

# 43/2023

Question Booklet  
Alpha Code

# M

Question Booklet  
Serial Number

Total Number of questions : 100

Time : 1 Hour 30 Minutes

Maximum Marks : 100

## INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet Alpha Code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the Alpha Code does not match to the allotted Alpha Code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is unnumbered, please get it replaced by new question booklet with same Alpha Code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so, he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same Alpha Code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

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**DO NOT WRITE HERE**

1. As per BIS (IS 1444-1989) the standard size of B1 drawing board is \_\_\_\_\_  
(A) 1000 × 1500 mm (B) 700 × 1000 mm  
(C) 500 × 700 mm (D) 350 × 500 mm
2. For drawing long thin lines of uniform thickness the pencil should be sharpened  
(A) Chisel edge (B) Pointed lead  
(C) Conical point (D) Flat blade
3. The ratio of length to width of all arrow heads in drawing is  
(A) 2:1 (B) 4:1  
(C) 3:1 (D) 2:4
4. For thin chain line alternate long and short dashes are in proportion ranging from  
(A) 6:1 to 4:1 (B) 9:1 to 3:1  
(C) 6:2 to 4:2 (D) 9:1 to 4:1
5. The plan and elevation of a line segment are seen coincides, the line is situated in the  
(A) First quadrant (B) Second quadrant  
(C) Third quadrant (D) Quadrantal axis
6. The recommended dimensioning of a sphere of Diameter 20 mm is  
(A) 20  $\phi$  S (B) S  $\phi$  20  
(C) S 20  $\phi$  (D)  $\phi$  20 S
7. The type of Vernier in which the Vernier divisions are marked in the opposite direction of the main scale is  
(A) Vernier Scale (B) Forward Vernier  
(C) Backward Vernier (D) None of these
8. The method of projection in which the projectors are parallel to each other and perpendicular to the plane the projection is  
(A) Isometric Projection (B) Orthographic Projection  
(C) Perspective Projection (D) Oblique Projection
9. The path tracked by a projectile is called  
(A) Trajectory (B) Horizontal Range  
(C) Velocity Projection (D) None of these

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10. RF = 200:1 represents a  
(A) Enlarging Scale (B) Reducing Scale  
(C) Full Size (D) Comparative Scale
11. The survey in which earth's curvature is taken into account is  
(A) Levelling (B) Geodetic survey  
(C) Theodolite Survey (D) None of these
12. Surveying Chain is Made up of  
(A) Galvanised MS Wire (B) MS Wire  
(C) High carbon steel (D) None of these
13.  $\pi$  Radians = \_\_\_\_\_ grades  
(A) 100 (B) 200  
(C) 180 (D) 90
14. The Length of surveyor's chain is  
(A) 100 ft (B) 66 ft  
(C) 33 ft (D) 30 m
15. In ordinary chain survey the maximum permissible error is  
(A) 1 in 250 (B) 1 in 1000  
(C) 1 in 2000 (D) 1 in 5000
16. The correction for sag is always \_\_\_\_\_  
(A) + ve (B) - ve  
(C) + ve or - ve (D) None of these
17. If L is the correct length of a chain, L' is the incorrect length and D' is the measured length, then the correct length is  
(A)  $\frac{L'}{L} \times D'$  (B)  $\frac{L}{L'} \times D'$   
(C)  $\frac{L}{D'} \times L'$  (D)  $\frac{D'}{L} \times L'$
18. The instrument which is not used in chain survey is  
(A) Ranging Rod (B) Cross Staff  
(C) Offset Rod (D) Levelling Staff

19. The Principle of chain surveying is  
(A) Work from Whole to Part (B) Triangulation  
(C) Traversing (D) None of these
20. The system of lines or Triangles covering the area to be surveyed is  
(A) Triangulation (B) Frame Work  
(C) Traversing (D) All of the above
21. In a well-conditioned triangle the angles are  
(A)  $20^\circ$  or  $120^\circ$  (B) Greater than  $30^\circ$  and less than  $120^\circ$   
(C) Greater than  $20^\circ$  & less than  $120^\circ$  (D) None of these
22. The line joining some fixed points termed as tie stations on main survey line is called  
(A) Base line (B) Check line  
(C) Proof line (D) Tie line
23. The horizontal angle which a line makes with the meridian is called  
(A) Included angle (B) Inclination  
(C) Bearing (D) Declination
24. The graduated ring being attached to the magnetic needle remains stationary in  
(A) Surveyor's compass (B) Prismatic compass  
(C) Trough compass (D) None of these
25. In a prismatic compass  $180^\circ$  is marked at  
(A) North end (B) South end  
(C) East (D) West
26. The bearing of a line taken from the starting point of the line towards the direction in which survey progress is called  
(A) True bearing (B) Back bearing  
(C) Whole circle bearing (D) Fore bearing
27. In the whole circle bearing systems,  $S 85^\circ - 45' W$  will be expressed as  
(A)  $94^\circ - 15'$  (B)  $85^\circ - 45'$   
(C)  $265^\circ - 45'$  (D)  $180^\circ - 45'$
28. At poles the magnetic dip is equal to  
(A)  $180^\circ$  (B)  $90^\circ$   
(C) 0 (D)  $45^\circ$

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29. The whole circle bearing of a line observed by a prismatic compass is  $110^\circ$ , its bearing read on a surveyor's compass is
- (A) N  $75^\circ$  E (B) N  $80^\circ$  E  
(C) S  $110^\circ$  E (D) S  $70^\circ$  E
30. The horizontal angle which magnetic meridian makes with the true meridian is called
- (A) Magnetic Declination (B) Dip  
(C) Bearing (D) None of these
31. The line joining places of equal declination
- (A) Agonic lines (B) Isogonic lines  
(C) Tie line (D) Base line
32. The fore bearing of a line is S  $45^\circ 10'$  E find the back bearing
- (A)  $45^\circ - 10'$  (B) N  $45^\circ - 10'$  W  
(C)  $225^\circ - 10'$  (D)  $134^\circ - 50'$
33. The magnetic bearing of a line is  $190^\circ$  and the magnetic declination is  $2^\circ$  W. Find the true bearing of the line
- (A)  $190^\circ$  (B)  $188^\circ$   
(C)  $192^\circ$  (D) None of these
34. The permissible error in prismatic compass survey is
- (A) 1 in  $20^\circ$  (B) 1 in  $120^\circ$   
(C) 1 in  $340^\circ$  (D) 1 in  $220^\circ$
35. Which method of plane table survey is also used for plotting the distant and inaccessible objects, broken boundaries, river etc?
- (A) Intersection method (B) Radiation method  
(C) Traversing (D) Resection
36. The process of putting the positions occupied by the board at various survey stations are kept parallel is known as
- (A) Centering the plane table (B) Levelling the plane table  
(C) Orienting the plane table (D) Traversing the plane table
37. What is the name of method used in plane table survey similar to that of compass survey?
- (A) Radiation (B) Intersection  
(C) Resection (D) Traversing

38. Which type of survey cannot be done in dense wooded areas?  
(A) Chain survey (B) Compass survey  
(C) Plane table survey (D) Theodolite survey
39. The three points problem may be solved by  
(A) Tracing paper method (B) Bessel's method  
(C) Trial and Error method (D) All of the above
40. What is the term that is normal to plumb line at all points?  
(A) Level surface (B) Datum surface  
(C) Horizontal surface (D) Vertical surface
41. What is the benchmarks established between the G.T.S. benchmarks by the state PWD is known as  
(A) Arbitrary benchmark (B) Permanent benchmark  
(C) Temporary benchmark (D) G.T.S. benchmark
42. Which level is used for precise levelling work?  
(A) Auto level (B) Dumpy level  
(C) Wye level (D) Tilting level
43. In which staff consist of three parts and one slides into another?  
(A) Telescopic staff (B) Invar staff  
(C) Target staff (D) Folding staff
44. What is the smallest graduated division in levelling staff?  
(A) 0.5 m (B) .05 m  
(C) .005 m (D) 0.0005m
45. Which method of contour is suitable for small and undulating area?  
(A) By levelling method (B) By cross section  
(C) By tacheometric method (D) By square method
46. Which method is not included in the interpolation of contours?  
(A) Estimation (B) Arithmetical calculation  
(C) Cross section (D) Graphical
47. Combined correction for curvature and refraction is  
(A)  $0.6723 D^2$  (B)  $0.0673D^2$   
(C)  $0.0112D^2$  (D)  $0.112D^2$

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48. What is the name of the staff 3m long and the band fitted is graduated in mm used for precise levelling?  
(A) Invar Staff (B) Telescopic staff  
(C) Target Staff (D) Folding staff
49. What R.F. is select for drawing town planning schemes, reservoirs etc?  
(A) 1/1000 (B) 1/5000  
(C) 1/100 (D) 1/100000
50. Contour lines of different elevations can unite to form one line in \_\_\_\_\_  
(A) Vertical cliff (B) Overhanging cliff  
(C) Hill (D) Valley
51. The method of indirect levelling in which the relative elevations of different points are obtained by measuring the vertical angles and horizontal distance is known as  
(A) Barometric levelling (B) Hypsometry  
(C) Trigonometrical levelling (D) Check Levelling
52. What benchmark is established for short duration such as at the end of a day's work?  
(A) Arbitrary benchmark (B) Temporary benchmark  
(C) Permanent benchmark (D) G.T.S. benchmark
53. Which instrument is used to establishing grade contour?  
(A) Prismatic compass (B) Telescopic alidade  
(C) Abney level (D) Pentagraph
54. Which is prismoidal formula for volume?  
(A)  $L/6(A_1+4A_2+A_3)$  (B)  $L/3(A_1+4A_2+A_3)$   
(C)  $L/2(A_1+4A_2+A_3)$  (D)  $L(A_1+4A_2+A_3)$
55. The latitude and departure with reference to preceding point are known as \_\_\_\_\_  
(A) Independent co-ordinate (B) Consecutive co-ordinate  
(C) Close co-ordinate (D) Origin co-ordinate
56. What is the type of angle useful for alignment of highways, railways, canals etc?  
(A) Deflection angle (B) Direct angle  
(C) Azimuth angle (D) Chain angle



57. What is the test carried in theodolite to make the horizontal axis perpendicular to the vertical axis?
- (A) Plate level (B) Collimation test  
(C) Spire test (D) Cross-hair ring test
58. When the angular measurements are more precise than the linear measurements, balancing the traverse is done by
- (A) Bowditch's method (B) Transit rule method  
(C) Graphical methods (D) Axis method
59. The chord between two successive regular stations on a curve is known as \_\_\_\_\_
- (A) Long chord (B) Mid chord  
(C) Normal chord (D) Intersection chord
60. What is the multiplying constant, if adopting anallatic lens in the telescope of a tacheometer?
- (A) 10 (B) 20  
(C) 30 (D) 100
61. What is the distance between point of intersection to point of tangency?
- (A) Length of the curve (B) External distance  
(C) Tangent distance (D) Long chord
62. Which curve is generally introduced on highway between a straight and circular curve to provide ease and gradual change of direction?
- (A) Simple (B) Compound  
(C) Reverse (D) Transition
63. Which method is used for short traverse in theodolite survey?
- (A) Fast needle method (B) Direct method  
(C) Loose needle method (D) Included angle method
64. What is the multiplying constant in tacheometric survey?
- (A)  $(f/i)$  (B)  $(f+d)$   
(C)  $(f+i)$  (D)  $(f/d)$
65. What is the abbreviation for MOEF?
- (A) Ministry of ecology and forest (B) Ministry of environment and federation  
(C) Ministry of environment and forest (D) Ministry of ecology and fire

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66. Which year does first microprocessor was invented?  
(A) 1970 (B) 1971  
(C) 1972 (D) 1973
67. What is the full form of GUI?  
(A) Golden closer installation (B) Graphical user installation  
(C) Graphical user interface (D) Geometrical user interface
68. What is the other name of dwelling unit?  
(A) Raw building (B) Residential building  
(C) Commercial building (D) Educational building
69. What is the normal life period of residential building with concrete roof according to NBC 2005?  
(A) 50 (B) 70  
(C) 100 (D) 110
70. What is the use of function key F3?  
(A) O SNAP (B) TABLET  
(C) ISOPLANE (D) SAVE AS
71. Which of the following software is limited for AutoCAD installation?  
(A) Window DOS (B) Window 98  
(C) Window 03 (D) Window 10
72. What is the use of the short cut key M text?  
(A) Modifying text (B) Move text  
(C) Multi text (D) Menu Text
73. What is the full form of UCS?  
(A) User CAD system (B) User CADD system  
(C) User co-ordinate system (D) User circle system
74. Which of the following pointing device is cheaper while comparing the digitilizer?  
(A) Key Board (B) Puck  
(C) Mouse (D) Enter key
75. Which short cut key does the work of redo last action?  
(A) Ctrl + z (B) Ctrl + y  
(C) Ctrl + c (D) Ctrl + x

76. The standard size of brick  
(A)  $19 \times 9 \times 9$  cm (B)  $20 \times 10 \times 10$  cm  
(C)  $20 \times 20 \times 10$  cm (D)  $19 \times 19 \times 9$  cm
77. The central part of the tree is called  
(A) Sap wood (B) Cambium layer  
(C) Heart wood (D) Pith
78. Weight of 1 bag of cement  
(A) 74 kg (B) 50 kg  
(C) 40 kg (D) 100 kg
79. Chemically which rock is calcareous rock?  
(A) Granite (B) Silica  
(C) Marble (D) Basalt stone
80. Vicat's apparatus is used to determine the  
(A) initial setting time of cement (B) final setting time of cement  
(C) normal consistency of cement (D) all of these
81. The fine adjustment in theodolite is done by  
(A) focusing screw (B) tangent screw  
(C) clamp screw (D) foot screw
82. The face left position is also called  
(A) Telescope inverted (B) Telescope normal  
(C) Telescope reversed (D) None of these
83. Which of the following is not a traversing method?  
(A) Plane table traversing (B) Theodolite traversing  
(C) Open traversing (D) Chain traversing
84. The telescope is rotated in horizontal plane relative to which axis?  
(A) Vertical axis (B) Horizontal axis  
(C) Trunnion axis (D) Plate bubble tube axis
85. The most widely used antenna in GPS is  
(A) Horn antenna (B) Slotted antenna  
(C) Parabolic antenna (D) Micro strip antenna

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86. The first GPS satellite was launched in  
(A) 1955 (B) 1967  
(C) 1978 (D) 1993
87. Which type of wave is used to operate EDM?  
(A) Ultrasonic wave (B) Electric wave  
(C) Electromagnetic wave (D) All of these
88. Data collector is used for total station?  
(A) Controlling the total station (B) Keeping data records  
(C) Helping data processing (D) Knowing position of pointing
89. What is termed as the quantity of matter contained in a body?  
(A) Density (B) Volume  
(C) Mass (D) Specific gravity
90. How many watts for 1 horse power in British system?  
(A) 726 watts (B) 736 watts  
(C) 746 watts (D) 756 watts
91. What is the S.I. unit of heat?  
(A) Calorie (B) Joule  
(C) Centigrade heat unit (D) British thermal unit
92. What is called for the materials that restricts heat flow by radiation, conduction and convection?  
(A) Conductors (B) Insulators  
(C) Ferrous (D) Non-ferrous
93. What is the term for the object seen higher than eye level?  
(A) Angle of inclination (B) Angle of friction  
(C) Angle of elevation (D) Angle of depression
94. What is the centre of gravity of a sphere?  
(A) At the centre (B) On the circumference  
(C) At the diameter (D) At the radius
95. What is the purpose of tempering a steel?  
(A) To reduce the brittleness (B) To remove the ductility  
(C) To increase the hardness (D) To increase the brittleness

96. What is the term used for maximum stress attained by a material before rupture?  
(A) Tensile stress (B) Compressive stress  
(C) Working stress (D) Ultimate stress
97. Which formula is suitable for the area of a circle, whose diameter is (d)?  
(A)  $\pi d^2/4$  (B)  $\pi r$   
(C)  $2\pi r$  (D)  $\pi d$
98. What is the area of irregular shape by Simpson's rule?  
(A)  $h/3 [y_1+y_7+4(y_2+y_4+y_6)+2(y_3+y_5)]$  (B)  $h/2 [y_1+y_7]$   
(C)  $h/3 [y_2+y_4+y_6]$  (D)  $h/2 [y_1 = y_7 + (y_2+y_6)]$
99. What are the three consecutive numbers if their sum is 42?  
(A) 11, 12, 13 (B) 12, 13, 14  
(C) 13, 14, 15 (D) 14, 15, 16
100. What is the value of  $(a^5)^7$ ?  
(A)  $a^{35}$  (B)  $a^{12}$   
(C)  $a^{21}$  (D)  $a^{22}$
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SPACE FOR ROUGH WORK



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