

**041/2022**

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Which among these is a secondary colour?  
(A) Red (B) Blue  
(C) Green (D) Yellow
2. A relatively light value of a colour produced by adding white to it :  
(A) Tint (B) Hue  
(C) Shade (D) Tone
3. Movement characterised by a patterned repetition or alternation of formal elements or motifs in the same or modified form is called :  
(A) Symmetry (B) Balance  
(C) Rhythm (D) Repetition
4. The physical dimensional structure of a surface apart from its colour or form :  
(A) Visual texture (B) Tactile texture  
(C) Fabric (D) Pattern
5. The orderly, pleasing or congruent arrangement of the elements or parts in an artistic whole is :  
(A) Unity (B) Harmony  
(C) Repose (D) Order
6. A ratio of approximately 0.618 to 1.000 is also called a :  
(A) Golden mean (B) Triad  
(C) Fibonacci series (D) Eurythmy
7. The systematic arrangement of interdependent or coordinated parts into a coherent unity or functioning whole :  
(A) Structure (B) Content  
(C) Articulation (D) Organization
8. A straight line to which elements in a composition are referred for measurement or Symmetry :  
(A) Equipoise (B) Axis  
(C) Alignment (D) Coherent

**A**

**3**

**[P.T.O.]**

9. Opposition or juxtaposition of dissimilar elements to intensify each elements properties and produce a more dynamic expressiveness :
- (A) Contrast (B) Emphasis  
(C) Variety (D) Hierarchy
10. A process or change taking place by degrees or through a series of gradual successive stages :
- (A) Direction (B) Repetition  
(C) Gradation (D) Juxtaposition
11. The relationship between dry-bulb and wet bulb temperature, absolute and relative humidity and of vapor pressure is shown by the :
- (A) Bio climatic chart (B) Psychometric chart  
(C) Hygrograph (D) Thermograph
12. Mean radiant temperature is measured by :
- (A) Globe Thermometer (B) Kata Thermometer  
(C) Wet Bulb Thermometer (D) Dry bulb Thermometer
13. In heat flow, air to air transmittance is also called :
- (A) P Value (B) R Value  
(C) K Value (D) U Value
14. The scale of the site plan accompanying the application for development permit shall not be less than :
- (A) 1 : 200 (B) 1 : 400  
(C) 1 : 500 (D) 1 : 800
15. The minimum outer radius to be given for road while rounding of corners at intersection is :
- (A) 2.7 m (B) 3.0 m  
(C) 4.5 m (D) 5 m
16. In the occupancy of buildings the group D buildings are :
- (A) Assembly (B) Hospital  
(C) Educational (D) Office
17. The height of air conditioned room shall not be less than :
- (A) 2.2 m (B) 2.4 m  
(C) 2.7 m (D) 3.0 m
18. The height of handrail of a fire escape staircase shall not be less than :
- (A) 100 cm (B) 90 cm  
(C) 80 cm (D) 75 cm

19. Area of balconies, galleries or mezzanines in an assembly building shall be restricted to \_\_\_\_\_ percent of the total carpet area of the assembly hall.
- (A) 5 (B) 10  
(C) 15 (D) 25
20. The maximum number of floors permitted for row buildings are :
- (A) 1 (B) 2  
(C) 3 (D) 4
21. Which of the following statement is not correct about measurement and proportion of drawing sheets recommended by Bureau of Indian Standards?
- (A) The trimmed size of A0 size sheet is 841 mm × 1189 mm  
(B) The surface area of A0 sheet is 1 m<sup>2</sup>  
(C) The trimmed size of A3 size sheet is 420 mm × 594 mm  
(D) The length to width ratio of drawing sheet is  $\sqrt{2} : 1$
22. Which of the following statement is not correct about indicating dimensional values on drawing?
- (A) Dimensional value should be placed parallel to the dimension line  
(B) Dimensional value placed should be readable from right hand side of the drawing  
(C) Dimensional value placed should be readable from bottom of the drawing  
(D) Dimensional value placed should be readable from left hand side of the drawing
23. Which of the following statement indicates the correct relation between picture plane and observer in a perspective drawing?
- (A) The perspective drawing will be larger when the picture plane is placed closer to the observer  
(B) The perspective drawing will be smaller when the picture plane is placed closer to the observer  
(C) The size of perspective drawing is not affected by the distance between picture plane and observer  
(D) The size of perspective drawing is affected by the height of observer and not by the distance between picture plane and observer
24. Choose the scale of drawing from the following, when the actual length of 5 m of a room is represented by 25 mm in drawing :
- (A) 1 : 100 (B) 1 : 50  
(C) 1 : 200 (D) 1 : 20
25. Which of following statement is/are correct about the first angle projection?
- (i) The left side view is projected on the plane on the left side  
(ii) The front view will be below the reference line  
(iii) The front view will be above the reference line  
(iv) The left side view is projected on the plane on the right side
- (A) Only (i) and (ii) (B) Only (ii) and (iii)  
(C) Only (iii) and (iv) (D) Only (iv) and (i)

26. Which of the following is not a type of axonometric projection?  
 (A) Oblique projection (B) Isometric projection  
 (C) Dimetric projection (D) Trimetric projection
27. Which of the following statement is/are correct about World Co-ordinate System in CAD?  
 (i) X-axis is taken positive towards the left  
 (ii) X-axis is taken positive towards the right  
 (iii) Y-axis is taken positive towards the top  
 (iv) Y-axis is taken negative towards the top  
 (A) Only (i) and (ii) (B) Only (ii) and (iii)  
 (C) Only (iii) and (iv) (D) Only (i) and (iv)
28. Identify the command from the following list which provides facility for interfering with other windows based applications :  
 (A) Display (B) Editing  
 (C) Dimensioning (D) Modifying
29. The command used to display the various properties of 2D and 3D objects is :  
 (A) Union command (B) Subtract  
 (C) Vpoint (D) Massprop
30. Which of the following is not needed to obtain sanction for a new construction according to KMBR?  
 (A) Site plan in scale 1 : 800 (B) Service plan in scale 1 : 400  
 (C) Key map (D) Site plan in scale 1 : 400
31. Which of the following statement is correct about Gunter's chain?  
 (A) Gunter's chain is 100 ft long (B) Gunter's chain is 33 ft long  
 (C) Gunter's chain is 66 ft long (D) Gunter's chain is 50 ft long
32. A 20 cm chain was founded to be 20 cm too long after chaining 1000 m. What will be the correct length of the total distance chained?  
 (A) 995 m (B) 1000 m  
 (C) 1001 m (D) 1010 m
33. The method of plane tabling used for locating distant and inaccessible point is :  
 (A) Resection (B) Intersection  
 (C) Traversing (D) Radiation
34. Which type of levelling eliminates all sources of error?  
 (A) Precise (B) Differential  
 (C) Cross sectioning (D) Profile

35. The RL of station A is 180.00 m. staff reading at A and B are 1.25 m and 2.72 m respectively. Find the RL of station B :
- (A) 181.47 m (B) 177.28 m  
(C) 178.53 m (D) 181.25 m
36. What error is eliminated by reading both the verniers in a theodolite?
- (A) Graduation error (B) Index error  
(C) Parallax (D) Eccentricity error
37. In a transit theodolite the observed reading of included angle ABC, after three repetition is  $158^{\circ} 03'$ . Compute the included angle ABC?
- (A)  $52^{\circ} 66'$  (B)  $52^{\circ} 67'$   
(C)  $52^{\circ} 41'$  (D)  $52^{\circ} 21'$
38. Which of the following statements are correct about trunnion axis of a theodolite?
- (i) It is the axis about which the telescope rotates in vertical plane  
(ii) It is the axis about which the lower plate rotates  
(iii) It is the axis about which the vertical circle rotates  
(iv) It is the axis about which the upper plate rotates
- (A) (i) and (ii) only (B) (i) and (iii) only  
(C) (i) and (iv) only (D) (ii) and (iv) only
39. For a traverse containing 5 sides, what would be the correction applied for the first side, if it consists a closing error of +1.20?
- (A) +0.24 (B) -0.24  
(C) +2.4 (D) 24
40. Which one of the following is not a component of a Total Station?
- (A) Electronic Theodolite (B) EDM  
(C) Microprocessor with memory unit (D) Theodolite
41. Based on the resistance to high temperatures, clays are classified as high melting clays, low melting clays and :
- (A) Plastic clays (B) High plastic clays  
(C) Refractory clays (D) High disperse clays
42. Igneous rocks are formed as a result of solidification of molten mass lying below or above the earth's surface. These rocks are otherwise called :
- (A) Unstratified rocks (B) Stratified rocks  
(C) Aqueous rocks (D) Foliated rocks
43. Granite is an example of :
- (A) Sedimentary rock (B) Igneous rock  
(C) Metamorphic rock (D) Volcanic rock

44. Ordinary cement achieves 70% of its final strength in :  
(A) Three days (B) One Year  
(C) 14 days (D) 28 days
45. Which among the following is the defect that does not occur due to the seasoning process of wood?  
(A) Bow (B) Split  
(C) Knot (D) Warp
46. The Le Chatelier's test is one of the physical tests for cement to examine its :  
(A) Soundness (B) Fineness  
(C) Standard consistency (D) Compressive strength
47. Which of the following is an example of a thermosetting plastic?  
(A) Acrylics (B) Polyester  
(C) Polycarbonate (D) Nylon
48. Which among the given material is not commonly used for damp-proofing?  
(A) Mortar with water-proofing compound (B) Bituminous felts  
(C) Plastic sheet (D) Glass sheet
49. Name of the defect causing swelling of painted surface due to oil or grease :  
(A) Checking (B) Flaking  
(C) Blistering (D) Peeling
50. Which of the following is the accelerator added for the fusion of glass?  
(A) Silica (B) Soda  
(C) Nickel (D) Lime
51. Name the type of foundation that is used to spread the load of the superstructure over a large base :  
(A) Raft foundation (B) Strip foundation  
(C) Pile foundation (D) Pad foundation
52. An appliance designed to transport persons or materials between two or more levels in a vertical or substantially vertical direction by means of a guided car, is called as :  
(A) Lift car (B) Escalator  
(C) Lift (D) Moving walk
53. Double pitch roof form that provides adequate space within the roof structure for units of accommodation is termed as :  
(A) Hipped end roof (B) Gable end roof  
(C) Mono pitch roof (D) Mansard or Gambrel roof

54. As per the National Building Code of India, Sunshade shall not be permitted over the road or over any portion outside the boundaries of the building site below a height of :
- (A) 3.0 m from the road level (B) 2.8 m from the road level  
(C) 2.7 m from the road level (D) 2.5 m from the road level
55. A wall designed to carry an imposed vertical load in addition to its own weight, together with any lateral load is called as :
- (A) Panel wall (B) Curtain wall  
(C) Load bearing wall (D) Partition wall
56. The type of stair in which the flights run in opposite direction and there is no space between them in plan, is termed as :
- (A) Half-turn stair (B) Dog-legged stair  
(C) Open newel stair (D) Helical stair
57. Name the cost-effective construction method of walls with bricks on edges and a cross brick between each, which also produces a 9-inch-thick wall with an air cavity in between :
- (A) English bond (B) Flemish bond  
(C) Rat-trap bond (D) Raking bond
58. Filler slabs are beneficial over the conventional roofing techniques because :
- (i) it uses less concrete,  
(ii) it saves the construction cost,  
(iii) it does not require concrete,  
(iv) it does not require steel
- (A) (i) and (ii) (B) (iii) and (iv)  
(C) (iv) (D) All of the above
59. The purpose of expansion and contraction joint is to :
- (i) allow for changes in the volume of concrete due to temperature,  
(ii) not allow shrinkage  
(iii) preserve the original shape of the concrete structure,  
(iv) regulate the quantity of water
- (A) (ii) and (iv) (B) (ii)  
(C) (i) and (iii) (D) None of the above
60. Compared to framed structure, load bearing structure
- (i) requires good bearing capacity soil,  
(ii) is best suited for small scale structure,  
(iii) allows flexibility in planning the interior,  
(iv) can have thinner walls
- (A) (iii) (B) (i) and (ii)  
(C) (iii) and (iv) (D) All of the above

61. 'A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. This statement refers to :
- (A) Global warming (B) Climate change  
(C) Climate variability (D) Climate adaptability
62. 'Designing cities with green roofs, green walls and green balconies to bring nature into the densest parts of cities in order to provide green infrastructure and human health benefits' are called as :
- (A) Green urbanism (B) Urban heat island effect  
(C) Biophilic urbanism (D) Earth system model
63. Mandatory criteria for green features in the campus buildings does not include :
- (A) Water efficient plumbing fixtures  
(B) Energy efficient lighting fixtures  
(C) High performance air-conditioning equipment  
(D) Portable air-conditioners
64. Which one of the following is coming under the module of 'Site Planning and management' as per the green rating systems of campuses?
- (A) Outdoor light pollution reduction (B) Innovation in design process  
(C) Basic amenities (D) Access to sustainable transportation
65. Figure out the aspects that are not covered in the IGBC (Indian Green Building Council) green rating systems :
- (i) Optimisation of water use for construction,  
(ii) Encourage facilities for improving health and well-being of occupants,  
(iii) Exclusion of manual labour and increase mechanisation,  
(iv) Less usage of high-performance building materials and techniques
- (A) None of the above (B) (iii) and (iv)  
(C) (i) and (ii) (D) (iv)
66. Which among the following are possible solutions to reduce the impact of climate change?
- (i) Lifestyle changes,  
(ii) Passive design strategies,  
(iii) Use of non-renewables,  
(iv) Use of fossil fuels
- (A) (i) and (ii) (B) (i) and (iii)  
(C) (iii) and (iv) (D) (i) and (iv)



67. The objective of the Sustainable Development Goal, 'Sustainable Cities and Communities' is to :
- (A) Ensure healthy lives and promote well-being for all at all ages
  - (B) Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
  - (C) Make cities and human settlements inclusive, safe, resilient and sustainable
  - (D) Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
68. Which are the green rating systems mentioned in the Energy Conservation Building Code of India?
- (A) BREEAM and LEED
  - (B) LEED-India and GRIHA
  - (C) SAGRS and GREEN STAR
  - (D) BREEAM and SAGRS
69. What passive design strategies can be implemented to enhance the energy efficiency within the buildings?
- (A) Evaporative coolers and table fans
  - (B) Artificial lighting and ceiling fans
  - (C) Exhaust fans and air-conditioners
  - (D) Daylighting and shading devices
70. Which among the following can be used for improving energy efficiency in buildings?
- (A) Cool roof
  - (B) Asbestos sheet
  - (C) Aluminum sheet
  - (D) None of the above
71. Which one of the following places in the Indus Valley Civilization was known as the 'Oasis of Sindh' :
- (A) Babat Kot
  - (B) Mohenjodaro
  - (C) Chanhudaro
  - (D) Kalibangan
72. Which of the following sultans of Delhi Sultanate constructed the Qutub Minar?
- (A) Razia sulthan
  - (B) Ghiyas ud din Balban
  - (C) Qutubuddin Aibak
  - (D) Muhammad Ghori
73. Which of the following is the oldest stone structure in India and was commissioned by the Mauryan King Ashoka?
- (A) Sanchi Stupa
  - (B) Amaravati Stupa
  - (C) Peshawar Stupa
  - (D) Nagarjunakonda Stupa
74. The group of monuments at Mahabalipuram in Tamil Nadu was built by :
- (A) Cholas
  - (B) Pandyas
  - (C) Chalukyas
  - (D) Pallavas
75. Architect of The Secretariat building, Chandigarh is :
- (A) Charles Correa
  - (B) Lauri Baker
  - (C) Le Corbusier
  - (D) Raj Reval

76. Aranya housing project of Indore was designed by :
- (A) B.V. Doshi (B) Charles Correa  
(C) Hafeez Contractor (D) Achyut Kanvinde
77. The traditional temple theater of Kerala is called as :
- (A) Koothambalam (B) Kovilakam  
(C) Kottaram (D) Nalukettu
78. The flat roofed, rectangular structure with inward sloping sides, constructed out of mudbricks, that marked the burial site in ancient Egypt :
- (A) Pyramid (B) Mastaba  
(C) Pylon (D) Hypostyle
79. The Rietveld Schroder House completed in 1924 is said to be the only true example of which style of architecture?
- (A) De Stijl (B) Schroder  
(C) Bauhaus (D) Ikea
80. A type of architectural design wherein buildings are inspired by, built around and blend in with their natural surroundings :
- (A) Brick gothic architecture (B) Gooie architecture  
(C) Manueline architecture (D) Organic architecture
81. When a cantilever is loaded at its free end, maximum compressive stress shall develop at :
- (A) Bottom fiber (B) Top fiber  
(C) Neutral axis (D) Centre of gravity
82. In a flitched beam, one section is reinforced with another section. The purpose of such a beam is to improve :
- (A) Shear force over the section (B) Moment of resistance over the section  
(C) Appearance of the section (D) All of these
83. The moment of inertia of a circular section of diameter ( $d$ ) is given by the relation :
- (A)  $(\pi d^4)/16$  (B)  $(\pi d^4)/32$   
(C)  $(\pi d^4)/64$  (D)  $(\pi d^4)/96$
84. In a simply supported beam the bending stress ( $\sigma$ ) can be found out using :
- (A)  $\sigma = M y / I$  (B)  $\sigma = M I / y$   
(C)  $\sigma = I y / M$  (D)  $\sigma = M / I y$

85. The maximum eccentricity of a load on a circular section to have same type of stress is :  
 (A) one-eighth of diameter (B) one-sixth of diameter  
 (C) one-fourth of diameter (D) one-third of diameter
86. The section modulus of a rectangular section having width ( $b$ ) and depth ( $d$ ) is :  
 (A)  $bd/6$  (B)  $bd^2/6$   
 (C)  $bd^3/6$  (D)  $b^2d/6$
87. The resultant of two forces ' $P$ ' and ' $Q$ ' inclined at an angle ' $\theta$ ' can be found out :  
 (A)  $P + Q$  (B)  $P - Q$   
 (C) Parallelogram law of forces (D)  $P \times Q$
88. Moment of a force about a point is :  
 (A) Force + Distance (B) Force – Distance  
 (C) Force / Distance (D) Force  $\times$  Perpendicular Distance
89. Torsional shear stress ' $q$ ' can be found out using :  
 (A)  $q = R/JT$  (B)  $q = TJ/R$   
 (C)  $q = T/JR$  (D)  $q = TR/J$
90. Strain energy ' $U$ ' developed in a bar which is subjected to axial stress ' $s$ ' is given by :  
 (A)  $U = (\sigma^2/2E) \times \text{area}$  (B)  $U = (\sigma^3/2E) \times \text{volume}$   
 (C)  $U = (\sigma^2/2E) \times \text{volume}$  (D)  $U = (\sigma^2/4E) \times \text{volume}$
91. PERT technique of network analysis is mainly useful for :  
 (A) small projects (B) large and complex projects  
 (C) research and development projects (D) deterministic activities
92. The critical activity has :  
 (A) Zero float (B) Maximum float  
 (C) Minimum float (D) None of the above
93. Sinking fund is :  
 (A) the fund for rebuilding a structure when its economic life is over  
 (B) raised to meet maintenance costs  
 (C) the total sum to be paid to the municipal authorities by the tenants  
 (D) Part of the money kept in reserve for providing additional structures and structural modifications

94. At a work site, statistical quality control of concrete means :
- (A) measurement of risks to eliminate failures
  - (B) applying the theory of probability to sample testing or inspection
  - (C) Reduction in wastage of inspection
  - (D) Reduction in costs for the removal of defects
95. Sensitivity analysis is a study of:
- (A) Comparison of profit and loss
  - (B) Comparison of assets and liabilities
  - (C) Change in output due to change in input
  - (D) Economics of cost and benefits of a project
96. In which type of tender any eligible contractor willing to do work is allowed to bid?
- (A) Open tender
  - (B) Negotiated tender
  - (C) BOT Tender
  - (D) None of the above
97. Which of the following is not an act and regulation for health and safety :
- (A) Building and other construction workers Act, 1996
  - (B) Building and other construction workers central rules, 1998
  - (C) The Delhi Building and other construction workers Act, 2000
  - (D) The Delhi Building and other construction workers rules, 2002
98. In civil engineering works quality control includes:
- (A) Testing of materials
  - (B) Inspection of finished work
  - (C) Evaluation of construction method
  - (D) All of the above
99. In long and short wall method of estimation, the length of long wall is the centre to centre distance between the walls and :
- (A) Breadth of the wall
  - (B) Half breadth of wall on each side
  - (C) One fourth breadth of wall on each side
  - (D) None of these
100. The information to be made available for certain heavy purchases through the newspaper is called :
- (A) Guideline
  - (B) Terms and conditions
  - (C) Purchased notice
  - (D) Tender notice
-

**SPACE FOR ROUGH WORK**

**SPACE FOR ROUGH WORK**