126/25

Question Booklet Alpha Code

A

A

Total Number of Questions : 100   **Time : 90 Minutes**

Maximum Marks : 100

A

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 un-numbered, 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/her 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.

1. Consider the following statements about projections of a line
   1. If a line is parallel to both HP and VP, its projections are parallel to XY line.
   2. If a line is perpendicular to VP, its front view is a point.
   3. If a line is perpendicular to HP, its top view is a point.

   Which of the above statements are correct ?
   A) 1 and 2 only   B) 1 and 3 only   C) 2 and 3 only   D) 1, 2 and 3

2. The Indian Standard Code for general principles of dimensioning on technical drawings is
   A) IS 11669   B) IS 10714   C) IS 11664   D) IS 11065

3. Match List – I with List – II and select the correct answer using the code given below the lists.

List – I	List – II
(Conic section)	**(Eccentricity 'e')**
a. Ellipse	i. e = 0
b. Parabola	ii. 0 < e < 1
c. Circle	iii. e = 1
d. Hyperbola	iv. e > 1

   Code :

	a	b	c	d
A)	iv	i	iii	ii
B)	ii	i	iii	iv
C)	ii	iii	i	iv
D)	iv	iii	i	ii

4. Select the incorrect statement among the following.
   A) Construction lines are drawn very thin, continuous.
   B) Border lines are the thickest in a drawing sheet.
   C) Hidden features are drawn with thin dashed lines.
   D) Leader lines must always end with double arrowheads.

5. A drawing is made to a scale of 1 : 50. If the actual length of the object is 2500 mm, the length on the drawing will be
   A) 25 mm   B) 100 mm   C) 50 mm   D) 125 mm

A   -3-

6. If a diagonal scale has 5 main divisions and 10 subdivisions, each small division represents

    A) 1/50 of unit   B) 1/5 of unit   C) 1/10 of unit   D) 1/100 of unit

7. As per ISO 5457, the area of A1 drawing sheet is

    A) 1 m^2 B) 1.5 m^2 C) 0.5 m^2 D) 0.25 m^2

8. For lettering A type, the height of the capital letter is divided equally into

    A) 8 parts   B) 14 parts   C) 12 parts   D) 10 parts

9. To construct a regular hexagon inscribed in a circle, the side of the hexagon is equal to

    A) Diameter of the circle   B) Radius of the circle

    C) Half the radius   D) Twice the radius

10. The Assertion (A) and Reason (R) given below, choose the correct alternative from the following.

    Assertion (A) : The French curve is mainly used for drawing irregular smooth curves.

    Reason (R) : French curves are flexible and can bend into any required shape.

    A) Both (A) and (R) are true and (R) is the correct explanation of (A)

    B) Both (A) and (R) are true but (R) is not the correct explanation of (A)

    C) (A) is false but (R) is true

    D) (A) is true but (R) is false

11. Cadastral survey is used

    A) To locate points of strategic importance

    B) To fix boundary of properties

    C) To expose the hidden wealth of the country

    D) To study celestial objects

12. Which of the following is not a direct method of ranging ?

    A) Ranging by line ranger

    B) Ranging by eye

    C) Random line ranging

    D) Ranging by theodolite

13. Which of the following is a cumulative error ?

    A) Imperfect alignment

    B) Wrong booking

    C) Displacement of arrows

    D) Chain not being straight

14. Plane surveying is applicable in which situation ?

    A) For an area of 250 km^2 on earth's surface

    B) The difference between the arc and the subtended chord on the surface of earth of length 91 km is only 100 cm

    C) The difference between the sum of angles of a spherical triangle and the corresponding plane triangle is only one second

    D) All of the above

15. A plot was surveyed using a 30 m chain and the area was found to be 20 hectares. Find the actual area if the chain is too long by 30 mm.

    A) 20.04 hectare   B) 20.02 hectare

    C) 19.98 hectare   D) 19.96 hectare

16. A length AB was measured to be 200 m using a defective 20 m chain. If the true length of AB is 199.8 m, what is the defect of the chain ?

    A) The chain is 20 cm long   B) The chain is 20 cm short

    C) The chain is 20 mm short   D) The chain is 20 mm long

17. Which is the longest instrument among the following ?

    A) Ranging rod   B) Offset rod

    C) Ranging pole   D) Lath

18. Which offset is preferred to locate an object at a long distance from the chain line ?

    A) Perpendicular offset   B) Oblique offset

    C) Both A) and B)   D) Neither A) nor B)

A

19. The principle of surveying used to localise error is

    A) Working from whole to part

    B) Position of new stations should be ascertained by atleast two independent measurements

    C) Both A) and B)

    D) Neither A) nor B)

20. The interior angles of a well conditioned triangle should not be less than _____ nor more than _____ respectively.

    A) 20°, 100°   B) 30°, 120°

    C) 90°, 100°   D) 60°, 120°

21. The line joining subsidiary stations is called

    A) Base line   B) Check line

    C) Main line   D) Tie line

22. Which of the following statements regarding field book are correct ?

    A) The entries are usually made with pencil

    B) Each chain line should be written on a separate page of the field book

    C) Both A) and B)

    D) Neither A) nor B)

23. In which compass the reading is taken with the help of a prism provided with eye vane ?

    A) Magnetic compass   B) Trough compass

    C) Prismatic compass   D) Surveyors compass

24. What is the name of quadrant if the bearing of a line lies between 180° and 270° ?

    A) NE   B) NW   C) SE   D) SW

25. The inclination of the magnetic needle with horizontal in a prismatic compass is termed as

    A) Dip   B) Declination

    C) Variation   D) Local attraction

A

26. The difference between forebearing and backbearing in case where there is no local attraction will be equal to

    A) 90°   B) 180°   C) 270°   D) 45°

27. What is the rule for converting W.C.B. to R.B. if a line lies between 90° and 180° ?

    A) RB = 180° + WCB   B) RB = 180° – WCB
    C) RB = WCB – 180°   D) RB = 360° – WCB

28. What is the rule for converting R.B. to W.C.B. if a line lies between 180° and 270° ?

    A) WCB = 180° – RB   B) WCB = 180° + RB
    C) WCB = RB – 180°   D) WCB = 360° – RB

29. Calculate the backbearing of a line AB, if forebearing of line AB is 166°.

    A) 244°   B) 246°   C) 346°   D) 347°

30. What is the backbearing of PQ in quadrantal system, if the forebearing of PQ is N 56° 30′ W ?

    A) N 56° 30′ E   B) S 56° 30′ W
    C) S 56° 30′ E   D) N 56° 30′ W

31. What is the magnetic bearing of the line, if the true bearing of the line is 86° 30′ and the magnetic declination is 4° East ?

    A) 81° 30′   B) 82°   C) 82° 30′   D) 90° 30′

32. What is the magnetic declination of the sun, if the magnetic bearing of the sun at noon is 357° 30′ ?

    A) 2° W   B) 2° E   C) 2° 30′ W   D) 2° 30′ E

33. Calculate the inclined angle BAC if the WCB of the lines AB and AC are 45° 30′ and 177°.

    A) 121°   B) 121° 30′   C) 131°   D) 131° 30′

34. What is the inclined angle of QPR if the bearing of the lines PQ and PR are N 26° 30′ E and S 84° 30′ E ?

    A) 59°   B) 69°   C) 79°   D) 89°

A

35. Which accessory is used for levelling the table over the station occupied by the plane table ?

    A) Plumbing fork   B) Trough compass

    C) Spirit level   D) Plumb bob

36. Which method is used only for locating station point in plane tabling ?

    A) Radiation   B) Intersection   C) Traversing   D) Resection

37. What is another name of tracing paper method in plane tabling ?

    A) Bessels method   B) Graphical method

    C) Mechanical method   D) Trial and error method

38. Which method of plane tabling is used for plotting inaccessible objects, broken boundaries, river, etc. ?

    A) Radiation   B) Intersection   C) Traversing   D) Resection

39. What is the back ray method in plane table survey ?

    A) Radiation   B) Intersection   C) Traversing   D) Resection

40. An imaginary line tangential to the longitudinal curve of the bubble tube at its middle point is called

    A) Axis of bubble tube   B) Level line

    C) Axis of telescope   D) Line of collimation

41. The curvature correction is always considered as

    A) Positive   B) Multiplicative

    C) Additive   D) Negative

42. The operation of setting the eyepiece and the object glass at a proper distance apart is known as

    A) Parallax   B) Change point

    C) Focussing   D) Fore sight

43. What is the length of invar levelling staff ?

    A) 1   B) 3   C) 2   D) 4

A

44. Levelling which is done to connect the BM to the starting point of the alignment of any project is called
    A) Check levelling   B) Fly levelling
    C) Simple levelling   D) Fore sight

45. In dumpy level how many permanent adjustments are required ?
    A) 1   B) 3   C) 4   D) 2

46. The error due to the instrument may not be levelled properly is an error of
    A) Instrumental error   B) Natural error
    C) Personal error   D) Curvature error

47. Contour lines meeting at a point indicate a
    A) Vertical cliff   B) Overhanging cliff
    C) Summit   D) Valley

48. Which contour interpolation method is used for small scale map preparation ?
    A) By estimation   B) By arithmetic calculation
    C) By graphical method   D) By direct method

49. In direct method of contouring the process of locating the vertical height of points lying on a contour is called
    A) Ranging   B) Centering
    C) Horizontal control   D) Vertical control

50. Abony level is an improved form of
    A) Planimeter   B) Wye level
    C) Clinometer   D) Dumpy level

51. To obtain the correct volume, the prismoidal correction should always be
    A) Added   B) Multiplied
    C) Divided   D) Subtracted

52. Which levelling is conducted to establish the GTS bench mark ?
    A) Differential levelling   B) Check levelling
    C) Precise levelling   D) Reciprocal levelling

A

53. Square method of indirect contouring in nearly flat area for the location of _____ site is commonly used.

A) Building   B) Road

C) River   D) Hill

54. The common value of the contour interval adopted for location surveys are

A) 1 to 2 m   B) 2 to 3 m   C) 3 to 4 m   D) 0.5 to 1 m

55. For triangulation survey work the size of theodolite used is

A) 14-25 cm   B) 20-30 cm   C) 6-8 cm   D) 8-14 cm

56. The top of T-frame of theodolite is fitted with a

A) Compass   B) Bubble tube   C) Arm   D) Screw

57. Mainly the fundamental lines of a transit theodolite are _____ in number.

A) 3   B) 2   C) 4   D) 6

58. The only advantage of retrograde vernier theodolite than direct one is

A) Can read in same direction   B) Can read in opposite direction

C) Bigger graduations   D) Larger diameter

59. According to Gale's Traverse Table the whole traverse may lie in the _____ quadrant.

A) First   B) Second   C) Fourth   D) Third

60. The stadia markings are made on which part of the theodolite ?

A) Eye piece   B) Diaphragm

C) Object glass   D) Screws

61. By using an analletic lens in the external focussing telescope can made

A) The multiplying constant is made 0

B) The additive constant is made 100

C) The additive constant is made 0

D) The multiplying constant is made 100

A

62. The radius of an one degree curve is

 A) 1760 m B) 1719 m

 C) 2000 m D) 1791 m

63. In railway curves the unit chords are generally taken between

 A) 10-30 m B) 20-40 m C) 30-50 m D) 10-20 m

64. The transition curves are provided in railways on both sides of a circular curve to minimise

 A) Radius B) Degree of curve

 C) Super elevation D) Length

65. What is the use of the shortcut key 'M' Text ?

 A) Modify text B) Move text C) Multi text D) Menu text

66. Which of the following shortcut keys gives quick calc ?

 A) Ctrl + 6 B) Ctrl + 7 C) Ctrl + 8 D) Ctrl + 9

67. What is the full form of UCS ?

 A) User CAD System B) User CADD System

 C) User Co-ordinate System D) User Circle System

68. What is the use of function key F3 ?

 A) OSNAP B) TABLET C) ISOPLANE D) SAVE AS

69. What is the full form of GUI ?

 A) Golden User Installation B) Graphical User Installation

 C) Graphical User Interface D) Geometrical User Interface

70. Which of the following software is limited for AutoCAD installation ?

 A) Windows DOS B) Windows 98

 C) Windows 03 D) Windows 10

71. Which shortcut key does the work of ortho ?

 A) F6 B) F7 C) F8 D) F9

A

72. Which of the following pointing device is cheaper while comparing the digitalizer ?

   A) Keyboard   B) Puck   C) Mouse   D) Enter key

73. Which country developed the GPS ?

   A) USA   B) India   C) Russia   D) Italy

74. What is the orbital height of GPS ?
   A) 1000 km   B) 15000 km
   C) 20180 km   D) 24000 km

75. Which is an application of GPS for visually impaired ?
   A) MOBIC   B) GIS
   C) Ramchers   D) Navigation

76. Which segment of GPS consist of Satellite ?
   A) Control   B) Space
   C) User   D) Navigation

77. Which instrument is a combination of EDM, Electronic Theodolite and Microprocessor ?
   A) Tacheometer   B) Distomite
   C) Tellurometer   D) Total station

78. What is the formula principle of operation of EDM ?
   A) Velocity = Time × Distance   B) Velocity = Distance/Time
   C) Velocity = Time × Displacement   D) Velocity = Displacement/Time

79. What is the shape of single reflector prism of total station ?
   A) Cube corner   B) Cuboid corner
   C) Circular   D) Triangular corner

80. In which conditions the LCD screen does not work ?
   A) Cold   B) Hot
   C) Warm   D) Wind

81. sin30°cos45° + cos30°sin45° is

A) $\dfrac{1+\sqrt{3}}{2\sqrt{3}}$

B) $\dfrac{1-\sqrt{3}}{2\sqrt{3}}$

C) $\dfrac{1+\sqrt{3}}{2\sqrt{2}}$

D) $\dfrac{1-\sqrt{3}}{2\sqrt{2}}$

82. What is the square root of the decimal number 1.21 ?

A) 1.2

B) 1.1

C) 1.3

D) 1.4

83. If A : B = 2 : 3 and B : C = 4 : 5, find the ratio of A : B : C.

A) 8 : 12 : 15

B) 8 : 10 : 12

C) 8 : 11 : 15

D) 8 : 12 : 11

84. Match the correct answer from Group B for the given data in Group A.

A	B
a. Electric Current	i. Ohm
b. Electric Voltage	ii. Ampere
c. Frequency	iii. Volt
d. Electric Resistance	iv. Hertz

A) a – iii,   b – iv, c – ii,   d – i

B) a – iv,   b – i,   c – ii,   d – iii

C) a – i,   b – ii, c – iv, d – iii

D) a – ii,   b – iii, c – iv, d – i

85. $\sin14^{1/2°} = 0.25$, then the value of $\operatorname{cosec}14^{1/2°}$ is

A) 4   B) 5   C) 6   D) 7

86. 1 Newton = _____ dynes.

A) 10^4 B) 10^3 C) 10^2 D) 10^5

87. What is the density of steel in kg/m^3 ?

A) 7580

B) 7850

C) 7680

D) 7860

A

88. The heat gained or given by the substance during a change of state is called
    A) Sensible heat
    B) Specific heat
    C) Latent heat
    D) All of these

89. Brass is an alloy of
    A) Copper and aluminium
    B) Copper and lead
    C) Copper and tin
    D) Copper and zinc

90. Weight of a body is
    A) Mass × Acceleration
    B) Mass × Velocity
    C) Mass × Acceleration due to gravity
    D) Inertia × Momentum

91. Ratio of mechanical advantage to velocity ratio is
    A) Work done
    B) Efficiency
    C) Output
    D) Input

92. If $1/x = 1/4 + 1/3$, then x = _____.
    A) $\dfrac{12}{7}$
    B) $\dfrac{7}{12}$
    C) $\dfrac{18}{7}$
    D) $\dfrac{7}{1}$

93. Which test is used to determine toughness of a stone ?
    A) Hardness test
    B) Crushing test
    C) Impact test
    D) Attrition test

94. If excess alumina is present in the brick earth
    A) Makes the brick brittle
    B) Makes the brick shrink and wrap on drying
    C) Makes the brick split into pieces
    D) Change colour of brick from red to yellow

95. For converting quick lime into hydrated lime required quantity of water is added to quick lime, this process is known as
    A) Calcination
    B) Slaking
    C) Quenching
    D) Hydration

96. Match the correct answer from Group B for the statement given in Group A.

A	**B**
a. The foundation most suitable for bridge is	I. Combined footing
b. Raft foundation is also called	II. Strap footing
c. When two or more footings are connected by a beam	III. Pile foundation
d. When two columns are spaced close to each other	IV. Mat foundation

A) a – III, b – IV, c – II, d – I   B) a – IV, b – III, c – II, d – I

C) a – II, b – IV, c – III, d – I   D) a – I, b – IV, c – II, d – III

97. The inward tilt given to the cross section of the road surface throughout the length of horizontal curve is

A) Camber   B) Gradient

C) Widening   D) Super elevation

98. The ratio between the area of crop irrigated and the quantity of water required during the entire growth period of crop is called

A) Duty   B) Base period

C) Crop period   D) Delta

99. What is the minimum lift for earth work excavation ?

A) 4.0 m   B) 3.0 m

C) 2.5 m   D) 1.5 m

100. What is the name given to area of a building consisting of verandah, passages, corridors, balconies, etc. ?

A) Plinth area   B) Vertical circulation area

C) Horizontal circulation area   D) Carpet area

Space for Rough Work