1. Three important types of park systems are :

(i) Belt or ring system

(ii) Wedge or radial system and

(iii) _____.

(A) Straight system

(B) Ribbon system

(C) Grid system

(D) Combination of belt and wedge system

(E) Answer not known

2. The use of word boulevard has originated from

(A) Paris, France

(B) London, UK

(C) New York, USA

(D) Singapore

(E) Answer not known

3. _____ classified the towns broadly into three categories : primary, secondary and tertiary.

(A) Sir Patrick Geddes

(B) Christopher Alexander

(C) Le-Corbusier

(D) Doxiadis

(E) Answer not known

4. AKFED stands for

(A) Amalgamated Knowledge Foster Energy Dept.
(B) Associated Knowledge Fusing Extensive Dept.
(C) Agricultural Knowledge Foster Energy Development
(D) Aga Khan Fund for Economic Development
(E) Answer not known

5. The Housing and Urban Development Corporation HUDCO was setup in

(A) 1970 (B) 1976
(C) 1980 (D) 1977
(E) Answer not known

6. CIDCO stands for

(A) City and Industrial Development Corporation
(B) City Integrated Development Company
(C) Central Institute Design Company
(D) Central Intensive Design Corporation
(E) Answer not known

7. The year _____ is declared as the International year of shelter for Homeless.

(A) 1977 (B) 1966
(C) 1959 (D) 1987
(E) Answer not known

8. Using a sleeper density of (n + 3) find out the number of sleeper required for constructing a railway track 600m long. [Use one rail length is 12m]

(A) 750
(B) 900
(C) 1200
(D) 700
(E) Answer not known

9. The raised structure above the ground level for carrying the railway track is called

(A) Boxing
(B) Embankments
(C) Cant
(D) Chairs
(E) Answer not known

10. _____ is preferred for high speeds trains.

(A) Broad gauge
(B) Meter gauge
(C) Narrow gauge
(D) Light gauge
(E) Answer not known

11. The clear minimum perpendicular distance between the inner face of the two rails is known as

(A) Camber
(B) Gradient
(C) Gauges
(D) Terrain
(E) Answer not known

12. The minimum shoulder width recommended by the IRC is

(A) 0.50 m
(B) 2.5 m
(C) 3.75 m
(D) 5.00 m
(E) Answer not known

13. The transverse slope provided on a horizontal curve in road construction, this known as

(A) Gradient
(B) Sight Distance
(C) Camber
(D) Super elevation
(E) Answer not known

14. The _____ is a simple optical device used in traffic engineering to measure vehicle speed.

(A) Speedometer
(B) Total station
(C) Enoscope
(D) Endoscope
(E) Answer not known

15. In a bridge, as per IRC specifications, the approaches should have a minimum straight length of

(A) 15 m
(B) 20 m
(C) 25 m
(D) 30 m
(E) Answer not known

16. Which of the following statements are true about design of bridge foundations?

(i) The maximum scour depth

(ii) The maximum grip length required

(iii) The soil pressure at top only

(A) (i) only
(B) (i) and (iii) only
(C) (i) and (ii) only
(D) (ii) and (iii) only
(E) Answer not known

17. Expansion of PCU is

(A) Possible Car Unit
(B) Passenger Car Unit
(C) Passenger Care Unit
(D) Passenger Capacity Unit
(E) Answer not known

18. Which of the following statements are true about Alternate bay method of construction of cement concrete slab?

(i) Less number of transverse joints are to be provided.

(ii) During rains, the surface water collect on the subgrade between the finished bays.

(iii) The construction is spread over the full width of road.

(A) (i) only
(B) (i) and (iii) only
(C) (i) and (ii) only
(D) (ii) and (iii) only
(E) Answer not known

19. Choose the correct matches among the modified classification of road system :

| | | | |
|---|---|---|---|
| 1. | Primary System | – | Local roads |
| 2. | Secondary System | – | State Highways |
| 3. | Tertiary System | – | Village roads |
| 4. | Express way | – | Arterial roads |

(A) 1 and 3 only
(B) 1 and 2 only
(C) 2 and 3 only
(D) 3 and 4 only
(E) Answer not known

20. The expansion of IRC in road infrastructure is

(A) Indian Road Construction
(B) Indian Road Council
(C) Indian Road Community
(D) Indian Road Congress
(E) Answer not known

21. WBS is mainly a tool for

(A) Project scope definition and work decomposition
(B) Procurement management
(C) Quality management
(D) Risk management only
(E) Answer not known

22. Which float affects only the successor activity?

(A) Total float
(B) Free float
(C) Independent float
(D) Negative float
(E) Answer not known

23. Assertion [A] : The award given by an arbitrator is always final and cannot be challenged in court under any circumstances.

Reason [R] : Arbitration aims to eliminate judicial intervention in dispute resolution.

(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 true, but [R] is false

(D) [A] is false, but [R] is true

(E) Answer not known

24. A lumpsum contract is also known as

(A) Unit rate contract

(B) Cost plus contract

(C) Fixed price contract

(D) Percentage rate contract

(E) Answer not known

25. Tender document becomes contract document after

(A) Submission

(B) Opening

(C) Acceptance of tender

(D) Advertisement

(E) Answer not known

26. Match the following hazards with their types.

| Hazard | Types |
|---|---|
| (a) Earthquake | 1. Anthropogenic hazard |
| (b) Acid rain | 2. Geological hazard |
| (c) Epidemic outbreak | 3. Biological hazard |
| (d) Cyclone | 4. Meteorological hazard |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 2 | 1 | 3 | 4 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 2 | 4 | 1 | 3 |
| (D) | 4 | 2 | 1 | 3 |

(E) Answer not known

27. The chemical leaked in the Bhopal gas tragedy causing a major chemical disaster in India in 1984 was _____

(A) Hydrogen cyanide

(B) Methyl isocyanate

(C) Sulphur dioxide

(D) Hydrogen sulphate

(E) Answer not known

28. How are the four main phases of the disaster management cycle arranged in the order of occurrence?

(A) Planning, Awareness, Rescue, Rehabilitation

(B) Mitigation, Preparedness, Response, Recovery

(C) Prevention, Rescue, Relief, Reconstruction

(D) Warning, Evacuation, Rescue, Recovery

(E) Answer not known

29. Find the odd one out in the sequence of disaster management operations.

(A) Mitigation
(B) Preparedness
(C) Response
(D) Vulnerability
(E) Answer not known

30. How are anthropogenic hazards identified among the following?

(A) Earthquakes and volcanic eruptions
(B) Cyclones and Tsunamis
(C) Global warming and acid rain
(D) Landslide and avalanches
(E) Answer not known

31. Time value of money is based on

(A) Money can earn interest over time
(B) Money cannot earn interest over time
(C) Money will remain the same always
(D) Money is not related to time
(E) Answer not known

32. Match the following.

| | | | |
|---|---|---|---|
| (a) | Payment of Wages Act | 1. | 1970 |
| (b) | Minimum Wages Act | 2. | 1923 |
| (c) | Workmen's Compensation Act | 3. | 1936 |
| (d) | Contract Labour (Regulation and Abolition) Act | 4. | 1948 |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 3 | 4 | 2 | 1 |
| (B) | 3 | 2 | 4 | 1 |
| (C) | 2 | 3 | 1 | 4 |
| (D) | 4 | 3 | 2 | 1 |

(E) Answer not known

33. Net cash flow =

(A) Inflow + Outflow
(B) Inflow – Outflow
(C) Outflow – Inflow
(D) Cost only
(E) Answer not known

34. Which is not a PPE?

(A) Helmet
(B) Safety shoes
(C) Gloves
(D) Concrete mixer
(E) Answer not known

35. How is a project evaluated for acceptance using the Benefit – Cost Ratio [BCR]?

(A) BCR > 0
(B) BCR < 0
(C) BCR > 1
(D) BCR < 1
(E) Answer not known

36. In AutoCAD, the keyboard shortcut command "EX" is used for _____.

(A) Export
(B) Extrude
(C) Exit
(D) Extend
(E) Answer not known

37. AutoCAD allows the user to make sharp corner or rounded corners of any two lines automatically using the _____ modify command.

(A) Fillet
(B) Extend
(C) Trim
(D) Offset
(E) Answer not known

38. Match the following.

| Key strokes | Function in AutoCAD |
|---|---|
| (a) Ctrl + P | 1. Save command |
| (b) Ctrl + S | 2. Polar tracking on/off |
| (c) Ctrl + B | 3. Print command |
| (d) Ctrl + U | 4. Snap on/off |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 2 | 4 | 1 | 3 |
| (B) | 3 | 1 | 4 | 2 |
| (C) | 4 | 2 | 3 | 1 |
| (D) | 1 | 3 | 2 | 4 |

(E) Answer not known

39. Identify the correct Auto CAD commands from the following

1. Pline
2. Arc
3. Polygon
4. Array
5. Copy

(A) 1, 2, 4 & 5 only
(B) 1, 2, 3 & 4 only
(C) 1, 2 & 3 only
(D) 1, 2, 3, 4 & 5
(E) Answer not known

40. In an MS Excel worksheet, A cell can hold the basic types of data :

(i) Numerical value
(ii) Text
(iii) Formula
(iv) Charts/Diagrams

(A) (i), (ii), (iii) & (iv)
(B) (ii), (iii) & (iv) only
(C) (i), (ii) & (iii) only
(D) (i), (iii) & (iv) only
(E) Answer not known

41. Net Profit × Y.P is

(A) Depreciation
(B) Sinking fund
(C) Capitalised value
(D) Net value
(E) Answer not known

42. If the amount of annuity is paid for definite number of periods or years, it is known as

(A) Annuity certain
(B) Annuity Due
(C) Perpetual annuity
(D) Deferred annuity
(E) Answer not known

43. The value of a property at the end of its useful life is

(A) Capitalized value
(B) Salvage value
(C) Rental value
(D) Monopoly value
(E) Answer not known

44. The valuation method based on annual income from a property is

(A) Land and building method
(B) Development method
(C) Rental method
(D) Cost method
(E) Answer not known

45. The book value of a property is

(A) Original Cost + Depreciation
(B) Original Cost – Depreciation
(C) Market Value + Depreciation
(D) Scrap value – Depreciation
(E) Answer not known

46. The area of any irregular figure can be determined accurately with a

(A) Planimeter
(B) Pentagraph
(C) Cross-staff
(D) Graph paper
(E) Answer not known

47. What percentage is allowed for water supply in a detailed estimate?

(A) 2%
(B) 8%
(C) 10%
(D) 20%
(E) Answer not known

48. Calculate the volume as per the Prismoidal formula, if the section area at one end is 12 $m^2$ and at another end is 22 $m^2$. The mid sectional area is 18 $m^2$. Take the total length as 300 m.

(A) 1800 $m^3$
(B) 5300 $m^3$
(C) 15900 $m^3$
(D) 2600 $m^3$
(E) Answer not known

49. The usual percentage allowed for work-charged establishment in detailed estimate is

(A) 1% to 2%
(B) 1.5% to 2%
(C) 3% to 5%
(D) 2% to 3%
(E) Answer not known

50. The main purpose of approximate estimate is to

(A) Calculate exact quantities
(B) Obtain a rough project cost quickly
(C) Prepare final bills
(D) Measure completed work
(E) Answer not known

51. Density of cement is

(A) 1440 kg/$m^3$
(B) 1140 kg/$m^3$
(C) 1410 kg/$m^3$
(D) 1400 kg/$m^3$
(E) Answer not known

52. The quantity of cement required for 1 $m^3$ brick masonry in CM 1 : 5 is [Take Dry mortar is equal to 0.30 $m^3$]

(A) 1.44 bags
(B) 1.14 bags
(C) 0.44 bags
(D) 1.04 bags
(E) Answer not known

53. Unit measurement of sand filling under floors is,

(A) m
(B) $m^2$
(C) $m^3$
(D) L.S
(E) Answer not known

54. Match the List 1 with List 2

| | List 1 | | List 2 |
|---|---|---|---|
| (a) | Flooring of Brick Apron | 1. | kg |
| (b) | Jack Arch Roofing | 2. | m |
| (c) | Steel work Iron grill in windows | 3. | $m^3$ |
| (d) | Barbed wire fencing | 4. | $m^2$ |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 4 | 3 | 1 | 2 |
| (B) | 3 | 4 | 1 | 2 |
| (C) | 4 | 3 | 2 | 1 |
| (D) | 2 | 1 | 3 | 4 |

(E) Answer not known

55. Assertion [A] : Specification helps the field staff to complete the work in the stipulated time.

Reason [R] : Specifications give the idea of the materials to be used and as such, can be collected prior to the start of the work.

(A) [A] is true but [R] is false

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

(C) [A] is false, [R] is true

(D) Both [A] and [R] are true, but [R] is not the correct explanation of [A]

(E) Answer not known

56. The estimate is prepared to decide financial aspect, policy and to give idea of the cost of the proposal which will be a _____ estimate.

(A) Rough cost estimate based on plinth area

(B) Supplementary estimate

(C) Approximate estimate

(D) Revised estimate

(E) Answer not known

57. Match the measurement unit with its correct structural item :

| | | | |
|---|---|---|---|
| (a) | Cubic meter ($m^3$) | 1. | Reinforcement steel bars |
| (b) | Square meter ($m^2$) | 2. | RCC foundation lintels |
| (c) | Quintal (qtl) | 3. | Running length of wooden skirting strips |
| (d) | Running meter (m) | 4. | Damp proof course thin layer |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 2 | 4 | 1 | 3 |
| (B) | 4 | 2 | 1 | 3 |
| (C) | 2 | 1 | 4 | 3 |
| (D) | 3 | 4 | 1 | 2 |

(E) Answer not known

58. The cubic contents of a building means

(A) Plinth area × height of the building

(B) Plinth area + height of the building

(C) Carpet area × height of the building

(D) Carpet area + height of the building

(E) Answer not known

59. For a simple rectangular building with 4 standard corners, what is the total deductions made from the outer perimeter length?

(A) 2 × wall thickness
(B) 8 × wall thickness
(C) 4 × wall thickness
(D) Zero deduction
(E) Answer not known

60. If a building has four out walls forming a square, how does the center line method calculate the total perimeter?

(A) Adds the outer dimensions
(B) Sums the center - to - center distances
(C) Sums the inner room dimensions
(D) Multiplies the area by height
(E) Answer not known

61. There are _____ that govern the entire process of EIA.

(A) Eight guiding principles
(B) Twelve guiding principles
(C) Ten guiding principles
(D) Six guiding principles
(E) Answer not known

62. As per the Emission standards of incinerators _____ shall not be incinerated.

(A) Copper
(B) Lead
(C) Zinc
(D) Chlorinated plastics
(E) Answer not known

63. The government of India enacted the Wildlife (Protection) Act, in

(A) 1947
(B) 1909
(C) 1972
(D) 1980
(E) Answer not known

64. In Drainage plan the recommended colour by NBC for indicating waste water pipes and rain-water pipes.

(A) Black
(B) Blue
(C) Green
(D) Red
(E) Answer not known

65. A fittings or device so designed and constructed as to provide, when properly vented, a liquid seal which will prevent the back passage of air without materially affecting the flow of sewage or waste water through it.

(A) Vent
(B) Stack
(C) Sullage
(D) Trap
(E) Answer not known

66. A trap provided in a drainage system with a water seal fixed in a suitable position to collect waste-water from the scullery, kitchen sinks, wash basins, baths and rain water pipes.

(A) Single trap
(B) Flow trap
(C) Gully trap
(D) Junction trap
(E) Answer not known

67. The Environment (Protection) Act was passed on _____, 1986.

(A) 2nd March
(B) 23rd May
(C) 12th July
(D) 8th January
(E) Answer not known

68. NIMBY refers to

(A) Non-intense-material-Base Yard
(B) Not-in-my-backyard
(C) New intense Main Base Yard
(D) Non-incremental material Base Yard
(E) Answer not known

69. The United Nations Framework Convention on Climate Change (UNFCCC) was signed by _____ nations, including the United States.

(A) 135
(B) 120
(C) 150
(D) 160
(E) Answer not known

70. Seawater contains _____ TDS.

(A) 30,000 to 34,000 mg/L
(B) 26,000 to 29,000 mg/L
(C) 5,000 to 8,000 mg/L
(D) 9,000 to 12,000 mg/L
(E) Answer not known

71. As per the WHO report _____ of the diseases in Human are water-borne and water-related.

(A) 75%
(B) 80%
(C) 90%
(D) 65%
(E) Answer not known

72. Rapid infiltration systems are characterized by

(A) Low hydraulic loading rate
(B) High evaporation losses
(C) High hydraulic loading rate
(D) No percolation
(E) Answer not known

73. Self-purification of water bodies mainly refers to

(A) Filtration through sand beds
(B) Chemical disinfection process
(C) Artificial treatment of sewage
(D) Natural cleansing of polluted water
(E) Answer not known

74. Head loss in a water distribution pipes increases mainly due to

(A) Increase in pipe diameter
(B) Increase in flow velocity
(C) Decrease in pipe length
(D) Increase in reservoir height
(E) Answer not known

75. A Gate valve is provided in a water distribution pipeline mainly because

(A) To measure the flow rate in the pipe line

(B) To completely stop or allow water flow in a section of pipe line

(C) To remove accumulated in the pipe line

(D) To increase the pressure of water in the system

(E) Answer not known

76. Match List I with List II and select the correct answer :

| List I (Process) | List II (Function) |
|---|---|
| (a) Coarse screen | 1. Removal of settleable suspended particles by gravity |
| (b) Fine screen | 2. Removal of large floating and coarse debris |
| (c) Plain sedimentation | 3. Removal of fine colloidal particles by forming flocs |
| (d) Sedimentation with coagulant | 4. Removal of smaller suspended particles and finer materials |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 2 | 4 | 1 | 3 |
| (B) | 4 | 2 | 1 | 3 |
| (C) | 2 | 1 | 4 | 3 |
| (D) | 1 | 2 | 3 | 4 |

(E) Answer not known

77. In water treatment, screening is primarily used to

(A) Remove dissolved salt from water
(B) Remove fine colloidal particles
(C) Remove large floating and suspended materials
(D) Remove bacteria and viruses from water
(E) Answer not known

78. Hardness of water is mainly caused by

(A) Oxygen dissolved in water
(B) Calcium and magnesium salt
(C) Carbon dioxide gas
(D) Suspended impurities
(E) Answer not known

79. pH value of water indicates

(A) Dissolved oxygen
(B) Turbidity
(C) Acidity or alkalinity
(D) Hardness
(E) Answer not known

80. The purest natural source of water is

(A) River water
(B) Lake water
(C) Rain water
(D) Ground water
(E) Answer not known

81. A Uniformly distributed load produces what type of bending moment diagram

(A) Straight line
(B) Horizontal line
(C) Parabolic curve
(D) Circular curve
(E) Answer not known

82. For a simply supported beam carrying a uniformly distributed load over the entire span, the maximum bending moment occurs at

(A) Left support
(B) Right support
(C) Mid span
(D) Quarter span
(E) Answer not known

83. Which of the following are the statically determinate beams?

(i) Cantilever and continuous beam.
(ii) Simply supported beams and fixed beams.
(iii) Cantilever and simply supported beams.

(A) (i) only
(B) (i) and (iii) only
(C) (ii) and (iii) only
(D) (iii) only
(E) Answer not known

84. A simply supported beam of span ($l$) carries a uniformly distributed load 'w'/unit over the whole span. The bending moment diagram.

(A) Parabola with maximum ordinate at the centre of the beam
(B) Parabola with maximum ordinate at one end of the beam
(C) Triangle with maximum ordinate at the centre of the beam
(D) Triangle with maximum ordinate at one end of the beam
(E) Answer not known

85. Find the moment of Inertia of a rectangular section width 400 mm and depth 200 mm about an axis passing through x - x axis

(A) $26.67 \times 10^8$ mm$^4$ (B) $13.33 \times 10^5$ mm$^4$

(C) $6.6 \times 10^3$ mm$^4$ (D) $26.67 \times 10^7$ mm$^4$

(E) Answer not known

86. Unit of moment of inertia

(A) mm (B) mm$^2$

(C) mm$^3$ (D) mm$^4$

(E) Answer not known

87. Moment of Inertia of a hollow circular section about x - x axis and y - y axis

(A) $\frac{\pi}{64}\left(D^4 - d^4\right)$ (B) $\frac{\pi}{64}\left(D^2 - d^2\right)$

(C) $\frac{\pi}{32}\left(D^4 - d^4\right)$ (D) $\frac{\pi}{32}\left(D^2 - d^2\right)$

(E) Answer not known

88. Centroid of a right angled triangle from base

(A) $\frac{h}{2}$ (B) $2h$

(C) $\frac{h}{3}$ (D) $\frac{h}{4}$

(E) Answer not known

89. The point at which the total area of a plane figure is assumed to be concentrated is known as

(A) Centroid
(B) Moment
(C) Gravity
(D) Moment of inertia
(E) Answer not known

90. In bending equation $\frac{M}{I}=\frac{\sigma}{Y}=\frac{E}{R}$

$R$ is known as _____.

(A) Reaction
(B) Reaction force
(C) Shear force
(D) Radius of curvature
(E) Answer not known

91. The length of beam subjected to simple bending, the neutral layer is

(A) Shortened
(B) Neither shortened nor elongated
(C) Elongated
(D) Shortened and elongated
(E) Answer not known

92. The assumptions made in finding out the forces in a frame are

(i) The frame is a imperfect frame
(ii) The frame carries load at the joints
(iii) All the members are pin-joined

(A) (i) only
(B) (i) and (ii) only
(C) (ii) and (iii) only
(D) (ii) only
(E) Answer not known

93. In frame, if three forces act at a joint and two of them are along the same straight line, then for the equilibrium of the joint, the third force should be equal to _____.

(A) Minimum
(B) Zero
(C) Same
(D) Maximum
(E) Answer not known

94. A solid shaft of 150 mm diameter is used to transmit torque. Find the maximum torque transmitted by the shaft if the maximum shear stress induced to the shaft is 45 $N/mm^2$

(A) 28820.00 N-m
(B) 28818.68 N-m
(C) 22980.568 N-m
(D) 29820.586 N-m
(E) Answer not known

95. Torsional shear stress in a circular shaft is maximum at

(A) Centre
(B) Neutral axis
(C) Outer surface
(D) Mid-radius
(E) Answer not known

96. The shear force changes suddenly at a section where there is a

(i) Vertical point load
(ii) Uniformly distributed load
(iii) Uniformly varying load
(iv) Vertical point load and inclined load

(A) (i) only
(B) (i) and (iv) only
(C) (i) and (ii) only
(D) (ii) and (iii) only
(E) Answer not known

97. Which of the following statements are true about the Hooke's Law?

(i) Material loaded within elastic limit

(ii) Stress is proportional to strain

(iii) The ratio of stress to the strain is a constant.

(A) (i) only
(B) (i) and (iii) only
(C) (i), (ii), (iii) only
(D) (i) and (ii) only
(E) Answer not known

98. The safe stress, for a hollow steel column which carries an axial load of $2.1 \times 10^3$ kN is 125 MN/m$^2$. If the external diameter of the column is 30 cm. Determine the internal diameter.

(A) 22.19 cm
(B) 2619 cm
(C) 26.19 cm
(D) 2.619 cm
(E) Answer not known

99. Choose the right matches :

1. Brittleness – It cannot be drawn out by tension
2. Elasticity – It cannot be drawn out by tension
3. Ductility – It can be drawn out by tension
4. Plasticity – It cannot be drawn out by tension

(A) 2 and 4 are correct
(B) 1 and 2 are correct
(C) 1 and 3 are correct
(D) 3 and 4 are correct
(E) Answer not known

100. Strain is defined as

(A) Change in length / Original length

(B) Load / Area

(C) Stress / Area

(D) Force × Length

(E) Answer not known

101. If the Reynolds number is less than 2000, then flow in pipes is

(A) Laminar

(B) Turbulent

(C) Transitional flow

(D) Viscosity of fluid

(E) Answer not known

102. Find the height of water column corresponding to a pressure of 50 $kN/m^2$

(A) 4.2 m

(B) 5.1 m

(C) 5.6 m

(D) 5.3 m

(E) Answer not known

103. Which of the following famous buildings designed by "Le Corbusier"?

(a) Unité d'Habitation, France

(b) Guggenheim Museum, New York City

(c) Notre Dame de Haut, France

(d) Sydney Opera House, Australia

(A) (a), (b) & (c) only

(B) (b) & (d) only

(C) (a) & (c) only

(D) (b), (c) & (d) only

(E) Answer not known

104. "SANGATH", the famous architecture office in Ahmedabad was designed by:

(A) Balakrishna V. Doshi
(B) Raj Rewal
(C) Anant Raje
(D) Charles Correa
(E) Answer not known

105. The architectural characters commonly associated with famous architect Zaha Hadid's buildings are:

(A) Rigid forms, Linear symmetry and Pop art
(B) Geometric forms and Cartesian grid based design
(C) Exposed structural systems and simplicity
(D) Bold forms, Sensuous lines and parametrics
(E) Answer not known

106. Which of the following statements are true about compaction of soil?

(i) It is a time-dependent phenomenon
(ii) Soil is always unsaturated
(iii) Volume reduction is due to expulsion of pore water from voids

(A) (ii) only
(B) (i) and (iii) only
(C) (i) and (ii) only
(D) (ii) and (iii) only
(E) Answer not known

107. The ratio of the difference between the liquid limit and the water content of a soil to its Plasticity Index is known as

(A) Toughness Index
(B) Consistency Index
(C) Flow Index
(D) Liquidity Index
(E) Answer not known

108. Friction loss is directly proportional to

(A) Pipe diameter
(B) Velocity squared
(C) Fluid density only
(D) Pipe thickness
(E) Answer not known

109. Bernoulli's equation is applicable to

(A) Compressible flow only
(B) Ideal fluid flow
(C) Turbulent flow only
(D) Viscous flow only
(E) Answer not known

110. Which measuring device is more accurate?

(A) Orifice meter
(B) Venturimeter
(C) Pitot tube
(D) Mouth piece
(E) Answer not known

111. In 'The Hagia Sophia', pendentives are used to support:

(A) Spaces between adjacent arches
(B) A circular dome over a square base
(C) External support that reinforce tall walls
(D) Wedge shaped stone used in arch
(E) Answer not known

112. In Sanchi Stupa, the magnificent gateways with sensuous relief carvings, which are located in cardinal directions are called

(A) Toranas
(B) Sopanas
(C) Harmika
(D) Yashti
(E) Answer not known

113. The 300 meter – square garden divided into four quadrants representing the Islamic garden of paradise in Taj Mahal is called:

(A) Chattri
(B) Char bagh
(C) Minaret
(D) Diwan-i-Khas
(E) Answer not known

114. The size of the window or skylight primarily controls:

(A) The amount of daylight a room receives
(B) The number of occupants allowed in the room
(C) The electrical power supply to the building
(D) The colour temperature of a room
(E) Answer not known

115. The following is an example of depressed base plane in architecture.

(A) Pantheon of Rome
(B) Acropolis of Athens
(C) Theatre of Epidaurus
(D) Ziggurats of Mesopotamia
(E) Answer not known

116. The arrangement of equivalent forms and spaces on opposite sides of a dividing line or plane is

(A) Datum
(B) Symmetry
(C) Axis
(D) Proportion
(E) Answer not known

117. Le Corbusier's "Modulor" system of Architectural measurement combines human body dimensions and the geometric concept of

(A) Ken
(B) Classical orders
(C) Golden Section
(D) Renaissance theories
(E) Answer not known

118. In rotodynamic pumps, increase in energy level is due to combination of

(A) centrifugal energy + pressure energy
(B) centrifugal energy + kinetic energy
(C) centrifugal energy + pressure energy + kinetic energy
(D) kinetic energy + pressure energy
(E) Answer not known

119. The primary condition for a channel to be the most economical section, is

(A) Maximum wetted perimeter for a given discharge
(B) Minimum wetted perimeter for a given cross-sectional area
(C) Maximum wetted area for a given perimeter
(D) Maximum friction factor for a given flow
(E) Answer not known

120. A centrifugal pump delivers 0.05 $m^3$/sec of water against a manometric head of 20 m. If the power input to the pump is 20 kW, the overall efficiency is

(A) 36.79% (B) 49.05%

(C) 73.57% (D) 65.75%

(E) Answer not known

121. How does harvesting rain on a property help manage local underground water resources?

(A) It drains out local aquifers

(B) It used to recharge underground wells

(C) It prevents groundwater from ever rising to surface

(D) It stops rain water from interacting with any surface dirt

(E) Answer not known

122. Primary benefit of storm water recharge wells ————————.

(A) Replenishing depleted underground aquifers

(B) Stopping all rainfall from hitting roots

(C) Speeding up evaporation rates on roads

(D) Filtering waste water from building waste

(E) Answer not known

123. ———————— device is used in buildings rainwater harvesting network to separate and dump the very first rain runoff before it reaches the main storage tank.

(A) First flush diverter
(B) Float valve switch
(C) Pressure vessel tank
(D) Centrifugal booster pump
(E) Answer not known

124. ———————— are used in criss-cross building to transport small packages between floors.

(A) Ramps
(B) Lifts
(C) Escalators
(D) Dumbwaiters
(E) Answer not known

125. Assertion [A] : Unit filters are very efficient in removing the dust and even bacteria to some extent.

Reason [R]: In unit filters the mats are replaced when they become dirty or they are washed and recoiled.

(A) [A] is true [R] is false
(B) [A] is false [R] is true
(C) Both [A] and [R] is true
(D) Both [A] and [R] is False
(E) Answer not known

126. The number of steps in a flight should be restricted to a maximum of ———— and minimum of ————.

(A) Maximum 15, minimum 5
(B) Maximum 12, minimum 3
(C) Maximum 15, minimum 3
(D) Maximum 12, minimum 5
(E) Answer not known

127. Match the following:

| | |
|---|---|
| (a) Baluster | 1. It is a vertical member between two steps |
| (b) Flight | 2. It is an upper horizontal part of a step |
| (c) Tread | 3. It is a series of steps |
| (d) Riser | 4. It is vertical member supporting the handrail |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 4 | 3 | 2 | 1 |
| (B) | 3 | 2 | 1 | 4 |
| (C) | 2 | 1 | 4 | 3 |
| (D) | 1 | 2 | 3 | 4 |

(E) Answer not known

128. Identify the incorrect statement regarding fire-resisting materials

(A) Bricks have high fire resistance

(B) Class A materials are non-combustible

(C) All natural stones resist thermal shock perfectly

(D) Concrete does not feed a fire

(E) Answer not known

129. Which of the statement is correct in air-conditioning?

(i) Sucking the air through filtering media

(ii) Cooling it (in summer) or heating it (in winter)

(iii) Humidifying if it is to be cooled or dehumidifying, if it is to be heated

(A) (i) is correct

(B) (i) and (ii) are correct

(C) (ii) and (iii) are correct

(D) (i) and (iii) are correct

(E) Answer not known

130. Which of the following statement is correct?

(i) Inlet opening in the building should be well distributed and should be located on the leeward side near the ceiling.

(ii) The outlet openings should be located on the windward side at a low level.

(iii) Inlet and outlet openings should preferably be of equal size for greater air flow.

(A) (i) only correct
(B) (ii) only correct
(C) (iii) only correct
(D) (i) and (iii) are correct
(E) Answer not known

131. Which of the following statement is correct about natural ventilation?

(i) Natural ventilation means through doors, windows and other openings

(ii) It is adopted for theatres auditoriums

(iii) This system is very economical

(A) (i) only correct
(B) (i) and (ii) are correct
(C) (i) and (iii) are correct
(D) (ii) and (iii) are correct
(E) Answer not known

132. Assertion [A] : Humidification or addition of water to air is necessary in winter.

Reason [R]: Low temperature of air has very low humidity

(A) [A] is true [R] is false

(B) [A] is false [R] is true

(C) [A] and [R] is false

(D) [A] and [R] is true

(E) Answer not known

133. Match the following Ventilation

| | | | |
|---|---|---|---|
| (a) | Extraction system | 1. | Artificial ventilation |
| (b) | Plenum system | 2. | Natural ventilation |
| (c) | Stack effect | 3. | Supply system |
| (d) | Air conditioning | 4. | Exhaust system |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 4 | 3 | 2 | 1 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 2 | 3 | 4 | 1 |
| (D) | 3 | 4 | 1 | 2 |

(E) Answer not known

134. Match the following Recommendation for Ventilation

| | Type of building | | Min. rate of fresh air |
|---|---|---|---|
| (a) | Assembly hall | 1. | 20 to 30 $m^3$ per person per hour |
| (b) | Hospitals operation theatre | 2. | 25 $m^3$ per person per hour |
| (c) | Factories | 3. | 10 air changes per hour |
| (d) | Schools | 4. | 30 $m^3$ person per hour |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 3 | 2 | 1 | 4 |
| (B) | 4 | 3 | 2 | 1 |
| (C) | 1 | 4 | 3 | 2 |
| (D) | 2 | 3 | 1 | 4 |

(E) Answer not known

135. Assertion [A]: The water supply system must be designed to achieve appropriate water pressure.

Reason [R]: If water pressure is too low, this will be inconvenient for building user. If pressure is too high, this will lead to wastage of water.

(A) [A] is true but [R] is false

(B) Both [A] & [R] are true; and [R] is the correct explanation of [A]

(C) [A] is false [R] is true

(D) Both [A] and [R] is false

(E) Answer not known

136. Match the following type correctly when planning a water supply layout.

| | | | |
|---|---|---|---|
| (a) | Pipe runs and length | 1. | Avoid running pipes over or near bathroom and living area |
| (b) | Point of entry into the building | 2. | Locate centrally to reduce the length of pipes |
| (c) | Water heating system | 3. | In space such as garbage / laundry |
| (d) | Noise prevention | 4. | Keep short as possible |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 2 | 3 | 4 | 1 |
| (C) | 3 | 4 | 1 | 2 |
| (D) | 4 | 3 | 2 | 1 |

(E) Answer not known

137. Match the following type in a building management system.

| | | | |
|---|---|---|---|
| (a) | Acid neutralization basin | 1. | Water flow alarm and water temperature |
| (b) | Air compressor | 2. | Alarm annunciation discharge pressure on/off state of pump |
| (c) | Water booster pump | 3. | Air pressure dryer dew point remote alarm |
| (d) | Emergency showers | 4. | pH monitoring and alarm on high water alarms |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 4 | 3 | 2 | 1 |
| (B) | 3 | 2 | 1 | 4 |
| (C) | 2 | 1 | 3 | 4 |
| (D) | 1 | 3 | 4 | 2 |

(E) Answer not known

138. Assertion [A] : Centrifugal pumps are mostly used for lifting raw water from river to the treatment plant

Reason [R]: Centrifugal pumps are well suited to pump under steady low head though the water may be even turbid

(A) [A] is true [R] is false

(B) [A] is false [R] is true

(C) Both [A] and [R] is true

(D) Both [A] and [R] is false

(E) Answer not known

139. Which of the following statement is true about reciprocating pumps?

(i) Flow is continuous

(ii) Constant discharge even if head on delivery side varies

(iii) Large amount of losses due to leakage through valves

(A) (i) only
(B) (i) and (ii) only
(C) (i) and (iii) only
(D) (ii) and (iii) only
(E) Answer not known

140. Which of the following statement is correct?
Gravity system of water distribution.

(i) Suitable when source of supply is at sufficient height

(ii) Most reliable and economical distribution system

(iii) The water head available at consumer is maximum required

(A) (i) only correct
(B) (i) and (ii) only correct
(C) (i) and (iii) only correct
(D) (ii) and (iii) only correct
(E) Answer not known

141. The deflection occuring after the construction of finishes and partitions (including the effect of temperature, creep and shrinkage) should not exceed

(A) $\frac{\text{span}}{350}$ mm or 20mm whichever is less

(B) 20 mm

(C) $\frac{\text{span}}{250}$ mm

(D) $\frac{\text{span}}{350}$ mm

(E) Answer not known

142. The bending moment and shear force co-efficients given by IS456-2000 can be used for the design of continuous beam having three or more spans which do not differ by

(A) more than 10% of shorter

(B) less than 15% of longer

(C) more than 15% of the longer

(D) less than 20% of shorter

(E) Answer not known

143. The maximum strain in concrete at the outermost compression fibre in bend is

(A) 0.0032 (B) 0.0350

(C) 0.0020 (D) 0.0035

(E) Answer not known

144. The maximum cement content in RCC shall be used as per IS456-2000 specified as

(A) 360 kg/$m^3$ (B) 320 kg/$m^3$

(C) 450 kg/$m^3$ (D) 300 kg/$m^3$

(E) Answer not known

145. For a plate of 15 mm thickness, the minimum size of fillet weld is

(A) 3 mm (B) 6 mm

(C) 8 mm (D) 5 mm

(E) Answer not known

146. A simply supported steel floor beam in a commercial building has an effective span of 4.8m. The beam supports elements that are susceptible to cracking (brittle finishes). The maximum permissible deflection under service load according to IS800:2007 is

(A) 13.3 mm

(B) 19.2 mm

(C) 16.0 mm

(D) 24.0 mm

(E) Answer not known

147. The design bending strength ($M_d$) of a laterally supported plastic cross-section under low shear force ($V \leq 0.6\, V_d$), is

(A) $M_d = \frac{\beta_b Z_e f_y}{\gamma_m 0}$

(B) $M_d = \frac{Z_p f_y}{\gamma_m 0}$

(C) $M_d = \frac{1.2 Z_e f_y}{\gamma_m 0}$

(D) $M_d = \frac{Z_p f_u}{\gamma_m 1}$

(E) Answer not known

148. In the limit state design method, the partial safety factor for material strength ($\gamma_m$) of steel against yielding or buckling is usually

(A) 1.50

(B) 1.15

(C) 1.10

(D) 1.25

(E) Answer not known

149. When three hinged arch subjected to vertical load only, the bending moment at the crown is

(A) Maximum

(B) Minimum

(C) Zero

(D) None of the above

(E) Answer not known

150. Number of point of contraflexure exist within the span of a propped cantilever beam subjected to a single concentrated point load at mid-span is

(A) zero
(B) one
(C) two
(D) three
(E) Answer not known

151. A propped cantilever beam has

(A) One fixed end only
(B) Two fixed end
(C) One fixed end and one simply support
(D) Two simple support
(E) Answer not known

152. The slope of a beam is

(A) Vertical displacement
(B) Angular rotation of the beam section
(C) Horizontal displacement
(D) Bending stress
(E) Answer not known

153. A hollow circular cast-iron column has an external diameter $D$ and an internal diameter $d$. The maximum allowable limiting eccentricity 'e' for a line load to keep the entire section strictly in compression is

(A) $\frac{D^2 + d^2}{8D}$ (B) $\frac{D^2 - d^2}{8D}$

(C) $\frac{D^2 + d^2}{4D}$ (D) $\frac{D^2 + d^2}{6D}$

(E) Answer not known

154. Passive earth pressure develops when the wall

(A) moves away from the soil (B) moves toward the soil

(C) remains stationary (D) rotates about centre

(E) Answer not known

155. The slenderness ratio is

(A) Area/Length

(B) Length/Area

(C) Effective length/Least radius of gyration

(D) Radius of Gyration/Length

(E) Answer not known

156. The moment distribution method was developed by

(A) Eulers (B) Rankine

(C) Hardy cross (D) Clapeyron

(E) Answer not known

157. Which of the following statements are true about torsion reinforcement in two-way slab?

(i) It shall be provided at any corner where the slab is simply supported and both edges meeting at corner.

(ii) It shall consist of top bottom reinforcement, each with layers of bars placed parallel to the sides of the slab and extending from the edges a minimum distance of one-fifth of the shorter span.

(iii) Torsion reinforcement equal to three quarters of the area required for maximum mid-span moment by edges over only one of which the slab.

(A) (i) and (iii)
(B) (ii) and (iii)
(C) (i) and (ii)
(D) (i), (ii) and (iii)
(E) Answer not known

158. The load carrying capacity of a helically reinforced column as compared to a column with lateral ties is about :

(A) 5% less
(B) 5% more
(C) 10% less
(D) 10% more
(E) Answer not known

159. The length of bearing of the lintel at each end shall not be less than

(A) 100 mm
(B) one-tenth of the span
(C) 100 mm or one-tenth of span whichever is lesser
(D) 100 mm or one-tenth of span whichever is higher
(E) Answer not known

160. For a slab of thickness 120 mm, the maximum diameter of reinforcement should not exceed

(A) 16 mm
(B) 20 mm
(C) 15 mm
(D) 18 mm
(E) Answer not known

161. In aerial mapping, the exact geometric center point where the camera's optical axis intersects the plane of the photographic image frame is called

(A) Nadir point
(B) Isocenter
(C) Principal point
(D) Plumb point
(E) Answer not known

162. GIS integrates

(A) Hardware
(B) Software
(C) Data and personnel
(D) All the above
(E) Answer not known

163. The prism used in total station is mainly for

(A) Reflecting BDM signals
(B) Measuring angles
(C) Leveling
(D) Mapping
(E) Answer not known

164. A total station is the combination of

(A) Theodolite and compass
(B) Electronic theodolite and EDM
(C) Level and compass
(D) Plane table and alidade
(E) Answer not known

165. The first earth monitoring satellite – Earth Resources Technology Satellite (ERTS-1) was launched in

(A) 1972
(B) 1978
(C) 1969
(D) 1976
(E) Answer not known

166. The scale of an photograph depends on

(A) Focal length and flying height
(B) Temperature
(C) Humidity
(D) Wind speed
(E) Answer not known

167. GPS coordinates are usually expressed in

(A) Latitude and longitude
(B) Area and volume
(C) Height and width
(D) Chainage and longitude
(E) Answer not known

168. The branch which deals with extra terrestrial photography and imagery where camera may be fixed on earth, mounted on board a satellite, or located on a planet is called

(A) Space photogrammetry
(B) Aerial photogrammetry
(C) Close range photogrammetry
(D) Terrestrial photogrammetry
(E) Answer not known

169. If the radius of a simple circular curve is doubled, its degree of curve (D) for a standard chord length will become

(A) Doubled
(B) Four times
(C) Halved
(D) One-fourth
(E) Answer not known

170. Which tidal datum is most universally adopted as the reference plane for soundings on navigation charts and also used to avoid negative values of elevation?

(A) Mean Sea Level (MSL)
(B) Mean Low Water Springs (MLWS)
(C) Mean High Water Springs (MHWS)
(D) Highest Astronomical Tide (HAT)
(E) Answer not known

171. Two vertical angles to the top and bottom of staff $30^{o}$ and $20^{o}$ respectively. The distance between instrument and staff is 100 m. Find the staff height.

(A) 22.5 m
(B) 18.2 m
(C) 20.0 m
(D) 21.3 m
(E) Answer not known

172. A vertical angle is $30^{o}$ and horizontal distance is 100 m. Find height.

(A) 50 m
(B) 57.7 m
(C) 60 m
(D) 70 m
(E) Answer not known

173. Choose two wrong matches in trigonometrical surveying.

| | | | |
|---|---|---|---|
| 1. | Base inaccessible | — | Direct measurement possible |
| 2. | Base accessible | — | Indirect measurement using angles |
| 3. | Vertical angle | — | Height determination |
| 4. | Double plane method | — | Two observation points are used |

(A) 3 and 4
(B) 2 and 3
(C) 4 and 1
(D) 1 and 2
(E) Answer not known

174. Match List I with List II and choose the correct answer.

| List I | List II |
|---|---|
| (a) Plumb bob | 1. Measuring vertical angle |
| (b) Telescope | 2. Centering the instrument |
| (c) Levelling screw | 3. Sighting the object |
| (d) Vertical circle | 4. Levelling the instrument |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 2 | 3 | 4 | 1 |
| (B) | 3 | 2 | 1 | 4 |
| (C) | 4 | 1 | 3 | 2 |
| (D) | 1 | 4 | 2 | 3 |

(E) Answer not known

175. Choose the right matches based on instrument based surveys.

| | | | |
|---|---|---|---|
| 1. | Levelling | — | To find the difference in elevation between points |
| 2. | Compass survey | — | It gives angle between the magnetic meridian and the line |
| 3. | Plane table survey | — | To measure horizontal and vertical angles |
| 4. | Theodolite survey | — | It combines field work and plotting works |

(A) 1 and 3 are correct
(B) 1 and 4 are correct
(C) 3 and 4 are correct
(D) 1 and 2 are correct
(E) Answer not known

176. The type of survey in which curved nature of the earth's surface is neglected

(A) Geodetic survey
(B) Plane survey
(C) Triangulation survey
(D) Reconnaissance survey
(E) Answer not known

177. Match the following :

| List I | List II |
|---|---|
| (a) Ranging Rod | 1. Marking survey station |
| (b) Arrow | 2. Measuring length |
| (c) Peg | 3. Aligning straight line |
| (d) Chain | 4. Marking chain lengths |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 3 | 4 | 1 | 2 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 4 | 2 | 3 | 1 |
| (D) | 3 | 2 | 1 | 4 |

(E) Answer not known

178. Which of the following statements are true about compass surveying?

1. Local attraction is caused by nearby magnetic materials.
2. Local attraction affects in compass readings.
3. Local attraction improves accuracy of surveying.
4. Local attraction is used to determine bearing correction.

(A) 3 and 4 (B) 1 and 4

(C) 2 and 3 (D) 1 and 2

(E) Answer not known

179. Arrange the steps involved in levelling process in proper order.

1. Take Foresight
2. Setup Instrument
3. Take Backsight
4. Take Intermediate sight

(A) 4, 3, 2, 1
(B) 2, 1, 3, 4
(C) 2, 3, 4, 1
(D) 3, 2, 1, 4
(E) Answer not known

180. The distance between two points measured with 30 m chain was recorded as 216 m. It was found that the chain was 10 cm too long. What was the true distance between the points?

(A) 250.52 m
(B) 218.82 m
(C) 230.32 m
(D) 216.72 m
(E) Answer not known

181. Which paint is most suitable for steel surface?

(A) Cement paint
(B) Enamel paint
(C) Distemper
(D) White wash
(E) Answer not known

182. DPC is generally provided at

(A) Roof level
(B) Plinth level
(C) Lintel level
(D) Floor finish level
(E) Answer not known

183. The standard height of the door in residential building is approximately

(A) 1.50 m
(B) 1.80 m
(C) 2.10 m
(D) 3.0 m
(E) Answer not known

184. Match the following precast concrete component or process with correct one.

| | |
|---|---|
| (a) Mould | 1. Lifting and aligning elements with cranes |
| (b) Erection | 2. Flowable cement paste used to seal connections |
| (c) Grout | 3. Reusable casing that shapes fresh concrete |
| (d) Curing | 4. Keeping concrete damp and warm to build strength |

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 3 | 1 | 2 | 4 |
| (B) | 1 | 3 | 4 | 2 |
| (C) | 3 | 2 | 1 | 4 |
| (D) | 4 | 1 | 3 | 2 |

(E) Answer not known

185. Match the names with suitable picture.

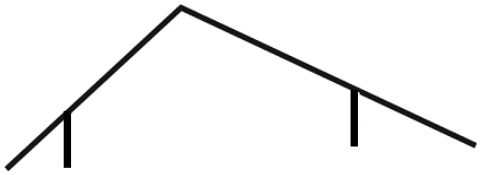
(a) Queen post truss 1.



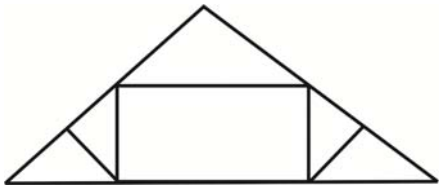
(b) King post truss 2.



(c) Pitched roof 3.



(d) Couple roof 4.



| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (A) | 4 | 3 | 1 | 2 |
| (B) | 3 | 4 | 2 | 1 |
| (C) | 4 | 1 | 2 | 3 |
| (D) | 3 | 1 | 4 | 2 |

(E) Answer not known

186. Hollow block and rib floor used for

(A) Increase the slab span
(B) Increase the strength
(C) Reduce the cost
(D) Reduce the self weight
(E) Answer not known

187. The external corners or angles of a wall surface are called

(A) Spalls
(B) Quoins
(C) Bond
(D) Plinth
(E) Answer not known

188. Choose the one used to give protective covering to the various components of the buildings.

(A) Ramps
(B) Lintels
(C) Footings
(D) Plasterings
(E) Answer not known

189. When two adjacent column footings overlap due to low soil bearing capacity which foundation is highly recommended?

(A) Combined footing
(B) Isolated footing
(C) Simple pad footing
(D) Pier footing
(E) Answer not known

190. Bacterial concrete is one that _____.

(A) is affected by bacteria
(B) is placed in marine conditions
(C) has auto crack healing capacity
(D) is used in polluted environment
(E) Answer not known

191. What is primary structural benefit of using hollow clay bricks in buildings?

(A) Increased load bearing capacity
(B) Decreased dead weight
(C) Enhanced foundation strength
(D) Greater water resistance
(E) Answer not known

192. Which of these is considered a traditional plasticizer in concrete?

(A) Polycarboxylate ether
(B) Acrylic polymer
(C) Nano-silica
(D) Lignosulfonate
(E) Answer not known

193. The chemical reaction represents the secondary pozzolanic reaction that gives PPC

(A) $C_3S$ + Water $\rightarrow$ C-S-H Gel + Calcium Hydroxide
(B) Pozzolana + $Ca(OH)_2$ + $H_2O$ $\rightarrow$ C-S-H Gel
(C) $C_3A$ + Gypsum + Water $\rightarrow$ Ettrignite
(D) $Ca(CO_3)$ + Heat $\rightarrow$ Ca(OH) + $CO_2$
(E) Answer not known

194. Why do builders prefer using PPC instead of OPC for plastering?

(A) It sets hard within 10 minutes
(B) It is a very coarse, rough powder
(C) It produces less heat and reduce shrinkage cracks
(D) It does not require any water for mixing
(E) Answer not known

195. Common clay floor tiles are fired at a temperature of about _____

(A) 800ºC
(B) 500ºC
(C) 1300ºC
(D) 2000ºC
(E) Answer not known

196. Choose the available carbon content in steel manufacturing process.

(A) 2 to 5% carbon
(B) upto 1.5% carbon
(C) 6 to 8% carbon
(D) 9 to 11% carbon
(E) Answer not known

197. Coarse aggregates are retained material of the sieve size is _____.

(A) 5 mm
(B) 10 mm
(C) 12 mm
(D) 20 mm
(E) Answer not known

198. Lime which set under water is known as

(A) Fat lime

(B) Hydraulic lime

(C) Kankar lime

(D) Quick lime

(E) Answer not known

199. Water absorption after 24 hour immersion in cold water for 1st class bricks is

(A) Not more than 28% by weight
(B) Not more than 25% by weight
(C) Not more than 22% by weight
(D) Not more than 20% by weight
(E) Answer not known

200. The standard size of a modular bricks in India is

(A) $190 \times 90 \times 90$ mm
(B) $200 \times 100 \times 100$ mm
(C) $230 \times 110 \times 75$ mm
(D) $250 \times 120 \times 80$ mm
(E) Answer not known