

Time Allowed: Two and Half Hours

Maximum Marks: 100

I N S T R U C T I O N S

DO NOT OPEN THIS QUESTION BOOKLET SEAL UNTIL YOU ARE TOLD TO DO SO

1. Immediately after the commencement of the examination, you should check that this Test Booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete Test Booklet.
2. Write your Roll Number on the Test Booklet in the Box provided alongside.
3. This Test Booklet contains 100 items (questions). Each item comprises four responses (answers) written as **(a), (b), (c) and (d)**. You will select the response which you feel is correct and want to mark on the answer sheet.
4. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. Also read the directions in the Answer Sheet. Fill in all the entries in the Answer Sheet correctly, failing which your Answer Sheet shall not be evaluated.
5. Count the number of questions attempted carefully and write it down in the space provided in the OMR Sheet. This has to be verified by the Invigilator before leaving.
6. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded you should hand over to the Invigilator the Answer Sheet (in original). **You are permitted to take away 2nd Copy of OMR Answer Sheet and the Test Booklet.**
7. All items carry equal marks.
8. Calculators, graph sheets or tables are not allowed. Use of instrument box and/or pencil box is allowed. **However exchange of these items is not permitted.**
9. Candidature would be cancelled in case of non-compliance with any of these instructions.
10. Sheets for rough works are appended in the Test Booklet at the end.
11. **Penalty for wrong answers:**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE AS BELOW.
 - (iv) For each question answered incorrectly, **0.5 marks will be deducted** as penalty.
 - (v) If a candidate selects more than one answer out of the four probable answers to a question, it will be treated as a **wrong answer** even if one of the given answer happens to be correct and 0.5 marks deducted.
 - (vi) No negative marks will be allotted if a question is left blank, i.e. there will be no penalty for that question.

"Mobile phones, calculators, IT gadgets, smart watch and any other electronic device such as Bluetooth, etc. are not allowed inside the premises where the examination is being conducted. Any infringements of these instructions shall entail disciplinary action including ban from future examinations."

START of the Question Paper

1. 'Dhajji Dewari' is a vernacular form of architecture of which part of India
(A) Assam (B) Kerala (C) Kashmir (D) Goa

2. The SI unit of 'U-Value' is
(A) $W M^{-1} K^{-1}$ (C) $W^{-1} M^2 K$
(B) $W M^{-2} K^{-1}$ (D) $W^{-1} M K$

3. Which type of steel sections are designated as ISMB
(A) Channel Section (C) Angle section
(B) Box-section (D) I-section

4. Pigment Volume Concentration (PVC) is related to
(A) Paint (B) Metal (C) Varnish (D) Plastic

5. Central Sterile Service Department (CSSD) is a space found in
(A) Airport (B) Auditorium (C) Museum (D) Hospital

6. A dome having members that follow three principal sets of great circles intersecting at 60° and subdividing the dome surface into a series of spherical equilateral triangles is known as
(A) Radial dome (C) Geodesic dome
(B) Schwedler dome (D) Lattice dome

7. 'Sky Component' is required to calculate which of the following
(A) Daylight Factor (C) Wet Bulb Temperature
(B) Relative Humidity (D) Hydrograph

8. Which of the following field test is carried out to find the workability of concrete
(A) Cube Test (C) Fineness Modulus Test
(B) Slump Test (D) Cylinder Test

9. According to Buddhist Architecture the element 'Harmika' is placed
(A) In front of Medhi
(B) Above the Stupa
(C) Top of the Torana
(D) Along the upper pradakshina path

10. Which of the following is **NOT** required to sanction a building plan from municipality

- | | |
|----------------|---------------------|
| (A) Site Plan | (C) Sanitary Layout |
| (B) Floor Plan | (D) Landscape Plan |

11. Which out of the following is considered as a cost effective brick bond

- | | |
|-------------------|------------------|
| (A) Rat-trap Bond | (C) Header Bond |
| (B) English Bond | (D) Flemish Bond |

12. 'BOQ' is a part of

- | | |
|--------------------------|----------------------------|
| (A) Building Maintenance | (C) Contract Document |
| (B) Team of Consultant | (D) Construction Equipment |

13. In architectural design 'Vista' is associated with

- | | |
|------------------------|-----------------------|
| (A) Thermal Comfort | (C) Visual Element |
| (B) Indoor Circulation | (D) Signage Placement |

14. Solar Heat Gain Coefficient (SHGC) is used to calculate

- (A) Heat gain through glass due to solar radiation
- (B) Heat gain through brick wall due to solar radiation
- (C) Heat gain through glass due to solar air temperature
- (D) Heat gain through brick wall due to solar air temperature

15. 'Runoff' is calculated to estimate

- | | |
|------------------------------------|---------------------------------|
| (A) Travel time of elevator | (C) Pick demand of water supply |
| (B) Brick volume in a running wall | (D) Storm water discharge |

16. Recommended slope of a ramp for movement of wheel chair is

- (A) 1 in 5 (B) 1 in 10 (C) 1 in 15 (D) 1 in 20

17. Polishing of terazzo flooring is done with which following chemical compound

- | | |
|----------------------|-------------------|
| (A) Bleaching Powder | (C) Muriatic Acid |
| (B) Turpentine Oil | (D) Oxalic Acid |

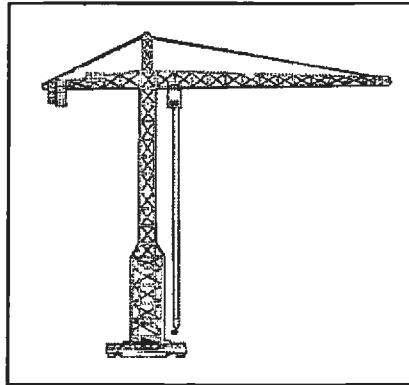
18. 'Topiary' is defined as

- (A) Transplant trees and shrubs to a different place
- (B) Clipping trees and shrubs into an ornamental shapes
- (C) Protecting roots of trees and shrubs from damage
- (D) Clipping trees and shrubs into a uniform height

19. Rebound hammer test is executed to find

- (A) Strength of newly casted concrete member
- (B) Soil bearing capacity
- (C) Strength of existing structural members
- (D) Durability of any material

20. Identify the following from the figure below



- (A) Tower crane
- (B) Concrete pump
- (C) Hydraulic jack
- (D) Scaffolding

21. The Expert appointed to resolve any construction and contract related dispute among architect, client and contractor is known as

- (A) Valuer
- (B) Solicitor
- (C) Block Development Officer
- (D) Arbitrator

22. 'HRIDAY' is a scheme for conserving

- (A) Human skill
- (B) Heritage
- (C) Housing
- (D) Horticulture

23. MMI-Scale is used to find

- (A) Magnitude of an earthquake
- (B) Epicentre of an earthquake
- (C) Intensity of an earthquake
- (D) Focal depth of an earthquake

24. The data regarding 'Turning Radius' is used for which of the following case

- (A) Slope of a truss
- (B) Design of parking layout
- (C) Outside plastering
- (D) Structural analysis

25. 'Eggcrate' fixtures are used for

- (A) Vertical transportation
- (B) Foundation system
- (C) Water purification
- (D) Passive solar element

26. 'Transome' is a part of

- (A) Kitchen working top (C) Built-in-furniture
(B) Wooden flooring system (D) Window

27. Hazen's – William's equation is used to calculate

- (A) Size of air-conditioning duct (C) Size of water supply pipeline
(B) Capacity of overhead water tank (D) Capacity of sewage treatment plant

28. Bac de roda bridge in Barcelona, Spain was designed by

- (A) Santiago Calatrava (C) F.R.Khan
(B) Felix Candela (D) Philip Jonson

29. Light Power Density (LPD) is computed by

- (A) Watt per square meter of plan area
(B) Lumen per square meter of plan area
(C) Lux per square meter of plan area
(D) Candela per square meter of plan area

30. A semicircular or semielliptical window over a door or another window is called

- (A) Clear storey (C) Fanlight
(B) Skylight (D) Light well

31. Imphal is situated in which seismic zone of India as per IS-1893

- (A) Zone-II (C) Zone-IV
(B) Zone-III (D) Zone-V

32. Identify the type of window from the figure given below



- (A) Double hang window (C) Casement window
(B) Bay window (D) Louvered window

33. The filling portion of a square base to a spherical dome is known as
- (A) Squinch (B) Pilaster (C) Arcade (D) Cornice
34. 'Ferrul' is used in
- (A) Air-conditioning duct (C) City sewage line
(B) Water supply connection (D) RCC Beam
35. In spherical propagation, if distance between the source and receiver gets doubled, the sound level is dropped by
- (A) 2 dB (B) 3 dB (C) 6 dB (D) 12 dB
36. The parameter that does not appear in the Psychometric chart is
- (A) Wet Bulb Temperature (C) Dry Bulb Temperature
(B) Wind Speed (D) Relative Humidity
37. The town planner of the city Bhubaneswar is
- (A) Prakash M. Apte (C) Le Corbusier
(B) Otto Konigsberger (D) Sir Edwin Lutyens
38. 'Sangsad Bhaban, Dhaka' is designed by
- (A) Geoffrey Bawa (C) Christopher Benninger
(B) L.M.Pai (D) Luis Kahn
39. Tuned mass damper (TMD) is used in
- (A) Taipei 101 (C) Petronas Towers
(B) Bruj Khalifa (D) Sears Tower
40. Which of the following component is placed at the apex of an arch
- (A) Impost (B) Key stone (C) Purline (D) Voussoir
41. In case of residential apartment, the effective floor area available for use within the apartment is known as
- (A) Built-up area (C) Super built-up area
(B) Plinth area (D) Carpet area
42. In case of reinforcement bar, 'TMT' stands for
- (A) Twisted and machine treated (C) Thermo-mechanically twisted
(B) Thermo-mechanically treated (D) Twisted and mahanically treated

43. Which of the following is **NOT** a property of cement

- (A) Fineness (B) Workability (C) Setting time (D) Soundness

44. In contract management 'EMD' is related to

- (A) Income tax return document of bidder
(B) Quantity of material related data of the project
(C) Money deposited during construction bid
(D) Consultancy fee of the project architect

45. Flexural rigidity of a beam is the product of

- (A) Moment of Inertia and Young's modulus of elasticity
(B) Moment of Inertia and Rigidity modulus
(C) Cross section area and Young's modulus of elasticity
(D) Cross section area and Rigidity modulus

46. Identify the type of roof slab from the figure below



- (A) Filler slab (B) Waffle slab (C) Folded plate (D) Flat slab

47. Which of the following is **NOT** a parameter to find solar-air Temperature

- (A) Outdoor temperature (C) Solar radiation
(B) Surface absorbance (D) Relative humidity

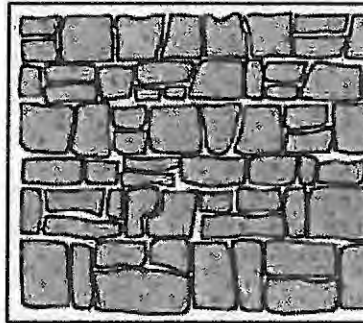
48. The great 'Hypostyle Hall' is located within the premises of

- (A) Abu Simble temples
(B) Karnak temple complex
(C) Mortuary temple of Hatshepsut
(D) Luxor temple complex

49. A protective metal plate fastened to the bottom of the door to resist blows and scratch is known as

- (A) Kick plate (B) Door plate (C) Lock plate (D) Push plate

50. Identify the type of stone masonry from the figure below



- (A) Course ashlar (C) Random ashlar
(B) Random rubble (D) Course rubble

51. Identify the incorrect AUTOCAD statement from the following

- (A) SPLINE is create smooth curve line for a give set of points
(B) MATCHPROP modify the colour of any line segment to the source line
(C) EXPLODE cannot work on PLINE
(D) PLINE can execute both in line and arc segments

52. 'Pointing' is used in

- (A) Staircase landing (C) Plinth beam
(B) Exposed brick wall (D) Roof water proofing

53. Which of the following building designed by architect Raj Rewal, was demolished recently

- (A) Mandi House (C) National Science Centre
(B) Hall of Nations (D) Talkatora Stadium

54. 'Dandaka' form of settlement layout is basically a

- (A) Radial pattern (C) Oblique pattern
(B) Ring pattern (D) Grid iron pattern

55. 'No-cut no-fill' lines are mainly use in

- (A) Tree transplantation (C) Earthwork computation
(B) Vision line demarcation (D) Interior perspective drawings

82. A concrete cube sample of 15 cm sides fails under 562.5 kN compressive load. The compressive strength of the concrete sample is

- (A) 25MPa (B) 25 kN/ m² (C) 250MPa (D) 250 kN/ m²

83. A site plan is drawn in 1:500 scale. A certain rectangular plot in the site plan measures as 10 cm x 6 cm. The actual area of the rectangular plot in square meter will be

- (A) 30 (B) 150 (C) 1500 (D) 3000

84. A lecture hall of dimension 24m x 10m x 4m (L x B x H) having total interior surface absorption equivalent to 128 sabin. The reverberation time of the lecture hall in second will be

- (A) 0.6 (B) 0.8 (C) 1.0 (D) 1.2

85. A plot area measure 20 m x 15 m. the permissible ground coverage is 30% and FAR is 1.2. The maximum number of floors that can be built is

- (A) 3 (B) 4 (C) 5 (D) 6

86. Following two statements are made related to the ancient temple town Hampi, Karnataka. Review the statements and choose the correct combination.

Statement: P The site house Virupaksha temple

Statement: Q It is recognised as a world heritage site by UNESCO

- (A) Statements P and Q both are TRUE
(B) Statement P is TRUE, but Statement Q is FALSE
(C) Statement P is FALSE, but Statement Q is TRUE
(D) Statements P and Q both are FALSE

87. Following two statements are made related to P-trap. Review the statements and choose the correct combination.

Statement: P It is a part of sanitary layout of any building

Statement: Q It is used to separate the solid and liquid waste from source

- (A) Statements P and Q both are TRUE
(B) Statement P is TRUE, but Statement Q is FALSE
(C) Statement P is FALSE, but Statement Q is TRUE
(D) Statements P and Q both are FALSE

88. Following two statements are made in connection with miniature circuit breaker (MCB). Review the statements and choose the correct combination.

Statement: P It distribute electricity in various parts of building and protect the circuit from overloading

Statement: Q It regulate the fluctuation of supply voltage to a standard level

- (A) Statements P and Q both are TRUE
- (B) Statement P is TRUE, but Statement Q is FALSE
- (C) Statement P is FALSE, but Statement Q is TRUE
- (D) Statements P and Q both are FALSE

89. Following two statements are made in association with grass crate paver blocks. Review the statements and choose the correct combination.

Statement: P Concrete is used to fill the grass crate holes

Statement: Q It allows the rain water to percolate into the soil

- (A) Statements P and Q both are TRUE
- (B) Statement P is TRUE, but Statement Q is FALSE
- (C) Statement P is FALSE, but Statement Q is TRUE
- (D) Statements P and Q both are FALSE

90. Following two statements are made related to square and rectangular plan single storey buildings

Statement: P It is not suitable for seismic prone areas

Statement: Q It has many re-entrained corners

- (A) Statements P and Q both are TRUE
- (B) Statement P is TRUE, but Statement Q is FALSE
- (C) Statement P is FALSE, but Statement Q is TRUE
- (D) Statements P and Q both are FALSE

91. Match the instruments in Group-I and their use in Group-II

Group-I

P Total Station

Q Anemometer

R Pyranometer

Group-II

X Wind Velocity

Y Solar Irradiance

Z Land Survey

- (A) P – Y, Q – X, R - Z
- (B) P – Z, Q – X, R - Y

- (C) P – X, Q – Z, R - Y
- (D) P – Z, Q – Y, R - X

92. Match the Architects in Group-I and their work in Group-II

- | Group-I | Group-II |
|--------------------------------|---|
| P Charles Correa | X Indian Institute of Forest Management, Bhopal |
| Q Bimal Patel | Y Indian Institute of Management, Ahmadabad, New Campus |
| R Anant Raje | Z Inter-University Centre for Astronomy and Astrophysics, Pune |
| (A) P - Y, Q - Z, R - X | (C) P - X, Q - Z, R - Y |
| (B) P - Z, Q - X, R - Y | (D) P - Z, Q - Y, R - X |

93. Match the architectural features in Group-I and their relation in Group-II

- | Group-I | Group-II |
|--------------------------------|--------------------------------|
| P Obelisk | X Column Capital |
| Q Abacus | Y Stand alone pillar |
| R Flying Buttress | Z Inclined Support |
| (A) P - Y, Q - X, R - Z | (C) P - X, Q - Z, R - Y |
| (B) P - Z, Q - X, R - Y | (D) P - Z, Q - Y, R - X |

94. Match the plant types in Group-I with their examples in Group-II

- | Group-I | Group-II |
|--------------------------------|--------------------------------|
| P Climber | X Money Plant |
| Q Hedge | Y Shirish |
| R Tree | Z Duranta |
| (A) P - Y, Q - Z, R - X | (C) P - X, Q - Z, R - Y |
| (B) P - Z, Q - X, R - Y | (D) P - Z, Q - Y, R - X |

95. Match the items in Group-I and their definition in Group-II

- | Group-I | Group-II |
|--------------------------------|---|
| P Scrap Value | X Value after deducting the depreciation |
| Q Book Value | Y Value at the end of utility period |
| R Salvage Value | Z Value of dismantled material |
| (A) P - Y, Q - X, R - Z | (C) P - X, Q - Z, R - Y |
| (B) P - Z, Q - X, R - Y | (D) P - Z, Q - Y, R - X |

96. An 18000 Watt air conditioner is installed in an office space. If the office is working for 8 hours a day and the unit cost of electricity is Rs. 4/-, then the total electricity bill for five days in Rupees will be

- (A) 3450 (B) 3200 (C) 3050 (D) 2880

97. A cantilever beam of length 'L' is carrying a whole span uniformly distributed load of intensity 'w'. The moment of inertia of the beam cross section is 'I'. The Young's modulus of elasticity of the beam material is 'E'. The maximum bending moment of the beam at the fixed end will be

- (A) $\frac{wL}{2}$ (C) $\frac{wL^2}{2}$
(B) $\frac{wL^3}{6EI}$ (D) $\frac{wL^4}{8EI}$

98. The three PERT times for a construction activity are given below:

Optimistic time: 12 weeks, Most likely time: 18 weeks, Pessimistic time: 30 weeks

The expected duration of the activity in weeks will be

- (A) 19 (B) 20 (C) 21 (D) 22

99. A rectangular beam having cross section dimension 300mm x 600mm (B x D) is subjected to an external bending moment of 135 kN-m. The top fibre bending stress in the beam cross section in MPa will be

- (A) 4.5 (B) 6.0 (C) 7.5 (D) 9.0

100. The capitalised value of a building is Rs. 33,00,000/-. The monthly rent obtained from the building is Rs. 25,000/-. The quarterly property tax of Rs. 2,500/- is to be deposited in the municipality. The repair and maintenance charges are 5% of the rent.

The Years purchase in perpetuity will be

- (A) 12 (B) 12.5 (C) 15 (D) 17.5

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