be drawn at an angle of :

- (A)  $75^\circ$  (B)  $45^\circ$   
(C)  $60^\circ$  (D)  $30^\circ$

5. Height of lettering is used in sub titles :

- (A) 3 to 6 mm (B) 6 to 8 mm  
(C) 10 to 12 mm (D) 5 to 8 mm

6. Distance from outline and dimension line in a drawing :

- (A) 5 to 7 mm (B) 8 to 10 mm  
(C) 10 to 12 mm (D) 12 to 4 mm

7. What is the formula for calculating the maximum length of the scale?

- (A) Minimum length to be measured  $\times$  R.F.  
(B) Minimum length to be measured  $\div$  R.F.  
(C) Maximum length to be measured  $\div$  R.F.  
(D) Maximum length to be measured  $\times$  R.F.

8. Which is the measure of each internal angle of a regular pentagon?

- (A)  $540^\circ$  (B)  $108^\circ$   
(C)  $120^\circ$  (D)  $60^\circ$

9. Which of the following conics has an eccentricity as unity?  
(A) Circle (B) Parabola  
(C) Ellipse (D) Hyperbola
10. Projection of point in third quadrant will be :  
(A) Front view in VP (B) Front view in HP  
(C) Front view in XY (D) None of the above
11. What is the name of surveying, the setting out work on the ground?  
(A) Engineering survey (B) Preliminary survey  
(C) Location survey (D) Reconnaissance survey
12. What is the limit of error in 20 m chain?  
(A)  $\pm 3$  mm (B)  $\pm 5$  mm  
(C)  $\pm 6$  mm (D)  $\pm 8$  mm
13. How the chain is adjusted if the chain is found to increase in length than the standard length?  
(A) By lengthening the links at handle  
(B) By inserting the new rings as required  
(C) By removing some of the rings  
(D) By straightening the bent of links
14. Which surveying is taken to determining different strata in earth's crust?  
(A) Geological survey (B) Astronomical survey  
(C) Archeological survey (D) Geodetic survey
15. Chain surveying uses the principle of :  
(A) Traversing (B) Chaining  
(C) Ranging (D) Triangulation
16. How many fundamental principles in surveying?  
(A) 1 (B) 2  
(C) 3 (D) 4
17. In a metric chain the ends of each link is connected by :  
(A) 3 oval rings (B) 4 oval rings  
(C) 2 oval rings (D) 1 oval rings

18. Which is used to measure the accuracy of the framework of survey?  
(A) Base line (B) Check line  
(C) Tie line (D) Subsidiary line
19. What is the process of establishing the intermediate points on survey line?  
(A) Aligning (B) Extending  
(C) Ranging (D) Offsetting
20. What is the lateral distance from the survey line to the object measured?  
(A) Base line (B) Offset  
(C) Check line (D) None of the above
21. Where single line field book is used in surveying?  
(A) Ordinary work  
(B) Small scale work  
(C) Large scale survey with detailed work  
(D) Precision work
22. Area of a trapezoid is :  
(A) Base multiplied by the half the sum of perpendiculars  
(B) Base multiplied by the half the product of perpendiculars  
(C) Base multiplied by the half the difference of perpendiculars  
(D) Base multiplied by the sum of perpendiculars
23. Which is the first temporary adjustment of a prismatic compass?  
(A) Centering (B) Levelling  
(C) Focussing of the prism (D) Removing the parallax
24. The box of the compass is made of :  
(A) Aluminium (B) Brass  
(C) Silver (D) Lead
25. In a prismatic compass which is graduated at south end?  
(A)  $90^\circ$  (B)  $0^\circ$   
(C)  $180^\circ$  (D)  $360^\circ$
26. The WCB of a line is  $236^\circ 37'$  its reduced bearing is :  
(A)  $S 56^\circ 37' W$  (B)  $N 56^\circ 37' W$   
(C)  $N 56^\circ 37' E$  (D)  $S 56^\circ 37' E$

27. The reduced Bearing of a line is N 58° 24'W, its WCB is?  
 (A) 301° 36' (B) 300° 36'  
 (C) 301° 37' (D) 328° 24'
28. Which is the included angle of ABC between the bearing of line AB is 75° and bearing of BC is 110°?  
 (A) 147° (B) 145°  
 (C) 146° (D) 148°
29. What is the magnetic declination of the sun, if the magnetic bearing of the sun at noon is 355°?  
 (A) 5°E (B) 5°W  
 (C) 6°E (D) 6°W
30. What is the inclination of the needle with the horizontal in prismatic compass?  
 (A) Dip of the needle (B) The magnetic needle  
 (C) Declination of needle (D) Local attraction of needle
31. Local attraction of compass surveying occur due to :  
 (A) In correct levelling of the needle  
 (B) Loss of magnetism of needle  
 (C) Presence of magnetic substances near the instrument  
 (D) Friction of the needle at pivot
32. Which is the included angle between the lines OA and OB if their bearings are 25° and 340°?  
 (A) 45° 00' (B) 345° 00'  
 (C) 315° 30' (D) 135° 00'
33. True bearing of a line is 217° and magnetic declination is 2° w. Find the magnetic bearing.  
 (A) 215° (B) 219°  
 (C) 216° (D) 218°
34. Which is the formula for calculating the sum of interior angles of a traverse?  
 (A)  $(2n / 4)$  right angles (B)  $(2n - 4)$  right angles  
 (C)  $(2n \times 4)$  right angles (D)  $(2n + 4)$  right angles
35. Which method of plane table surveying is suitable, when it is difficult or impossible to measure distances in a mountainous country and also used for checking distant objects?  
 (A) Radiation (B) Intersection  
 (C) Resection (D) Traversing

36. The most suitable surveying used for the filling in of the details between the stations previously fixed by triangulation or theodolite traversing is :
- (A) Chain survey (B) Compass survey  
(C) Theodolite survey (D) Plane table survey
37. Which statement given below is not an advantage of plane tabling?
- (i) Most suitable for preparing small scale maps  
(ii) Surveyor can compare the plotted work with actual features of the area surveyed  
(iii) It is not intended for accurate work  
(iv) There is no possibility of omitting the necessary measurements as the map is plotted in the field
- (A) (i) (B) (ii)  
(C) (iii) (D) (iv)
38. Which of the following instrument is used for marking the direction of the magnetic meridian on the paper in plane table surveying?
- (A) A plumbing fork  
(B) A trough compass  
(C) A 'U' frame  
(D) An alidade
39. The operation of placing the table over the station on the ground that the point plotted on the sheet corresponding to the station occupied should be exactly over the station on the ground is known as :
- (A) Orienting the table  
(B) Centering the table  
(C) Fixing the table  
(D) Levelling the table
40. The line joining the intersection of the cross-hairs to the optical centre of the object glass and its continuation is called \_\_\_\_\_ or \_\_\_\_\_.
- (i) The line of collimation  
(ii) The line of sight  
(iii) The plane of collimation  
(iv) The plane of sight  
(v) The height of instrument  
(vi) The axis of telescope
- (A) (i) or (ii) (B) (iii) or (iv)  
(C) (i) or (iii) (D) (v) or (vi)

41. The vertical distance above or below the datum is \_\_\_\_\_ of a point.  
 (A) The Bench Mark (B) The vertical line  
 (C) The elevation (D) The plumb line
42. The method of levelling in which it is necessary to set-up the level in several positions and to work in a series of stages is :  
 (A) Differential levelling (B) Compound levelling  
 (C) Continuous levelling (D) All of these
43. In Trigonometrical levelling :  
 (A) The elevation of points are computed from the vertical angles and horizontal distances measured in the field  
 (B) The altitudes of points are determined by the means of a barometer  
 (C) The heights of mountains are found by observing the temperature at which water boils  
 (D) None of these
44. In precise levelling work, the effect of curvature is that the objects sighted to appear :  
 (A) Lower than they really are  
 (B) Higher than they really are  
 (C) Equal to the sight  
 (D) Level line
45. 'Pick the wrong statement'.  
 The advantage of reciprocal levelling is that it eliminates :  
 (A) The errors due to curvature (B) The errors due to refraction  
 (C) The collimation error (D) The atmospheric error
46. Find the correction for curvature for a distance of 4 km :  
 (A) 1.963 m (B) 0.314 m  
 (C) 0.0196 m (D) 1.256 m
47. Sensitiveness of bubble tube increased by :  
 (A) Increase in the length of bubble  
 (B) Decrease of viscosity  
 (C) Surface tension of the liquid in level tube  
 (D) All the above
48. Staff reading taken on a point of known R.L as on a bench mark or a change point is a :  
 (A) Back sight (B) Fore sight  
 (C) Intermediate sight (D) Height of instrument

49. If the higher values in a series of closed contours on a map are outwards it indicates a :
- (A) Hill (B) Depression  
(C) Ridge (D) Over hanging cliff
50. The process of spacing the contours proportionally between the plotted ground points is the :
- (A) Interpolation of contours (B) Contour interval  
(C) Horizontal equivalent (D) Contouring by spot levels
51. The prismoidal formula in computation of volumes can be applied to \_\_\_\_\_ number of sections.
- (A) Even (B) All  
(C) Odd (D) Equal
52. The light, compact, hand instrument of low precision used for measuring angles of elevation and depression is :
- (A) Dumpy level (B) Tilting level  
(C) Modern level (D) Abney level
53. Find the height of the corbel above the floor level from the following data :
- Reduced level of floor level = 98.580 m  
Staff reading on the floor = 1.055 m  
Reading on the staff held inverted, touching the bottom portion of the corbel is 3.065m.
- (A) 99.635 m (B) 4.120 m  
(C) 95.515 m (D) 3.010 m
54. Focussing the eye-piece and object glass in temporary adjustments of a level is performed to :
- (A) Eliminate parallax error (B) Level up the instrument  
(C) To set up the instrument (D) Eliminate closing error
55. The various sizes of theodolite varying from 8 cm to 25 cm is defined by the :
- (A) Measurement of horizontal and vertical angles  
(B) Revolution of the telescope about horizontal axis  
(C) Height of the telescope  
(D) Diameter of the graduated circle on the lower plate
56. The lower plate, also called the scale plate of a theodolite is graduated from :
- (A)  $0^\circ$  to  $90^\circ$  (B)  $0^\circ$  to  $360^\circ$   
(C)  $0^\circ$  to  $180^\circ$  (D) One minute or 20"

57. The process of turning the telescope over its supporting axis through  $180^\circ$  in a vertical plane is called :
- (A) Centering (B) Swinging  
(C) Transiting (D) Tilting
58. The sensitiveness or sensitivity of a level tube is expressed in terms of the :
- (A) Radius of curvature  
(B) Angular value of one division of scale  
(C) Angle subtended at the centre by an arc of one division of the scale  
(D) All the above
59. The theoretic sum of the exterior angles of a closed traverse should be equal to \_\_\_\_\_ right angles.
- (A)  $(2N + 4)$  (B)  $(2N - 4)$   
(C)  $(4N - 2)$  (D)  $(4N + 2)$
60. The multiplying constant  $f/i$  of a tacheometer should be :
- (A) 20 (B) 30  
(C) 100 (D)  $(f + d)$
61. Horizontal curves are provided in the horizontal plane to change the :
- (A) Grade (B) Direction  
(C) Radius (D) Curve
62. A curve may be designated by :
- (i) The radius  
(ii) The angle subtended at the centre by a chord of particular length
- (A) (i)  
(B) (ii)  
(C) Both (i) and (ii)  
(D) None of these
63. The stadia markings on a tacheometer are made on :
- (A) Diaphragm (B) Eye piece  
(C) Object glass (D) All the above
64. Reading both the verniers of a theodolite eliminates :
- (A) Observational errors (B) Graduation errors  
(C) Eccentricity error (D) Index error
65. Which EDM instrument is fabricated and worked on the propagation of the modulated light waves?
- (A) Total station (B) Tellurometer  
(C) Geodimeter (D) Decca navigator

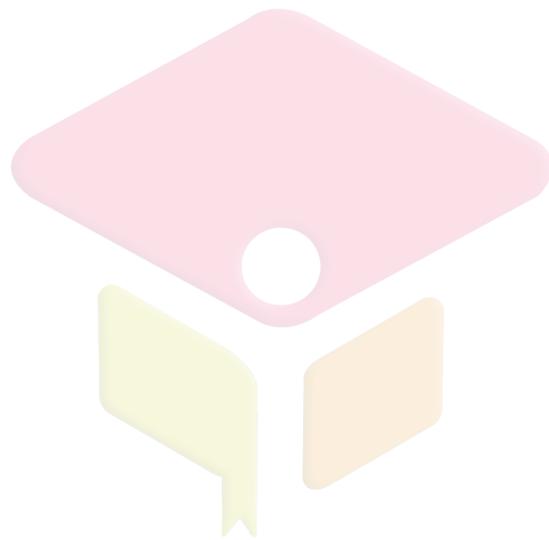
66. In modern surveying 'GIS' stands for :
- (A) Global Investigation System
  - (B) Grouping of Information in Surveying
  - (C) Geographic Information System
  - (D) Geological Investigation standard
67. As per the theory of EDM, which is not the fundamental measurement of a total station :
- (A) Level difference
  - (B) Vertical angle
  - (C) Slope distance
  - (D) Horizontal angle
68. For accurate centring of modern theodolite, especially in windy climates, which arrangement is most suitable :
- (A) Centring rod
  - (B) Plumb bob
  - (C) Optical micrometer
  - (D) Optical plummet
69. Surveying which deal with the mapping of large water bodies for the purpose of navigations, construction of harbour works prediction of tides etc. is:
- (A) Geological survey
  - (B) Hydrographic survey
  - (C) Cadastral survey
  - (D) Astronomical survey
70. Which part of an EDM instrument propagate electromagnetic waves?
- (A) Reflector
  - (B) Receiver
  - (C) Prism
  - (D) Transmitter
71. The number of times the electromagnetic wave completes a cycle in one second is termed as :
- (A) Wave length
  - (B) Frequency
  - (C) Period
  - (D) Velocity
72. The process of determination of the bed depth of a water body is called :
- (A) Sounding
  - (B) Tidal datum
  - (C) Float gauge
  - (D) Tide gauge
73. Short cut key 'A' is used to create \_\_\_\_\_ in AutoCAD.
- (A) Align
  - (B) Arc
  - (C) Array
  - (D) Area
74. In AutoCAD, the full form of UCS is :
- (A) User Commanding System
  - (B) User Control System
  - (C) User Coordinate System
  - (D) User Configuration System

75. Command used to delete a portion of an object specified by a starting point and ending point is :
- (A) Trim (B) Erase  
(C) Break (D) Export
76. Shortcut used in AutoCAD for pasting object is :
- (A) Ctrl + c (B) Ctrl + x  
(C) Ctrl + p (D) Ctrl + v
77. A filled ring of two different diameter with a specified centre, the command used to create in AutoCAD is :
- (A) Doughnut (B) Circle  
(C) Hatch (D) Fillet
78. For object snap tracking on or off, use function key :
- (A) F 4 (B) F 8  
(C) F 5 (D) F 11
79. To creates multiple copies of selected object in a regular interval in a rectangular or polar form, most suitable AutoCAD command is :
- (A) Offset (B) Array  
(C) Mirror (D) Copy
80. Function key for 'Online Help' in Auto CAD is :
- (A) F 4 (B) F 8  
(C) F 1 (D) F 3
81. Unit of energy is :
- (A) Watt (B) Newton metre  
(C) Candela (D) Joule
82. If  $A : B = 6 : 9$  and  $B : C = 27 : 54$ , Then  $A : B : C = ?$
- (A) 2 : 3 : 6 (B) 18 : 27 : 56  
(C) 6 : 9 : 27 (D) 3 : 6 : 9
83. 60% of number is 6, Identify the number :
- (A) 12 (B) 10  
(C) 36 (D) 18

84. When a cone is cut by a plane parallel to the base and upper part is removed, the balance portion's known as :
- (A) Pyramid (B) Trapezium  
(C) Frustum of a cone (D) Tetrahedron
85. If the diameter of a hemisphere is 'D' then it's volume is :
- (A)  $2/3$  of  $(\pi D^3)$  (B)  $\pi/12$  of  $D^3$   
(C)  $3/4 \pi$  of  $D^2$  (D) None of the above
86.  $1 + \tan^2 \theta = ?$
- (A)  $\sec^2 \theta$  (B)  $\sin^2 \theta$   
(C)  $\cos^2 \theta$  (D)  $\cot^2 \theta$
87. The bond formed by sharing of electrons between atoms rather than by transfer of electrons is :
- (A) Ionic bonds (B) Electrostatic bonds  
(C) Metallic bonds (D) Covalent bonds
88. Mass per unit volume of a substance is :
- (A) Density (B) Weight  
(C) Specific gravity (D) Force
89. Unit of specific gravity is :
- (A) Gram/cubic centimetre  
(B) Dyne  
(C) Kilogram  
(D) No unit, simply expressed in a number
90. A iron ball of 2 kg is dropped from a height of 10 metre, what will be the velocity when it reaches the ground level, if acceleration due to gravity is 9.8 m/s :
- (A) 9.8 m/s (B) 28 m/s  
(C) 14 m/s (D) 196 m/s
91. The quantity of heat required to raise the temperature of a substance by one Celsius degree is :
- (A) Vaporisation heat (B) Latent heat  
(C) Specific heat (D) Equivalent heat

92. Nut cracker is an example of :
- (A) Lever of first order (B) Lever of second order  
(C) Lever of third order (D) None of the above
93. The rocks formed due to pouring of magma at earth's surface are :
- (A) Plutonic rocks (B) Volcanic rocks  
(C) Hypabyssal rocks (D) None of the above
94. The perfect binding of alumina and sand is happened during \_\_\_\_\_ process of brick manufacturing.
- (A) Preparation of clay (B) Moulding  
(C) Drying (D) Burning
95. The product obtained after slaking of quick lime is :
- (A) Hydrated lime (B) Quick lime  
(C) Caustic lime (D) Poor lime
96. The defects in timber, which is due to over maturity or by poor ventilation during storage :
- (A) Foxiness (B) Druxiness  
(C) Upsets (D) Case-hardening
97. The most suitable cement used in works of under water or running water concrete is :
- (A) Acid resistance cement (B) Rapid hardening cement  
(C) Quick setting cement (D) Expanding cement
98. The arrangement of taking one road over or under another by means of a bridge, when two or more roads meet or cross one another is :
- (A) Grade separation (B) Roundabout  
(C) Grade intersection (D) Channelizing
99. Area in which crop is grown at a particular time or crop season is :
- (A) Culturable commanded area (B) Culturable cultivated area  
(C) Gross commanded area (D) Culturable uncultivated area
100. In individual wall method of estimate, short wall length in-to-in is calculated by using the formula :
- (A) Centre to centre length + half breadth of that particular item of work  
(B) Centre to centre length + one breadth of that particular item of work  
(C) Centre to centre length – half breadth of that particular item of work  
(D) Centre to centre length – one breadth of that particular item of work

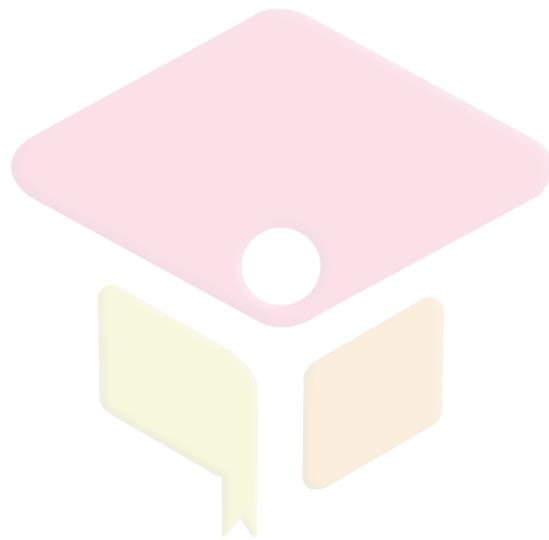
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