124/2024

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Phyllite is an example of:

(A) Sedimentary Rock (B) Extrusive igneous rock

(C) Metamorphic rock (D) Intrusive igneous rock

2. The mineral containing calcium carbonate and magnesium carbonate in equimolecular quantities is called:

(A) Pure lime stone (B) Dolomitic limestone

(C) Dolomite (D) Stone lime

3. The minimum compressive strength of common burned clay brick according to IS 1077:1992 is :

(A) 3.5 Mpa (B) 8 Mpa

(C) 5 Mpa (D) 2.5 Mpa

4. The special kiln used for the manufacture of terracotta is:

(A) Blast furnace (B) Muffle furnace

(C) Intermittent Kiln (D) Puddling furnace

5. Special type of porcelain which is used in automobile industry is:

(A) Soft porcelain (B) Zircon porcelain

(C) Hard porcelain (D) Bone china

6. Gauged Mortar is obtained by adding cement to the mix of:

(A) Sand and Surkhi (B) Sand and Lime

(C) Sand and Mud (D) Surkhi and Lime

7. The maximum mixing time of cement concrete is limited to:

(A) 2 min (B) 3 min

(C) 18 min (D) 6 min

8. Compaction by spinning is also known as:

(A) Immersion (B) Centrifugation

(C) Hand compaction (D) Screed board vibrator

9. Which of the following admixture is chemically active water proofer?

(A) Potash soap
(B) Vegetable oil
(C) Wax
(D) Calcium soap

10. Puzzolanas are rich in:

(A) Silica
(B) Silica and Alumina
(C) Silica, Alumina and Alkali
(D) Silica, Alumina, Alkali and Iron

11. Which of the following is commercially successful fibres in fibre reinforced concrete?

(A) Asbestos
(B) Carbon
(C) Steel
(D) Glass

12. Consider the following statement with respect to the objects of seasoning wood:

(i) Reduce in shrinkage and warping
(ii) Increase in strength and durability
(iii) Reduction of natural defects in timber
(iv) Increase in weight

Identify the correct statement/s

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

13. ———— are logs of timber sawn into pieces of desired shape.

(A) Lumber
(B) Standing timber
(C) Rough timber
(D) Trunk

14. Which of the following is not a binder in paint?

(A) Linseed oil
(B) Turpentine oil
(C) Poppy oil
(D) Nut oil

15. Pick out the incorrect statement with regard to thermosetting plastic:

(A) Once solidify cannot be softened
(B) Example is plexi glass
(C) Form strong covalent bonds during polymerization
(D) 3-Dimensional cross linked structure

16. The portion of the brick left after removing the corner equal to half the width and half the length:

(A) Closer
(B) Mitred Closer
(C) Bevelled Closer
(D) King Closer

17. From the following type of bonds which one is unsuitable for walls of thickness less than 1 ½ brick:

(A) English
(B) Single flemish
(C) Double flemish
(D) Raking

18. The type of composite masonry where the facing is granite or marble and the backing is of bricks is known as:

(A) Rubble-Backed brick masonry
(B) Brick-Backed Ashlar masonry
(C) Brick-Backed stone slab masonry
(D) Reinforced brick wall

19. An arrangement used for situation where a large opening to be made in an existing wall:

(A) Jacking
(B) Shoring
(C) Scaffolding
(D) Under pinning

20. When two footings slabs are connected by a beam, the foundation is called:

(A) Combined footing
(B) Mat footing
(C) Strap footing
(D) Strip footing

21. Foundations which is not used in case of black cotton soil:

(A) Pad foundation
(B) Under reamed pile foundation
(C) Pier foundation with arches
(D) Well point system

22. Which among the given materials is not commonly used for damp proofing?

(A) Mastic asphalt
(B) Glass sheet
(C) Plastic sheet
(D) Combination of sheet and felts

23. Which among the following situation/s where underpinning is not suitable for?

(i) Strengthen an existing building
(ii) Built a basement in an existing building
(iii) Built a new building adjoining the existing building
(iv) For enclosing large area for the construction of bridge pier

(A) Only (i)
(B) (i) and (ii)
(C) Only (iv)
(D) (iii) and (iv)

24. Which of the following general rules for fire resisting building is not correct?

(A) Alarm system may be either automatic or manual

(B) Door of emergency stair can be closed from inside the building

(C) Minimum floor thickness should be 150 mm

(D) Common wall dividing two structures should be of a minimum thickness of two and a half brick

25. Small block of wood which are fixed on the trusses to prevent the sliding of purlins is known as:

(A) Template (B) Post plate

(C) Cleats (D) Barge boards

26. The space between the extrados and the horizontal line through the crown of an arche is known as:

(A) Soffit (B) Skewback

(C) Haunch (D) Spandril

27. The end bearing for lintels should be greater than the following:

(A) Depth of the lintel (B) Width of the lintel

(C) Span (D) 50 mm

28. Which of the following is not a carpentry joint?

(A) Lapped joint (B) Bridle joint

(C) Halved joint (D) Raked joint

29. A vertical member which is employed to subdivide a door opening vertically is known as:

(A) Sash (B) Transom

(C) Jamb (D) Mullion

30. Cork tiles are manufactured from high grade:

(A) Cork pieces (B) Bark of cork oak

(C) Wooden fibres (D) Wooden sheet

31. What is the ratio of M20 grade concrete?

(A) 1:3:6 (B) 1:2:4

(C) 1:1.5:3 (D) 1:1:2

32. As per IS 456:2000, maximum water cement ratio of concrete used in reinforced cement concrete structure exposed to extreme exposure condition is:

(A) 0.4 (B) 0.45

(C) 0.5 (D) 0.6

33. The distance between centroid of area of tension reinforcement and maximum compression fibre in RCC beam is:

(A) Effective depth (B) Overall depth

(C) Effective length (D) Depth of neutral axis

34. Slump test for concrete is carried out to determine:

(A) Strength (B) Durability

(C) Water content (D) Workability

35. A reinforced concrete slab is 80 mm thick. The maximum size of reinforcement bar that can be used is:

(A) 6 mm diameter (B) 8 mm diameter

(C) 10 mm diameter (D) 12 mm diameter

36. The minimum slenderness ratio of short column as per IS 456 is:

(A) Less than 12 (B) Between 12 and 18

(C) Between 18 and 24 (D) More than 24

37. Which one of the following members is a tension member?

(A) Strut (B) Tie

(C) Stanchion (D) Boom

38. In the designation of ISHB, the letter H stands for:

(A) High (B) Hot

(C) Heavy (D) Height

39. What is the anchorage value of a standard U type hook of a reinforcement bar of diameter D?

(A) 4D (B) 8D

(C) 12D (D) 16D

40. The distance between two consecutive bolts of adjacent row and is measured at right angles to the direction of load is called:

(A) Pitch (B) Edge Distance

(C) Gauge Distance (D) Staggered Distance

41. The rate of sludge accumulation in septic tank is:

(A) 30 litres/person/year (B) 30 litres/person/day

(C) 70 litres/person/year (D) 70 litres/person/day

42. Which one of the following is used to prevent the entry of foul gases from municipal sewer to house sewer?

(A) Floor trap
(B) Gully trap
(C) Intercepting trap
(D) Nahni trap

43. The efficiency of disinfection by chlorine in water treatment increases by :

(A) Decrease in time of contact
(B) Increase in pH of water
(C) Increase in temperature of water
(D) Increase in turbidity of water

44. Sewer which transport sewer to the point of treatment is called :

(A) Trunk Sewer
(B) House Sewer
(C) Main Sewer
(D) Outfall Sewer

45. Two pipe system of providing building drainage consist of :

(A) One soil pipe, one waste pipe, one vent pipe, one sullage pipe
(B) One soil pipe, one waste pipe, two vent pipe
(C) Two soil pipe, two waste pipe
(D) Two soil pipes only

46. A railway yard in which wagons are received, sorted and new trains are formed is called :

(A) Goods yard
(B) Locomotive yard
(C) Marshalling yard
(D) Passenger yard

47. In coning of wheels, the wheels are given a slope of :

(A) 1 in 10
(B) 1 in 20
(C) 1 in 25
(D) 1 in 30

48. Fishplates are used to :

(A) Hold rails to the sleepers
(B) Fix rails to bearing plate
(C) Connect rail to rail
(D) Fix sleepers to girders of the bridge

49. The maximum design gradient for vertical profile of a road is :

(A) Limiting gradient
(B) Ruling gradient
(C) Exceptional gradient
(D) Minimum gradient

50. The minimum shoulder width recommended by IRC is :

(A) 3.0 m (B) 1.5 m

(C) 2.5 m (D) 2 m

51. The position of center line of a road is called :

(A) Camber (B) Gradient

(C) Super elevation (D) Alignment

52. The end support of a superstructure of a bridge is called :

(A) Wing wall (B) Pier

(C) Abutment (D) Deck

53. Which type of loading is considered for the design of temporary bridges?

(A) IRC Class AA (B) IRC Class A

(C) IRC Class AB (D) IRC Class B

54. Which one of the following is the temporary structure built for the purpose of excluding water or soil from working area to permit construction without the need for excessive pumping?

(A) Caisson (B) Cofferdam

(C) Causeway (D) Spillway

55. The standard length of rail for Broad Gauge and Meter Gauge are respectively :

(A) 13 m and 12 m (B) 12 m and 13 m

(C) 12 m and 12 m (D) 13 m and 13 m

56. The length of arrow head is ———— times the depth.

(A) 1 (B) 2

(C) 3 (D) 4

57. The maximum summer altitude of sun for a place of latitude of 40° :

(A) 63½° (B) 53½°

(C) 43½° (D) 73½°

58. The factors which affect the ventilation conditions are :

(A) Distance between building along streets

(B) General height of buildings

(C) Lay out of building blocks

(D) All of these

59. The velocity of comfort in humid air climate is :

(A) 4 m/s (B) 2 m/s

(C) 1 m/s (D) 3 m/s

60. Any brightness with in the field of vision so as to cause discomfort, annoyance or eye fatigue :

(A) Illumination (B) Glare

(C) Lighting (D) Radiation

61. Minimum recommended floor area of Bath and Latrine (combined) for residential buildings :

(A) 2.8 m (B) 1.8

(C) 1.1 (D) 2.5

62. Minimum recommended height for bedroom of a residential building :

(A) 2.5 (B) 3

(C) 2.75 m (D) 2.2

63. Lighting that emits light in equal proportions in all directions :

(A) Direct lighting (B) Semi-indirect lighting

(C) Indirect lighting (D) Diffuse lighting

64. The minimum winter altitude of sun for a place of latitude of 40° :

(A) 26½° (B) 53½°

(C) 43½° (D) 73½°

65. Building line for National and state highways :

(A) 9 m (B) 15 m

(C) 30 m (D) 12 m

66. The units of measurement for earthwork in excavation :

(A) cum (B) sqm

(C) quintel (D) m

67. The average horizontal distance between centre of excavation to the centre of disposition is known as :

(A) Lift (B) Plinth

(C) Distance (D) Lead

68. Find the volume of earthwork in embankment of length 12 m. Top width is 5.5 m and depth is 2.5 m. The side slopes are 1½ : 2 :

(A) 23.125 m^3 (B) 67.5 m^3

(C) 77.5 m^3 (D) 165 m^3

69. Determine the cost of hospital building for 50 beds. The cost of construction altogether for each bed is Rs. 60,000 :

(A) Rs. 30,00,000
(B) Rs. 40,00,000
(C) Rs. 50,00,000
(D) Rs. 60,00,000

70. The method of preparation of approximate estimate generally used for multistoreyed buildings is

(A) Plinth area method
(B) Cubical content method
(C) Unit base method
(D) None of these

71. Which one of the following conditions requires geodetic surveying?

(A) Horizontal curve ranging
(B) Vertical curve ranging
(C) Survey of a country
(D) Reconnaissance survey

72. The magnetic bearing of a line AB is S 30° E. If the declination is 6° West, what is the true bearing :

(A) S 36°E
(B) N 36°E
(C) S 24°E
(D) N 24°E

73. Diurnal variation is greater :

(A) In winter than in summer
(B) At smaller latitude than at higher latitude
(C) At magnetic equator points
(D) In summer than in winter

74. The bearing of a line AB is 150° and the angle ABC is 124°. Bearing of line BC is

(A) 94°
(B) 98°
(C) 198°
(D) 90°

75. The plotting of inaccessible points in a plane table survey can be done by the method of :

(A) Interpolation
(B) Radiation
(C) Intersection
(D) Traversing

76. The method of plane tabling commonly used for establishing the instrument station is :

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

77. The combined correction of curvature and refraction for a distance of 1400 m is :

(A) 0.153 m
(B) 0.132 m
(C) 0.09 m
(D) 0.021 m

78. Error due to inclination of line of collimation in leveling across a river can be eliminated by :

(A) Reversion
(B) Reciprocal ranging
(C) Reciprocal leveling
(D) Keeping level in the middle

79. Which of the following sights will be applicable for a change point?

(A) Backsight
(B) Intermediate sight and foresight
(C) Foresight
(D) Backsight and foresight

80. A plane which is perpendicular to the plumb line through a point and is tangential to the level surface at that point is known as :

(A) Tangential plane
(B) Vertical plane
(C) Level plane
(D) Horizontal plane

81. Hydrologic cycle represents :

(A) circulation process of water on, above and below the surface of earth
(B) circulation of water through canal
(C) utilization of water by plants
(D) evaporation of water from land

82. Delta of a crop means :

(A) Crop period
(B) Area under the crop
(C) Depth of water required by crop
(D) Crop production method

83. Hydro graph is a graph of :

(A) surface runoff against time
(B) stream flow against time
(C) precipitation against time
(D) recorded runoff against time

84. Characteristics of a good dam site :

(i) should be away from irrigation area
(ii) should have good firm foundation
(iii) should be in a narrow valley
(iv) the bed and sides should be impervious

(A) (i) and (iii)
(B) (ii), (iii) and (iv)
(C) (i) and (iv)
(D) (i) and (ii)

85. Free board of a dam is :

(A) A type of opening
(B) A type of shutter
(C) The difference between water level and top of dam
(D) The sum of live storage and dead storage

86. A gallery is :

(A) an observation tower

(B) a passage provided in the body of a dam

(C) a shutter

(D) a part of a weir

87. Supper passage is a structure in which :

(A) Canal and drainage flows at same level

(B) Canal flows over a drainage

(C) Drainage channel flows over a canal

(D) Channel for drainage

88. Canal constructed to flow water through out the year is known as :

(A) Perennial canal (B) Inundation canal

(C) Ridge canal (D) Productive canal

89. Berms are provided to :

(A) Remove silt from the canal

(B) Strengthen the canal bank

(C) Allow traffic along canal

(D) Control the flow of water through canal

90. Which of the following is not a canal diversion head works?

(A) fish ladder (B) divide wall

(C) under sluice (D) canal fall

91. When a force acts on a body, some resistance to the deformation develops. This resistance is known as :

(A) Strain (B) Elasticity

(C) Stress (D) Plasticity

92. Modulus of elasticity is the ratio of :

(A) stress to original length

(B) stress to stain

(C) stress to area

(D) change in length to original length

93. The moment of inertia of a circular section of diameter d is given by :

(A) $\pi d^2 / 16$ (B) $\pi d^4 / 32$

(C) $\pi d^3 / 32$ (D) $\pi d^4 / 64$

94. The centre of area of plane figures is known as :

(A) centroid
(B) moment of inertia
(C) centre of gravity
(D) centre axis

95. Hooke's law is valid :

(A) only above elastic limit
(B) only with in elastic limit
(C) only with in plastic limit
(D) till a substance break under load

96. When two concurrent forces 20 Kg and 15 Kg act at right angles on a particle, then their resultant will be equal to?

(A) 5 Kg
(B) 35 Kg
(C) 300 Kg
(D) 25 Kg

97. If three coplanar forces acting at a point be in equilibrium, then each force is proportional to the sine of the angle between the other two. This law is called :

(A) Laws of motion
(B) Varignon's theorem
(C) Lami's theorem
(D) Parallelogram law

98. The maximum value of frictional force which comes into play, when a body just begins to slide over the surface of other body is known as :

(A) rolling friction
(B) limiting friction
(C) sliding friction
(D) coefficient of friction

99. The force which meet at one point, but their lines of action lies on the same plane are called :

(A) coplanar concurrent forces
(B) coplanar non-concurrent forces
(C) non-coplanar concurrent forces
(D) non-coplanar non-concurrent forces

100. Polar moment of inertia is :

(A) equal to moment of inertia
(B) the moment of inertia of an area about an axis parallel to centroid axis
(C) the moment of inertia of an area about an axis perpendicular to the plane of the area
(D) all the above

SPACE FOR ROUGH WORK

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