016/2024

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. The test preformed to know the presence of alkaline substances in the bricks is :

(A) Efflorescence test (B) Soundness test

(C) Water absorption test (D) Boiling water brick test

2. Which of the following is an example of igneous rock?

(A) Marble (B) Granite

(C) Shale (D) Schist

3. Crushing strength of a good building stone should not be less than :

(A) 50 N/mm^2 (B) 100 N/mm^2

(C) 200 N/mm^2 (D) 450 N/mm^2

4. Cube size recommended for testing the compressive strength of cement as per IS 4031 part 6 :

(A) 15 cm (B) 50 cm

(C) 30.54 mm (D) 70.6 mm

5. Which attachment should be placed on the vicat's apparatus to find the initial setting time?

(A) Square needle (B) Round needle

(C) Needle with annular collar (D) Plunger

6. Which of the following is not a defect in timber due to natural forces?

(A) Callus (B) Burls

(C) Bow (D) None of the above

7. Which one of the following is used as driers in Paint?

(A) Tung oil (B) White lead

(C) Naphtha (D) Litharge

8. What property of freshly mixed mortar determines its ease of placement, compaction and finishing?

(A) Workability (B) Water receptivity

(C) Consistency (D) Compressive strength

9. What is gauged cement mortar?

(A) A mixture of cement, sand and water

(B) A mixture of cement, sand, mud and water

(C) A mixture of cement, sand, lime and water

(D) A mixture of cement, sand, water and admixtures

10. Which one of the following is an example for mineral admixture?

(A) Fly ash (B) Fluro-silicate

(C) Gypsum (D) Air entraining agents

11. What does the term "batching" refer to in concrete production?

(A) Placing concrete in formwork

(B) Mixing of ingredients in concrete

(C) Measurement of materials for concrete

(D) Compaction of concrete to remove entrapped air

12. The main constituent of Varnish is :

(A) Resin (B) Solvent

(C) Petrol (D) Turpentine oil

13. The percentage of carbon content in steel is :

(A) 2.5 to 4.5% (B) 2 to 3%

(C) 0.15 to 1.5% (D) 0.1 to 0.15%

14. Terracotta is a type of :

(A) Stoneware (B) Earthenware

(C) Rock ware (D) Porcelain

15. The plastics are :

(A) Conductors (B) Semi-Conductors

(C) Conducts at room temperature (D) Insulators

16. If stretchers are seen on the front face of a course in English bond with a wall thickness of 1.5 brick, which one is seen on the back face?

(A) Headers (B) Stretchers

(C) Alternate stretcher and header (D) Raking back

17. Which of the following is a brick whose width is half the width of a full brick?

(A) Half bat (B) Queen closer

(C) Mitred closer (D) Three quarter bat

18. What is the term for the lower half of the arch between the crown and skewback?

(A) Abutment (B) Spandril

(C) Springer (D) Haunch

19. Which pile passes through the soft soil and rest on the hard stratum at the bottom?

(A) Bearing pile (B) Friction pile

(C) Compaction pile (D) Batter pile

20. Which part of the well foundation act as an extension of cutting edge and transfers the load to the soil below?

(A) Bottom plug (B) Curb

(C) Steining (D) Reinforcement

21. Which method provides temporary support to maintain stability of the unsafe structure?

(A) Scaffolding (B) Shuttering

(C) Underpinning (D) Shoring

22. What is the purpose of asphalt tanking treatment in buildings?

(A) Fire proofing (B) Termite proofing

(C) Damp proofing (D) Thermal insulation

23. What is the process of joining the two pieces of timber at an angle?

(A) Mitring (B) Housing

(C) Tenoning (D) Moulding

24. Which of the following is a process of planning off the flat edges or corners of a timber piece to form an angle of 45 degree?

(A) Bevel (B) Rebating

(C) Chamfering (D) Mortising

25. Which of the following is a vertical member employed to subdivide a window or a door opening vertically?

(A) Jamb (B) Panel

(C) Transom (D) Mullion

26. Which term refers to the horizontal bottom member of the door/window frame?

(A) Horns (B) Sill

(C) Bottom rail (D) Panel

27. In the designation 10 DS 20, letters S stands for :

(A) Style (B) Size of opening

(C) Single shutter (D) Double shutter

28. What kind of window has shutters hinged on the sides as in a door?

(A) Sash window (B) Gable window

(C) Dormer window (D) Casement window

29. Which term refers to the lowest edge of the sloping surface of a roof?

(A) Valley (B) Eves

(C) Ridge (D) Hip

30. Which type of roof has a pair of common rafters sloping upward from opposite walls meet on ridge piece at the upper end?

(A) Couple roof (B) Lean to roof

(C) Bengal terrace roof (D) Reinforced concrete roof

31. The ratio of effective length to least radius of gyration of a compression member is known as :

(A) Development length (B) Slenderness ratio

(C) Compression index (D) None of the above

32. In ISMB 400 @ 61.6 kg/m, the value 400 indicate :

(A) Total width in mm (B) Total thickness in mm

(C) Total depth in mm (D) Total strength of section

33. A tension member in which a reversal of direct stress occurs due to loads other than wind or seismic forces the maximum effective slenderness ratio is :

(A) 250 (B) 350

(C) 180 (D) 400

34. A plate used for connecting two or more structural member interesting each other is called :

(A) Base plate (B) Anchor plate

(C) Gusset plate (D) None of the above

35. The heaviest I section for the same depth is :

(A) ISWB (B) ISHB

(C) ISMB (D) ISLB

36. According to IS 456 : 2000 the maximum strain in concrete at the extreme compression fiber is :

(A) 0.0035 (B) 0.002

(C) 0.0045 (D) 0.006

37. According to IS 875 part 3, the factor k2 for the calculation of wind load depends upon :

(A) Class of the building (B) Height of the building

(C) Terrain of the building site (D) All of the above

38. Which of the following sections should preferably be used at places where torsion occurs?

(A) Channel section (B) Box type section

(C) Angle section (D) Any of these

39. Short term deflection shall be calculated using :

(A) Ultimate load theory (B) Elastic theory

(C) Limit state theory (D) All of the above

40. The minimum percentage of reinforcement of the gross sectional area for mild steel and HYSD bars in slab is :

(A) 0.10% and 0.12% (B) 0.12% and 0.15%

(C) 0.15% and 0.12% (D) 0.12% and 0.10%

41. Waste water from bathrooms, kitchen and sink is called as :

(A) Sewerage (B) Rubbish

(C) Sullage (D) Garbage

42. Sewer used to carry waste water from a house to next immediate point of disposal is called :

(A) Main sewer (B) Branch sewer

(C) House sewer (D) Lateral sewer

43. Sewer pipes should be designed and checked for :

(A) Minimum discharge (B) Maximum discharge

(C) Average discharge (D) Both (A) and (B)

44. With increase in the temperature of waste water :

(A) DO depletes and bacteriological activity increase

(B) DO increases and bacteriological activity decreases

(C) DO remains constant and bacteriological activity increases

(D) DO remains constant and bacteriological activity decreases

45. Ratio of 5 day BOD to ultimate BOO is :

(A) 2/3 (B) 3/2

(C) 3/4 (D) 4/3

46. Name the head quarter of Western railway :

(A) Mumbai CST (B) New Delhi

(C) Kolkata (D) Church Gate Mumbai

47. CRIS under ministry of railway stands for :

(A) Corporation for Railway Information System

(B) Centre for Railway Information System

(C) Centre for Railway Identification System

(D) Catering for Railway limited System

48. Coning of wheel is provided for :

(A) To avoid discomfort to the passengers

(B) To avoid damage to the inner faces of rails

(C) To prevent lateral movement of wheels

(D) All of the above

49. If the sleeper density is N+7 for 13 meter rails, the minimum depth of ballast under wooden sleepers (25 cm $\times$ 13 cm) is?

(A) 15 cm (B) 20 cm

(C) 25 cm (D) 30 cm

50. The gradient on which an additional engine is required to negotiate the gradient is called :

(A) Ruling gradient (B) Limiting gradient

(C) Pusher gradient (D) Momentum gradient

51. If the ruling gradient is 1 in 20. What is the compensated gradient for a radius of 120 m?

(A) 6.255 (B) 4.250

(C) 4.375 (D) 6.325

52. For a comfortable travel on highways, the centrifugal ratio should not exceed :

(A) 0.11 (B) 0.22

(C) 0.33 (D) 0.44

53. Grade compensation on a horizontal curve on highway is not necessary when :

(A) Gradient is flatter than 2 % (B) Gradient is flatter than 3 %

(C) Gradient is flatter than 4 % (D) Gradient is flatter than 6 %

54. The maximum scour depth for the condition of flow at noses of piers, when d is the depth of scouring is :

(A) 1.27 d (B) 1.5 d

(C) 1.75 d (D) 2.00 d

55. The permissible stresses for HYSD bars (Fe 415) for the purpose of designing Bridge Deck as per IRC 21: 2000 is :

(A) 200 MPa (B) 240 MPa

(C) 415 MPa (D) 500 MPa

56. A room to be planned for one function can be used for another function when the principle of ———————— is considered in the planning process :

(A) Aspect (B) Prospect

(C) Flexibility (D) Grouping

57. ———————— specifies the size and layout of drawing sheets :

(A) IS: 10262 (B) IS: 10711

(C) IS: 1200 (D) IS: 962

58. The standard line thickness required for the border lines of a drawing is :

(A) 0.5 mm (B) 1 mm

(C) 0.6 mm (D) 0.75 mm

59. Centrodial Lines in Engineering Drawing are indicated by :

(A) Dashed Thin Lines (B) Continuous Thick Lines

(C) Chain Thin Double Dashed Lines (D) Chain Thick Lines

60. Recommended size for letters of the Title of drawing is :

(A) 3 mm (B) 5 mm

(C) 6 mm (D) 10 mm

61. The scale used to construct angles in the absence of a protractor is :

(A) Scale of Chords (B) Vernier Scale

(C) Diagonal Scale (D) Plain Scale

62. In ———————— Projection, the projectors from an object are parallel to each other and perpendicular to the plane of the picture :

(A) Isometric (B) Cabinet

(C) Clinographic (D) Cavalier

63. A non residential enclosure constructed of non load bearing partitions is called :

(A) Canopy (B) Cabin

(C) Cornice (D) Coping

64. The function key to toggle between GRID 'ON' and 'OFF' in AutoCAD is :

(A) F1 (B) F3

(C) F5 (D) F7

65. The command for Construction line in AutoCAD is :

(A) CL (B) CLINE

(C) XLINE (D) CONL

66. The quantity of honeycomb brick wall is measured in :

(A) sq.m (B) cu.m

(C) m (D) cu.cm

67. _____ is a type of rough cost estimate :

(A) Abstract Estimate (B) Annual Repair Estimate

(C) Supplementary Estimate (D) Revised Estimate

68. In the analysis of rates, labour is taken on a daily wage basis for _____ hours of working per day :

(A) 7 hours (B) 8 hours

(C) 9 hours (D) 10 hours

69. In computing quantity for painting both faces of a Venetian Door, _____ times the surface area of one side may be taken as the measurement for both sides :

(A) 1.5 (B) 2

(C) 2.25 (D) 3

70. Cornice is measured in _____ with the type and projection specified :

(A) m (B) sq. m

(C) cu. m (D) sq. mm

71. _____ survey is conducted before setting out of the work on the ground :

(A) Reconnaissance (B) Preliminary

(C) Location (D) Cadastral

72. _____ method of Plane Table Surveying is more suitable for hilly areas :

(A) Radiation (B) Resection

(C) Intersection (D) Traversing

73. A line lying on the surface of the ground with uniform inclination to the horizontal at all points on it is called :

(A) Contour
(B) Contour Gradient
(C) Contour Interval
(D) Horizontal Equivalent

74. The method of levelling done by the measurement of boiling points at different points is :

(A) Barometric Levelling
(B) Compound Levelling
(C) Hypsometric Levelling
(D) Fly Levelling

75. The variations in declination due to magnetic storms may be categorised as _____ variation :

(A) Secular
(B) Annual
(C) Diurnal
(D) Irregular

76. Which of the following results in decrease of chain length?

(A) Wear of wearing surfaces
(B) Sticking of mud
(C) Rough handling in pulling through fence
(D) Opening out of rings

77. Each metric chain shall be accompanied with _____ number of arrows :

(A) 5
(B) 10
(C) 15
(D) 20

78. The datum considered for GTS Benchmark is the mean sea level at :

(A) Mumbai
(B) Delhi
(C) Thiruvananthapuram
(D) Alappuzha

79. Which of the following lines passes through the centre of the earth?

(A) Level line
(B) Horizontal line
(C) Plumb line
(D) Line of collimation

80. In a Prismatic Compass, graduations are marked on the ring with _____ at the north end of the needle :

(A) 180°
(B) 360°
(C) 0°
(D) 90°

81. The delta for a crop when its duty is 1728 hectares/cumec on the field and the base period of this crop is 150 days will be :

(A) 75 cm
(B) 0.75 cm
(C) 7.5 cm
(D) 750 cm

82. The first watering which is given to a crop, when the crop is a few centimetres high, is called :

(A) Paleo irrigation
(B) Kor-watering
(C) Permanent wilting point
(D) Field capacity

83. A canal which is aligned parallel to the natural drainage flow and usually avoids construction of cross drainage structures is :

(A) Contour canal
(B) Ridge canal
(C) Side slope canal
(D) None of these

84. The river training works which force the river into a restricted channel, and thus, ensuring a smooth and an almost axial flow near the weir site are called :

(A) Marginal bunds
(B) Guide banks
(C) Spurs
(D) Groynes

85. The maximum elevation to which the reservoir water surface will rise during normal operating conditions is called :

(A) Surcharge Storage
(B) Minimum Pool Level
(C) Maximum Pool Level
(D) Maximum Conservation Level

86. In a hydro-electric scheme, the water coming from the outlet of a reaction turbine is connected to the tailrace via :

(A) Guide blades
(B) Surge tank
(C) Penstock
(D) Draft tube

87. Which of the following statements are true regarding a canal syphon?

(i) The drain is taken over the canal
(ii) The FSL of the canal is well below the bottom of drain trough
(iii) The canal flows under syphonic action under the trough

(A) Only (i) and (ii)
(B) only (ii) and (iii)
(C) Only (i) and (iii)
(D) (i), (ii) and (iii)

88. Which among the following is a Kharif crop?

(A) Wheat
(B) Barley
(C) Maize
(D) Gram

89. Which among the following is/are the functions of the Canal Head Regulator :

(i) It regulates the supply of water entering the canal

(ii) It controls the entry of silt in the canal

(iii) It prevents the river floods from entering the canal

(A) Only (i)
(B) Only (iii)
(C) Both (i) and (ii)
(D) All (i), (ii) and (iii)

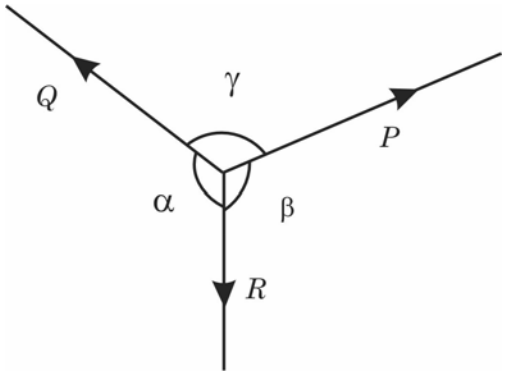
90. The type of cross-drainage work in which canal water and drain water are allowed to intermingle with each other is :

(A) Super-passage
(B) Level crossing
(C) Aqueduct
(D) Canal syphon

91. The frictional resistance experienced by a body while moving is known as :

(A) Static friction
(B) Limiting friction
(C) Dynamic friction
(D) None of these

92. According to Lami's theorem, the correct relation between the forces shown in the figure given below is :



(A) $\frac{P}{\sin \beta} = \frac{Q}{\sin \gamma} = \frac{R}{\sin \alpha}$
(B) $\frac{P}{\sin \alpha} = \frac{Q}{\sin \beta} = \frac{R}{\sin \gamma}$
(C) $\frac{P}{\sin \gamma} = \frac{Q}{\sin \alpha} = \frac{R}{\sin \beta}$
(D) None of these

93. The resultant of two equal forces of magnitude P is equal to $\sqrt{3}P$. Then the angle between the two forces is :

(A) 30°
(B) 90°
(C) 60°
(D) 120°

94. The theorem stated as "The algebraic sum of moments of a system of coplanar forces about a moment centre is equal to the moment of their resultant force about the same moment centre." is :

(A) Varignon's theorem
(B) Lami's theorem
(C) Cauchy's theorem
(D) Euler's theorem

95. The distance of centroid of a semi-circle of radius 'R', from its base is :

(A) $\frac{2R}{3\pi}$
(B) $\frac{16R}{9\pi}$
(C) $\frac{4R}{3\pi}$
(D) $\frac{4R}{9\pi}$

96. The moment of inertia of a triangle with base 'b' and height 'h' about its base is given by the formula :

(A) $\frac{bh^3}{12}$
(B) $\frac{bh^3}{36}$
(C) $\frac{bh^3}{24}$
(D) $\frac{bh^3}{48}$

97. The property of a material whereby it absorbs energy due to straining actions by undergoing plastic deformation is known as :

(A) Resilience
(B) Toughness
(C) Plasticity
(D) Hardness

98. The stress at which a material under tension finally fails is called :

(A) Upper yield point
(B) Ultimate Stress
(C) Elastic limit
(D) Breaking point

99. A Surveyor's steel tape 30 m long has a cross-section of 15 mm $\times$ 0.75 mm. If the force applied during measurement is 120 N more than the force applied at the time of calibration, what will be the error in measured length of a line?

(A) 1.6 mm
(B) 0.0016 mm
(C) Cannot be determined
(D) None of these

100. 1 MPa = :

(A) 10^3 N/mm^2
(B) 10^6 N/mm^2
(C) 1 N/mm^2
(D) 10^9 N/mm^2

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK