

Tracer (Soil Survey and Soil Conservation)

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1. What is the length of scale required to construct a plain scale of R.F of 1:30 to read metres and decimetres, capable of measuring up to 6m?
(A) 18 centimetre (B) 20 centimetre
(C) 30 centimetre (D) 60 centimetre
2. In conic sections, the tangent plane and the section plane meet along a line known as the
(A) Axis of conic (B) Latus rectum
(C) Directrix of conic (D) Double ordinate
3. Which of the following condition does the top view of a line appear as a point while its true length is seen in the vertical plane?
(A) Line perpendicular to HP (B) Line parallel to VP
(C) Line inclined to HP (D) Line in HP
4. A polyhedron having a polygon as its base and isosceles triangular faces equal in number to the sides of the polygon as its lateral faces is called
(A) Frustum (B) Cylinder
(C) Prism (D) Pyramid
5. A line AB is in the first quadrant, inclined to HP and parallel to VP. 20 mm in front of VP and 15 mm above HP. In the orthographic projection, what is the distance of the top view of AB from the reference line (XY)?
(A) 15 mm above the reference line (B) 15 mm below the reference line
(C) 20 mm above the reference line (D) 20 mm below the reference line
6. What is the sum of the interior angles of a regular pentagon?
(A) 540° (B) 720°
(C) 900° (D) 108°
7. Which of the following statements is / are correct about the statements based on the size of drawing sheet as per IS 10711:2011?
(i) Trimmed size of A1 drawing sheet is 420mm $\times$ 594mm
(ii) Area of A2 size trimmed drawing sheet is 0.5 Sq.m
(iii) Untrimmed size of A3 drawing sheet is 330mm $\times$ 450mm
(A) only (i) & (ii) (B) only (ii) & (iii)
(C) only (i) & (iii) (D) only (iii)
8. Which type of lines are drawn as continuous thin lines, extending slightly beyond the respective dimension lines and perpendicular to the feature being dimensioned?
(A) Leader line (B) Projection lines
(C) Dimension lines (D) Oblique line
9. What is the area of the circle, if the circumference is 10π cm?
(A) $100 \pi \text{ cm}^2$ (B) $10 \pi \text{ cm}^2$
(C) $25 \pi \text{ cm}^2$ (D) $20 \pi \text{ cm}^2$

10. What is the volume of a square pyramid of base width 10 cm and vertical height 15 cm?

(A) 150 cm^3

(B) 1500 cm^3



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(C) 5000 cm³

(D) 500 cm³

11. Which unit is used to measure the intensity of light in the SI system?

(A) Ampere

(B) Kelvin

(C) Candela

(D) Second

12. The force which imparts an acceleration of 1 m/s² to a body of mass of 1 kg is equal to

(A) 1 Joule

(B) 1 Pascal

(C) 1 Newton

(D) 1 Watt

13. How many millimeters are equal to one inch?

(A) 2.54 mm

(B) 25.4 mm

(C) 12.5 mm

(D) 24.5 mm

14. What is the highest dots per inch (DPI) one can print a drawing?

(A) 800 dpi

(B) 1000 dpi

(C) 1400 dpi

(D) 1200 dpi

15. What determines by how much the diagram is enlarged or reduced in CADD?

(A) Scale factor

(B) Grid size

(C) Zoom factor

(D) Object type

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

(A) Modify Text

(B) Move Text

(C) Multi Text

(D) Menu Text

17. Which shortcut key does the work of Ortho?

(A) F6

(B) F7

(C) F8

(D) F9

18. Which commands are used for modifying the existing drawing?

(A) Properties toolbar

(B) Drawing commands

(C) Extend commands

(D) Modifying commands

19. When was Auto CAD originally introduced?

(A) March 1986

(B) November 1982

(C) January 1980

(D) July 1990

20. STRETCH command is helpful for:

(A) Creating new drawing

(B) Making quick alterations to drawings

(C) Printing drawings

(D) Saving drawings

21. Statement I: A strap footing is used to connect an eccentrically loaded column footing to an adjacent interior footing using a rigid structural beam, ensuring uniform soil pressure distribution. Statement II: Grillage foundations utilize tiers of steel I-beams encased in concrete to distribute loads over weak soils where deep piling is not feasible.

Which of the following is correct?

(A) Statement I is true, but Statement II is false

(B) Statement I is false, but Statement II is true

(C) Both Statement I and Statement II are true

(D) Both Statement I and Statement II are false

22. Statement I: "Peeling" is a plaster defect characterized by the formation of small, localized cone-shaped swellings on the plastered surface, caused by the slaking of unslaked lime particles. Statement II: Blistering in paints occurs when moisture or solvent vapor gets trapped beneath the

paint film, expanding to form bubbles when exposed to heat.

Which of the following is correct?

(A) Statement I is true, but Statement II is false.

(C) Both Statement I and Statement II are true.

(B) Statement I is false, but Statement II is true.

(D) Both Statement I and Statement II are false

23. Statement I: Flying shores are used to provide temporary horizontal structural support between two parallel, closely spaced masonry walls when an intermediate building is being demolished. Statement II: Needle beams are inclined structural steel rakers driven at a 45 degree angle into the ground to provide heavy vertical uplift to settling building corners.

Which of the following is correct?

(A) Statement I is true, but Statement II is false.

(C) Both Statement I and Statement II are false.

(B) Statement I is false, but Statement II is true.

(D) Both Statement I and Statement II are true

24. Statement I: Distemper is a water-based paint variation utilizing chalk or whiting as a base and casein or glue as a binder, suitable primarily for exterior surfaces.

Statement II: "Efflorescence" on a plastered wall is caused by the presence of soluble salts in the bricks that migrate to the surface, leaving a white crystalline crust.

Which of the following is correct?

(A) Statement I is true, but Statement II is false.

(C) Both Statement I and Statement II are true.

(B) Statement I is false, but Statement II is true.

(D) Both Statement I and Statement II are false

25. Statement I: The Vicat Apparatus is used to determine the standard consistency, initial setting time, and final setting time of a cement paste matrix.

Statement II: The Le-Chatelier test measures the soundness of cement against long-term volumetric expansion caused specifically by excess quantities of free lime and magnesia.

Which of the following is correct?

(A) Statement I is true, but Statement II is false.

(C) Both Statement I and Statement II are false.

(B) Statement I is false, but Statement II is true.

(D) Both Statement I and Statement II are true

26. Statement I: The Smith's Test is performed on a stone sample to determine its resistance to frost action and freeze-thaw degradation cycles.

Statement II: An acid test is performed to check for the presence of soluble calcium carbonate in stones; a stone that crumbles or shows muddy water in this test is unsuitable for polluted urban environments.

Which of the following is correct?

(A) Both Statement I and Statement II are false

(C) Statement I is false, but Statement II is true

(B) Statement I is true, but Statement II is false

(D) Both Statement I and Statement II are true

27. Statement I: "Dry Rot" is a form of fungal decay that thrives in poorly ventilated, damp spaces, converting dry wood into a friable, powdery mass.

Statement II: Creosoting is a highly effective timber preservation method that uses coal-tar distillates to protect wood, but it leaves an unpleasant odor and a dark surface that cannot be easily painted.

Which of the following is correct?

(A) Both Statement I and Statement II are true

(B) Statement I is true, but Statement II is false



(C) Statement I is false, but Statement II is true

(D) Both Statement I and Statement II are false

28. What is a full scheme consisting of a technical report, design, drawings, and rates called?

(A) Project

(B) Subwork

(C) Layout Plan

(D) Index Plan

29. What scale range is typically adopted for a Site Plan?

(A) 1 cm = 50 m to 100 m

(B) 1 cm = 5 m to 10 m

(C) 1 cm = 0.5 km

(D) 1 cm = 5 km

30. What is the unit of measurement of threading in iron?

(A) mm

(B) cm

(C) m

(D) none

31. What is the life of rolled steel joist for iron works?

(A) 60 Years

(B) 65 Years

(C) 70 Years

(D) 75 Years

32. What is the fixed percentage of depreciation, if the life of structure is 75 years?

(A) 1.1

(B) 1.2

(C) 1.3

(D) 1.4

33. Dormitories are classified under which residential subdivision?

(A) A-1

(B) A-2

(C) A-3

(D) A-4

34. Minimum distance from building line of a major district road:

(A) 9 m

(B) 12 m

(C) 15 m

(D) 18 m

35. The extended part of core taken upto the impervious strata to control the seepage flow through the pervious foundation of earth dam:

(A) Shell

(B) Filter

(C) Core

(D) Cut off

36. A small regulating reservoir located immediately before the water enters the penstock or turbine:

(A) Forebay

(B) Turbain

(C) Inlet

(D) Impoundment

37. The width of berm for canal in embankment should be:

(A) 1.5 D

(B) 2 D

(C) 3 D

(D) 2.5 D

38. When the drain is carried over the irrigation canal, the CD work is called:

(A) Aqueduct

(B) Super passage

(C) Level crossing

(D) Outlet

39. The passage for the flow of surplus water in a weir:

(A) River training works

(B) Spillway

(C) Regulator

(D) Apron

40. Example for kharif crops:

(A) Cotton

(B) Wheat

(C) Barley

(D) Potatoes

41. What is the inner most part of screw thread?

(A) Lead

(B) Pitch

(C) Crest

(D) Root

42. Where eye bolts are used?

(A) Transmission of Power

(B) Locking devices

(C) Lifting and transporting heavy machines

(D) Absorbing shocks and vibrations

43. What is the angle of British association thread?

(A) 60°

(B) 50°

(C) 47.5°

(D) 45°

44. How are ISO metric thread designated on working drawing?

(A) With the letters ISO

(B) With the letter L

(C) With the letter M

(D) With the letter N

45. What is the plates thickness of double v and double u butt welds?

(A) 1 to 5 mm

(B) 5 to 10 mm

(C) 10 to 15 mm

(D) More than 15 mm

46. Which one of these fastener is used to prevent rotation between two Parts?

(A) Bolt

(B) Set screw

(C) Stud

(D) Cap screw

47. Which of the following is not a part of a rivet?

(A) Head

(B) Shank

(C) Tail

(D) Thread

48. What is the formula of Unwin's?

(A) $d = t$

(B) $d = 1.6\sqrt{t}$

(C) $d = 2t$

(D) $d = 6\sqrt{t}$

49. What is the main object of caulking in riveted joints?

(A) Free from corrosion

(B) Stronger in tension

(C) Free from stresses

(D) Leak proof

50. What is the method of development of a cube?

(A) Parallel line method

(B) Radial line method

(C) Triangulation method

(D) Approximate method

51. Name the curve of intersection of a vertical cone cut by an auxiliary vertical plane?

(A) Straight line

(B) Parabola

(C) Hyperbola

(D) Ellipse

52. Which one of the following is a positive belt drive?

(A) Flat belt drive

(B) 'V' belt drive

(C) Ribbed belt drive

(D) Toothed belt drive

53. In spur gear, which one of the following term is the radial distance between the pitch circle and the root circle?

(A) Dedendum

(B) Addendum

(C) Working depth

(D) Module

54. Which one of the following gear drive is used for heavy speed reduction purpose?
(A) Herring-bone gear drive (B) Mitre gear Drive
(C) Worm shaft and worm gear drive (D) Bevel gear drive
55. Which one of the following valve is used for obtaining flow in one direction only?
(A) Globe valve (B) Gate valve
(C) Needle valve (D) Check valve
56. Which one of the following is not an antifriction bearing?
(A) Split bearing (B) Needle bearing
(C) Ball Bearing (D) Taper roller bearing
57. Which one of the following is the power source of a pneumatic system?
(A) Air receiver (B) Pressure valve
(C) Compressor (D) Fluid pump
58. Which of the following statement is not correct about FRL unit?
(A) FRL unit maintains constant output pressure of fluid (B) FRL unit add oil into the compressed air
(C) FRL unit act as a filter (D) FRL unit increase the efficiency of compressor
59. Which one of the following plain bearing is not required regular lubrication?
(A) Sintered alloy bearing (B) Cast iron bearing
(C) Copper lead alloy bearing (D) Aluminium alloy bearing
60. Which one of the following bearing has provision for wear adjustment?
(A) Taper roller bearing (B) Adjustable slide bearing
(C) Needle bearing (D) Split bearing
61. In BIS system of limit and fits, which one of following term is the difference between maximum limit of size to its basic size?
(A) Tolerance (B) Allowance
(C) Upper deviation (D) Maximum limit of size
62. In the graphical representation of limits and fits, which one of the following terms is indicated by the zero line?
(A) Basic size (B) Actual size
(C) Tolerance (D) Deviation
63. Which one of the following statements is correct about clearance fit?
(A) The tolerance zone of the hole will be below the tolerance zone of the shaft (B) The difference between the minimum hole and the maximum shaft gives minimum clearance
(C) It is a fit which not always provides clearance (D) In bearing assembly, clearance fit is provided between hub and bearing
64. Which one of the following terms is the actual difference between the surface speed of the belt and the pulley?
(A) Creep (B) Slip
(C) Wrapping (D) Dressing
65. Which one of the following belt fasteners is used for industrial purposes?
(A) Wire type belt fastener (B) Jackson-type belt fastener

- (C) Crescent plate belt fastener (D) Alligator type belt fastener
66. Which method is not used for solving three-point problem in plane table surveying?
(A) Tracing paper method (B) Graphical method
(C) Triangle of error method (D) Triangulation method
67. The bench mark established by a local government department on any permanent structure is known as:
(A) G.T.S bench mark (B) Temporary benchmark
(C) Permanent benchmark (D) Arbitrary benchmark
68. The horizontal equivalent being zero in the case _____.
(A) Overhanging cliff (B) Valley
(C) Hill (D) Vertical Cliff
69. The error due to inclination of line of collimation can be eliminated by:
(A) Equalising BS and FS distance (B) Taking the readings twice
(C) Check levelling (D) Fly levelling
70. The axis about which the telescope can be rotated in vertical plane is called:
(A) Axis of telescope (B) Horizontal axis
(C) Vertical axis (D) Axis of level tube
71. Which tape is used to measure the baseline precisely in a triangulation survey?
(A) Linen tape (B) Metallic tape
(C) Invar tape (D) Synthetic tape
72. The index glass of optical square is set at an angle of _____ degree to the index sight.
(A) 45 (B) 105
(C) 120 (D) 90
73. True meridian through various stations are:
(A) Parallel to each other (B) converges to equator
(C) Converges to the poles (D) None of these
74. The principle of tacheometry is based on the property of:
(A) Equilateral Triangle (B) Right Angled Triangle
(C) Scalene Triangle (D) Isosceles Triangle
75. In Simpson's rule the boundary between the ordinates is considered as:
(A) Parabola (B) Straight
(C) Triangle (D) Trapezium
76. Calculate the cross sectional area of an embankment 10m wide with side slope of 2:1. The ground is level in a transverse direction to the centre line. The central height of the embankment is 2.5m:
(A) 37.5 m^2 (B) 35.5 m^2
(C) 32.5 m^2 (D) 30.5 m^2
77. The GPS is a world wide radio – navigation system formed from a constellation of
(A) 20 Satellites (B) 22 Satellites
(C) 23 Satellites (D) 24 Satellites
78. A vehicle used to carry the sensor is called:

- (A) Space segment
- (C) User segment

- (B) Control segment
- (D) Platform

79. Most commonly used planimeter is:

- (A) Rolling Planimeter
- (C) Digital Planimeter

- (B) Amsler Polar Planimeter
- (D) Robotic Planimeter

80. Tangent clinometer is also known as:

- (A) De Lisle's clinometer
- (C) Indian Pattern Clinometer

- (B) Ceylon Ghat Tracer
- (D) Abney level

81. V shaped gullies are formed where the subsoil is:

- (A) More susceptible to erosion than top soil
- (C) Less resistant to erosion than top soil

- (B) More resistant to erosion than top soil
- (D) Both top soil and subsoil are equally susceptible to erosion

82. Bench terraces suitable for areas receiving medium rainfall and highly permeable deep soil are:

- (A) Inward sloping terraces
- (C) Table-top terraces

- (B) Outward sloping terraces
- (D) All of the above

83. Permissible flow velocities in grassed waterways after establishing a good quality grass cover:

- (A) 1 to 1.5 m/s
- (C) 1.8 to 2 m/s

- (B) 1.5 to 1.8 m/s
- (D) 2 to 2.5 m/s

84. When surface slope of a land is increased four times, the velocity of runoff water is:

- (A) Increased two times
- (C) Decreased to half

- (B) Increased four times
- (D) Remain unchanged

85. The spur constructed at right angles to the flow on either side of a stream is known as:

- (A) Aggradation spur
- (C) Protection spur

- (B) Deflection spur
- (D) None of these

86. Which of the following statements about a PTO is incorrect?

- (i) PTO speed is determined by engine speed
- (ii) PTO speed also depends upon the travel speed of the tractor
- (iii) 6-spline PTO having 540 ± 10 rpm
- (iv) Power loss in the PTO drive is very high compared to the drawbar

- (A) (i) & (iii)
- (C) (ii) & (iv)

- (B) (ii) & (iii)
- (D) All the above

87. The difference in distance between the centre line of the back end and the front end of the front wheels of the tractor is called:

- (A) Camber angle
- (C) Wheelbase

- (B) Toe-in
- (D) Turning space

88. Which process involves the mechanical manipulation of soil in standing water to create a least-pervious layer and prevent water loss?

- (A) Subsoiling
- (C) Puddling

- (B) Mulching
- (D) Tilling

89. The angle at which the plane of the cutting edge of a disc is inclined to the direction of travel is known as the:

- (A) Tilt angle
- (C) Gang angle

- (B) Disc angle
- (D) Rake angle

90. The percentage of unthreshed grains from all outlets with respect to the total grain input to a thresher by weight is known as:

- (A) Blower loss
- (B) Sieve loss
- (C) Rack loss
- (D) Cylinder loss

91. In a mower or reaper, keeping the outer end of the cutter bar slightly ahead of the inner end to compensate for backward deflection during operation is known as:

- (A) Registration
- (B) Alignment
- (C) Pitch
- (D) Lead

92. What type of mouldboard bottom is specially designed for ploughing in sticky or poorly scouring soils

- (A) Stubble type
- (B) Sod or breaker type
- (C) Slotted or slat type
- (D) General-purpose type

93. Which type of blade is most commonly used in a rotary tiller (rotavator) for general soil working conditions?

- (A) C-type blade
- (B) L-type blade
- (C) Hook-type blade
- (D) Straight blade

94. Which statement is/are correct in the case of a flood jet nozzle?

- (i) Help to reduce the chemical drift
- (ii) The spray angle is adjustable between 30° and 60°
- (iii) It is also called a deflector nozzle
- (iv) The nozzle operates at a pressure range of 40 to 100 psi

- (A) (i) Only
- (B) (ii) & (iii)
- (C) (i) & (iii)
- (D) (iv) Only

95. How is the seed rate adjusted in the fluted roller-type seed metering unit?

- (i) Varying exposure length of flutes
- (ii) Reducing or increasing the number of flutes
- (iii) Increase or decrease the size of the opening from the seed storage to the metering unit
- (iv) Increase the capacity of the storage tank

- (A) (i) & (ii)
- (B) (ii) & (iii)
- (C) (iii) & (iv)
- (D) All the above

96. Which unit operation primarily improves the keeping quality of milk before distribution?

- (A) Cream separation
- (B) Standardisation
- (C) Pasteurisation
- (D) Homogenisation

97. During hot-air drying, air is heated from 30°C to 50°C without adding moisture. Which of the following properties of the air decreases primarily?

- (A) Dry bulb temperature
- (B) Relative humidity
- (C) Humidity ratio
- (D) Atmospheric pressure

98. The improvement in head rice recovery observed after parboiling is primarily due to:

- (A) Reduction in grain moisture content before milling
- (B) Removal of bran during soaking

- (C) Increase in grain size during steaming
- (D) Gelatinization of starch, which strengthens the rice kernel and reduces breakage during milling

99. Which factor has the greatest influence on the equilibrium moisture content (EMC) of food grains?

- (A) Respiration rate of grain
- (B) Dockage percentage

(C) Relative humidity of air

(D) Mass per bulk volume

100. During screw press oil extraction, increasing the moisture content of oilseeds beyond the optimum level generally:

(A) Increases filtration rate

(B) Reduces extraction efficiency

(C) Improves oil recovery

(D) Has no effect



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