

OJEE M Arch Sample Paper 01

A) Mode and Time: The exam is a Computer Based Test (CBT) lasting 120 minutes.

B) Total Questions: The exam contains 90 questions.

C) Marking Scheme & Rules:

- Each question carry 1 mark and there is no negative marking for wrong answer.

Q1. The "Modulor" system of proportions was developed by:

- A. Ludwig Mies van der Rohe
- B. Le Corbusier
- C. Frank Lloyd Wright
- D. Andrea Palladio

Q2. Which of the following is a characteristic feature of Gothic architecture?

- A. Semi-circular arches
- B. Massive domes
- C. Flying buttresses
- D. Ziggurats

Q3. The first Indian architect to win the Pritzker Architecture Prize is:

- A. Charles Correa
- B. B.V. Doshi
- C. Raj Rewal
- D. Laurie Baker

Q4. In a Flemish bond brick masonry wall:

- A. Each course consists of alternate headers and stretchers
- B. Alternate courses consist of entirely headers and entirely stretchers
- C. All bricks are laid as stretchers
- D. Bricks are laid diagonally

Q5. The Garden City Concept was introduced by:

- A. Patrick Geddes
- B. Ebenezer Howard
- C. Kevin Lynch
- D. Jane Jacobs

Q6. Which instrument is used to measure the intensity of light in a room?

- A. Anemometer
- B. Hygrometer
- C. Lux meter
- D. Pyranometer

Q7. In building acoustics, the Sabin formula is used to calculate:

- A. Sound transmission class
- B. Noise reduction coefficient
- C. Reverberation time
- D. Impact insulation class

Q8. According to the National Building Code (NBC), the minimum headroom for a staircase is:

- A. 1.8 m
- B. 2.0 m
- C. 2.2 m
- D. 2.5 m

Q9. The primary function of a "Trombe Wall" is to:

- A. Provide structural support against earthquakes
- B. Absorb solar heat and release it into the interior
- C. Block out unwanted noise from the street
- D. Harvest rainwater

Q10. What does FAR stand for in urban planning?

- A. Floor Area Ratio
- B. Functional Area Requirement

- C. Free Accessible Region
- D. Frontage Area Regulation

Q11. The term 'Entasis' refers to:

- A. The slight convex bulging of a column to correct optical illusion
- B. The triangular pediment above a portico
- C. The central courtyard of a Roman house
- D. The decorative spiral on an Ionic capital

Q12. Which of these cements is most suitable for mass concreting like dams?

- A. Rapid Hardening Cement
- B. Low Heat Cement
- C. Sulphate Resisting Cement
- D. White Portland Cement

Q13. In CPM/PERT network analysis, "Float" or "Slack" represents:

- A. The longest path in the network
- B. The time by which an activity can be delayed without affecting the project completion time
- C. The cost overrun of a project
- D. The minimum time required to complete a critical activity

Q14. A "P-Trap" is typically used in:

- A. Electrical conduits
- B. HVAC ducting
- C. Sanitary plumbing
- D. Elevator shafts

Q15. Which architectural style heavily utilized exposed steel and glass, emphasizing "less is more"?

- A. Art Deco
- B. Brutalism
- C. International Style / Bauhaus

D. Postmodernism

Q16. In AutoCAD, which command is used to create a mirrored copy of selected objects?

A. CO

B. MI

C. MR

D. RO

Q17. "GRIHA" is India's national rating system for:

A. Heritage conservation

B. Green buildings

C. Highway construction

D. Seismic resistance

Q18. The spacing of contour lines on a topographical map indicates the:

A. Soil type

B. Vegetation density

C. Steepness of the slope

D. Annual rainfall

Q19. Which element is NOT a part of Kevin Lynch's "Image of the City"?

A. Paths

B. Edges

C. Nodes

D. Voids

Q20. A beam supported on its two ends and free to bend is called a:

A. Cantilever beam

B. Continuous beam

C. Simply supported beam

D. Fixed beam

Q21. The Taj Mahal is constructed primarily using:

- A. Red Sandstone
- B. Makrana Marble
- C. Granite
- D. Basalt

Q22. In perspective drawing, the point where parallel lines appear to converge is the:

- A. Station point
- B. Horizon line
- C. Vanishing point
- D. Picture plane

Q23. Which of the following woods is highly resistant to termites and used extensively in high-quality Indian furniture?

- A. Pine
- B. Teak
- C. Mango
- D. Balsa

Q24. The ratio of the volume of voids to the total volume of a soil mass is called:

- A. Void ratio
- B. Porosity
- C. Degree of saturation
- D. Water content

Q25. A "Cul-de-sac" is designed primarily to:

- A. Increase traffic flow
- B. Restrict through-traffic in residential areas
- C. Provide commercial frontage
- D. Connect two highways

Q26. Which structural system relies on a membrane stressed in tension?

- A. Shell structure
- B. Tensile structure

- C. Space frame
- D. Arch

Q27. The color scheme that uses colors opposite to each other on the color wheel is called:

- A. Analogous
- B. Monochromatic
- C. Complementary
- D. Triadic

Q28. "Brise-soleil" is a feature designed to:

- A. Harvest wind energy
- B. Shade windows from direct sunlight
- C. Improve building acoustics
- D. Collect rainwater

Q29. What is the standard size of a modular brick in India?

- A. 190 x 90 x 90 mm
- B. 230 x 110 x 75 mm
- C. 200 x 100 x 100 mm
- D. 225 x 115 x 75 mm

Q30. The Golden Ratio is approximately:

- A. 1.414
- B. 1.618
- C. 3.141
- D. 1.732

Q31. In a building, the DPC (Damp Proof Course) is usually laid at the:

- A. Lintel level
- B. Roof slab level
- C. Plinth level
- D. Sill level

- Q32.** The term "Albedo" in climate-responsive design refers to:
- A. The rate of heat transfer through a material
 - B. The solar reflectance of a surface
 - C. The capacity of a material to store heat
 - D. The level of indoor humidity
- Q33.** Which architect designed the famous "Fallingwater" house?
- A. Zaha Hadid
 - B. Mies van der Rohe
 - C. Frank Lloyd Wright
 - D. Louis Kahn
- Q34.** A slump test is conducted on site to determine the:
- A. Compressive strength of concrete
 - B. Tensile strength of steel
 - C. Workability of fresh concrete
 - D. Bearing capacity of soil
- Q35.** In urban planning, a "Transit-Oriented Development" (TOD) prioritizes:
- A. Large parking lots
 - B. Highway expansion
 - C. Pedestrian and public transit access
 - D. Industrial zoning
- Q36.** The highest point of an arch is called the:
- A. Springer
 - B. Keystone
 - C. Haunch
 - D. Intrados
- Q37.** Which software is primarily used for 3D Building Information Modeling (BIM)?
- A. Adobe Photoshop

- B. Autodesk Revit
- C. CorelDraw
- D. MS Project

Q38. The unit of thermal conductivity (U-value) is:

- A. $\text{W/m}^2\text{K}$
- B. J/kg
- C. Lux/m^2
- D. dB(A)

Q39. In Indian architecture, "Garbhagriha" refers to:

- A. The main entrance porch
- B. The inner sanctum of a temple
- C. The water reservoir
- D. The assembly hall

Q40. A roof sloping in four directions is known as a:

- A. Gable roof
- B. Hip roof
- C. Flat roof
- D. Shed roof

Q41. The primary purpose of a structural expansion joint is to:

- A. Prevent water leakage
- B. Allow for thermal expansion and contraction
- C. Improve acoustic insulation
- D. Increase aesthetic appeal

Q42. Which of the following is a renewable building material?

- A. Steel
- B. Concrete
- C. Bamboo

D. Aluminum

Q43. The "Caryatid" is a sculpted female figure serving as an architectural support taking the place of a:

- A. Lintel
- B. Column
- C. Pediment
- D. Frieze

Q44. "Adaptive Reuse" in architecture refers to:

- A. Demolishing an old building to build a new one
- B. Recycling building materials for a new site
- C. Repurposing an existing building for a use other than its original purpose
- D. Designing a building with flexible interior partitions

Q45. Which of the following is NOT a type of foundation?

- A. Raft
- B. Pile
- C. Strip
- D. Lintel

Q46. In HVAC systems, AHU stands for:

- A. Air Handling Unit
- B. Ambient Heat Unit
- C. Acoustic Heating Unit
- D. Auxiliary Hose Unit

Q47. "Ergonomics" in design is primarily concerned with:

- A. Visual aesthetics
- B. Human comfort and efficiency in relation to the environment
- C. Energy consumption of a building
- D. Structural stability

Q48. The city of Chandigarh was designed on the principle of:

- A. Radial city planning
- B. Grid iron layout / Sectoral planning
- C. Linear city planning
- D. Organic growth

Q49. Which famous structure uses a geodesic dome?

- A. Biosphère in Montreal
- B. Eiffel Tower
- C. Burj Khalifa
- D. Louvre Pyramid

Q50. The point of contraflexure in a structural beam is where:

- A. Shear force is zero
- B. Shear force is maximum
- C. Bending moment is zero (changes sign)
- D. Bending moment is maximum

Q51. Under RERA guidelines, a developer cannot alter the sanctioned plans without the written consent of what percentage of allottees?

- A. 2/3rd
- B. 1/2
- C. 3/4th
- D. 100%

Q52. The "Sun Path Diagram" is crucial for analyzing:

- A. Wind loads
- B. Solar shading and daylighting
- C. Rainfall intensity
- D. Soil bearing capacity

Q53. Which element is characteristic of Islamic architecture?

- A. Ziggurat
- B. Minaret
- C. Stupa
- D. Pagoda

Q54. A wall built to retain soil on a slope is called a:

- A. Parapet wall
- B. Cavity wall
- C. Retaining wall
- D. Shear wall

Q55. In the context of elevators, what is a "dumbwaiter"?

- A. A slow-moving passenger lift
- B. A small freight elevator used for transporting food/goods between floors
- C. An elevator mechanism that does not require electricity
- D. The counterweight system in a lift shaft

Q56. "Deconstructivism" is an architectural movement characterized by:

- A. Strict adherence to classical proportions
- B. Fragmentation and unpredictable, non-rectilinear shapes
- C. Extensive use of organic, plant-like motifs
- D. Symmetrical and monumental stone masonry

Q57. For a visually impaired person, tactile paving on sidewalks acts as a:

- A. Decorative element
- B. Warning and directional guide
- C. Anti-slip surface only
- D. Water drainage system

Q58. Which of these is a thermosetting plastic used in building interiors?

- A. PVC
- B. Polythene

C. Bakelite

D. Acrylic

Q59. The angle of repose of a soil determines its:

A. Maximum bearing capacity

B. Maximum slope angle at which it is stable

C. Permeability to water

D. Optimum moisture content

Q60. The Council of Architecture (COA) in India was constituted under the provisions of the:

A. Architects Act, 1972

B. Building Construction Act, 1985

C. RERA Act, 2016

D. Urban Development Act, 1990

Q61. Number Series: 2, 5, 10, 17, 26, ?

A. 35

B. 37

C. 39

D. 41

Q62. Letter Series: BDF, HJL, NPR, ?

A. TVX

B. UWY

C. TVY

D. SUW

Q63. Odd One Out:

A. Copper

B. Zinc

C. Brass

D. Iron

Q64. Coding-Decoding: If WATER is written as YCVGT, how is FIRE written?

- A. HKTC
- B. HKTG
- C. JKVG
- D. HLUG

Q65. Blood Relation: A is the brother of B. C is the father of A. D is the brother of E. E is the daughter of B. Then, the uncle of D is:

- A. A
- B. B
- C. C
- D. E

Q66. Direction Sense: You walk 10m North, take a right turn and walk 20m, take another right turn and walk 10m. How far are you from the starting point?

- A. 10m
- B. 20m
- C. 30m
- D. 40m

Q67. Syllogism: Statements: Some buildings are tall. All tall things are unstable. Conclusions: I. Some buildings are unstable. II. All unstable things are tall.

- A. Only I follows
- B. Only II follows
- C. Both follow
- D. Neither follows

Q68. Analogy: Architect : Blueprint :: Tailor : ?

- A. Fabric
- B. Needle
- C. Pattern
- D. Sewing Machine

Q69. Logical Sequence: 1. Wall 2. Foundation 3. Roof 4. Plinth 5. Painting

- A. 2, 4, 1, 3, 5
- B. 2, 1, 4, 3, 5
- C. 4, 2, 1, 3, 5
- D. 2, 4, 3, 1, 5

Q70. Odd One Out:

- A. Cylinder
- B. Sphere
- C. Square
- D. Cone

Q71. Missing Number: 3, 8, 15, 24, 35, 48, ?

- A. 55
- B. 63
- C. 65
- D. 72

Q72. Statement & Assumption: Statement: "Use energy-efficient bulbs to reduce electricity bills." Assumption: People want to reduce their electricity bills.

- A. Assumption is implicit
- B. Assumption is not implicit
- C. Cannot be determined
- D. Data inadequate

Q73. Venn Diagram Logic: Which diagram best represents the relationship between: 'Engineers, Architects, Professionals'?

- A. Two intersecting circles inside a larger circle
- B. Three disjoint circles
- C. Three concentric circles
- D. One circle intersecting a larger circle

Q74. Verbal Analogy: DILATE : CONTRACT :: ENLARGE : ?

- A. Expand
- B. Shrink
- C. Grow
- D. Widen

Q75. Find the synonym: UBIQUITOUS

- A. Rare
- B. Omnipresent
- C. Expensive
- D. Temporary

Q76. Find the antonym: MITIGATE

- A. Alleviate
- B. Worsen
- C. Soothe
- D. Relieve

Q77. Coding-Decoding: If 1=A, 2=B, 3=C... what does 4-15-7 code for?

- A. DOG
- B. CAT
- C. DIG
- D. DOT

Q78. Word Formation: Which word CANNOT be formed using the letters of "ARCHITECTURE"?

- A. CURE
- B. TRACTOR
- C. CHAIR
- D. CHART

Q79. Paragraph Conclusion: "The sudden increase in steel prices has led many developers to pause their ongoing projects, waiting for market stabilization." Conclusion: Steel is a crucial material in real estate development.

- A. True
- B. False
- C. Probably True
- D. Cannot be determined

Q80. Clock Reasoning: What is the angle between the minute hand and the hour hand at 3:15?

- A. 0 degrees
- B. 7.5 degrees
- C. 15 degrees
- D. 22.5 degrees

Q81. Calendar Reasoning: If today is Monday, what day of the week will it be 61 days from today?

- A. Saturday
- B. Sunday
- C. Monday
- D. Tuesday

Q82. Ranking: In a class of 40 students, Rohan's rank is 15th from the top. What is his rank from the bottom?

- A. 25th
- B. 26th
- C. 24th
- D. 27th

Q83. Fill in the blank (Grammar): Neither the architect the client was happy with the design.

- A. or
- B. nor
- C. and
- D. but

Q84. Idiom Meaning: "To go back to the drawing board" means:

- A. To create a detailed sketch
- B. To start over because a previous attempt failed
- C. To consult an expert
- D. To finalize a plan

Q85. Error Spotting: Find the error.

- A. The new building
- B. is much more taller
- C. than the old one
- D. No error

Q86. Number Matrix: Find the missing number (Row 1: 2, 3, 5; Row 2: 4, 9, 13; Row 3: 5, 6, ?)

- A. 11
- B. 15
- C. 18
- D. 30

Q87. Cause and Effect: I. The government reduced stamp duty on property registration.
II. There was a surge in real estate sales this quarter.

- A. I is the cause and II is the effect
- B. II is the cause and I is the effect
- C. Both are independent causes
- D. Both are effects of independent causes

Q88. Blood Relation: Pointing to a woman, a man said, "Her mother is the only daughter of my mother." How is the man related to the woman?

- A. Father
- B. Uncle (Maternal)
- C. Brother
- D. Grandfather

Q89. Analogy: Scale : Plan :: Legend : ?

- A. Map
- B. Story
- C. Book
- D. History

Q90. Find the odd word:

- A. Elevation
- B. Section
- C. Plan
- D. Estimate



Solutions

1. B

Explanation: The Modulor is an anthropometrical scale of proportions devised by the Swiss-born French architect Le Corbusier, based on the height of a man with his arm raised.

2. C

Explanation: Gothic architecture is characterized by ribbed vaults, pointed arches, and flying buttresses, which allowed for taller, lighter structures with expansive windows.

3. B

Explanation: Balkrishna Vitthaladas (B.V.) Doshi became the first Indian architect to receive the prestigious Pritzker Architecture Prize in 2018.

4. A

Explanation: In a Flemish bond, each course of masonry consists of alternating headers (short face) and stretchers (long face), providing both strength and an attractive appearance.

5. B

Explanation: Sir Ebenezer Howard introduced the Garden City movement in 1898, advocating for planned, self-contained communities surrounded by greenbelts.

6. C

Explanation: A lux meter is a device specifically used to measure illuminance and luminous emittance, which indicates the intensity of light in a given space.

7. C

Explanation: The Sabin formula ($T = 0.161V/A$) is used to calculate the reverberation time of a room based on its volume and total sound absorption area.

8. B

Explanation: As per the National Building Code (NBC) of India, the minimum clear headroom above any step of a staircase should be 2.0 meters.

9. B

Explanation: A Trombe wall is a passive solar building design concept featuring a dark, heat-absorbing wall facing the winter sun, used to collect and slowly release thermal energy.

10. A

Explanation: Floor Area Ratio (FAR) is the ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built.

11. A

Explanation: Entasis is the application of a slight convex curve to the shaft of a column, introduced by the Greeks to correct the optical illusion of concavity.

12. B

Explanation: Low Heat Portland Cement is used in mass concrete pours (like dams) because it generates less heat of hydration, preventing thermal cracking.

13. B

Explanation: Float (or Slack) is the amount of time that a task in a project network can be delayed without causing a delay to subsequent tasks or project completion.

14. C

Explanation: A P-Trap is a U-shaped plumbing fixture that holds a small amount of water to prevent sewer gases from entering a building while allowing waste to pass.

15. C

Explanation: The International Style (and the Bauhaus movement) championed modern, minimalist architecture using industrial materials like steel and glass, famously encapsulated by Mies van der Rohe's "less is more."

16. B

Explanation: In AutoCAD, "MI" is the keyboard shortcut for the MIRROR command, which creates a reversed copy of selected objects.

17. B

Explanation: GRIHA (Green Rating for Integrated Habitat Assessment) is India's own national rating system designed to evaluate the environmental performance of buildings.

18. C

Explanation: The spacing between contour lines indicates the terrain's slope; closely spaced lines indicate steep slopes, while widely spaced lines indicate gentle slopes.

19. D

Explanation: In "The Image of the City," Kevin Lynch identifies five elements that humans use to structure their mental image of a city: Paths, Edges, Districts, Nodes, and Landmarks. Voids are not included.

20. C

Explanation: A simply supported beam rests on two supports at its ends and is free to rotate, meaning it has no moment resistance at the supports.

21. B

Explanation: The Taj Mahal is famously built entirely out of white Makrana marble, sourced from the Makrana quarries in Rajasthan.

22. C

Explanation: A vanishing point is a point on the image plane of a perspective drawing where the two-dimensional perspective projections of mutually parallel lines in 3D space appear to converge.

23. B

Explanation: Teak wood contains natural oils that make it highly durable, water-resistant, and inherently resistant to termites and other insects.

24. B

Explanation: Porosity is defined as the ratio of the volume of voids to the total volume of the soil mass, whereas void ratio relates the volume of voids to the volume of solids.

25. B

Explanation: A cul-de-sac is a dead-end street designed to eliminate through-traffic in residential neighborhoods, promoting safety and a quieter environment.

26. B

Explanation: Tensile structures rely primarily on tension rather than compression; they use membranes (like fabric or mesh) stretched over a framework to provide structural support.

27. C

Explanation: Complementary colors are pairs of colors situated directly opposite each other on the color wheel, creating high contrast when used together.

28. B

Explanation: Brise-soleil (French for "sun breaker") is an architectural feature of a building that reduces heat gain by deflecting sunlight.

29. A

Explanation: The standard metric size of a modular brick in India, excluding the mortar joint, is 190 mm x 90 mm x 90 mm.

30. B

Explanation: The Golden Ratio (represented by the Greek letter Phi) is an irrational mathematical constant approximately equal to 1.618, heavily utilized in classical proportion systems.

31. C

Explanation: The Damp Proof Course (DPC) is an impervious barrier laid horizontally at the plinth level to prevent moisture from rising up through capillary action.

32. B

Explanation: Albedo measures the solar reflectance of a surface; a high albedo surface reflects most of the sun's energy, which helps in reducing cooling loads.

33. C

Explanation: "Fallingwater" is a masterpiece of organic architecture designed by Frank Lloyd Wright in 1935, built partly over a waterfall in Pennsylvania.

34. C

Explanation: The concrete slump test measures the consistency or "workability" of a fresh concrete batch to check if it contains the correct amount of water.

35. C

Explanation: Transit-Oriented Development (TOD) maximizes the amount of residential, business, and leisure space within walking distance of public transport hubs.

36. B

Explanation: The keystone is the wedge-shaped stone at the apex of a masonry arch, locking all the other stones into position and allowing the arch to bear weight.

37. B

Explanation: Autodesk Revit is a robust Building Information Modeling (BIM) software specifically designed for architects, structural engineers, and MEP profes-

sionals.

38. A

Explanation: Thermal transmittance (U-value) is measured in Watts per square meter Kelvin (W/m^2K), representing the rate of heat transfer through a structure.

39. B

Explanation: In Hindu temple architecture, the "Garbhagriha" translates to "womb chamber," serving as the innermost sanctum where the primary deity's idol resides.

40. B

Explanation: A hip roof has slopes on all four sides, with the sides coming together at the top to form a ridge, offering better resistance to high winds.

41. B

Explanation: Expansion joints are intentional gaps placed in large structures to accommodate safely the thermal expansion and contraction of building materials without causing stress cracks.

42. C

Explanation: Bamboo is a rapidly renewable resource compared to timber or industrial materials, regenerating quickly after harvesting without needing replanting.

43. B

Explanation: A Caryatid is a sculpted female figure serving as an architectural support taking the place of a column or a pillar to support an entablature on her head.

44. C

Explanation: Adaptive reuse involves taking an old building or site and reusing it for a purpose other than what it was originally designed for, promoting sustainability and conservation.

45. D

Explanation: A lintel is a horizontal beam used to span an opening in a wall (like a door or window) to support the load above it, not a foundation system.

46. A

Explanation: AHU stands for Air Handling Unit, which is a device used to regulate and circulate air as part of a heating, ventilating, and air-conditioning (HVAC) system.

47. B

Explanation: Ergonomics is the applied science of designing equipment, spaces, and workflows to maximize productivity by reducing operator fatigue and discomfort.

48. B

Explanation: Le Corbusier's master plan for Chandigarh is based on a rigid grid iron layout divided into self-sufficient rectangular sectors.

49. A

Explanation: Designed by Buckminster Fuller for Expo 67, the Montreal Biosphère is one of the most famous examples of a geodesic dome.

50. C

Explanation: The point of contraflexure is the exact point along a structural beam where the bending moment is zero and changes its sign from positive to negative or vice versa.

51. A

Explanation: Under the RERA Act, a promoter cannot make any major additions or alterations to the sanctioned plans without the previous written consent of at least two-thirds of the allottees.

52. B

Explanation: A sun path diagram visually represents the sun's position in the sky throughout the year, crucial for analyzing daylighting, solar heat gain, and designing shading devices.

53. B

Explanation: A minaret is a tall, slender tower characteristic of Islamic architecture, typically built into or adjacent to mosques for the call to prayer.

54. C

Explanation: Retaining walls are relatively rigid walls used to support soil laterally so that it can be retained at different levels on the two sides of an elevation change.

55. B

Explanation: A dumbwaiter is a small freight elevator or lift intended to carry objects (such as food, dishes, or books) rather than people between different floors.

56. B

Explanation: Deconstructivism is characterized by ideas of fragmentation, a lack of symmetry or continuity, and unpredictable, manipulated surface skins.

57. B

Explanation: Tactile paving features textured surfaces on footpaths, stairs, and train station platforms to assist pedestrians who are visually impaired with directional orientation and hazard warnings.

58. C

Explanation: Bakelite is an early thermosetting plastic, meaning once it is heated and molded into a shape, it permanently sets and cannot be melted down and reshaped like thermoplastics (e.g., PVC or Acrylic).

59. B

Explanation: The angle of repose is the steepest angle of descent relative to the horizontal plane to which a material can be piled without slumping.

60. A

Explanation: The Council of Architecture (COA) is a statutory body constituted by the Government of India under the provisions of the Architects Act, 1972, to regulate architectural education and practice.

61. B

Explanation: The sequence follows the pattern $n^2 + 1$. ($1^2 + 1 = 2$; $2^2 + 1 = 5$; $3^2 + 1 = 10$; $4^2 + 1 = 17$; $5^2 + 1 = 26$; $6^2 + 1 = 37$).

62. A

Explanation: Each letter advances by 2 positions in the alphabet. $N(+2) = P$, $P(+2) = R$. Following this logic: $R(+2)=T$, $T(+2)=V$, $V(+2)=X$, giving TVX.

63. C

Explanation: Copper, Zinc, and Iron are basic metallic chemical elements. Brass is an alloy made primarily of copper and zinc, making it the odd one out.

64. B

Explanation: The code shifts each letter forward by 2 places ($W+2=Y$, $A+2=C\dots$). Applying this to FIRE: $F+2=H$, $I+2=K$, $R+2=T$, $E+2=G$.

65. A

Explanation: E is the daughter of B. D is the brother of E, making D the son of B. Since A is the brother of B, A is the paternal or maternal uncle of D.

66. B

Explanation: The path forms three sides of a rectangle. Moving 10m North, 20m East, and 10m South puts the person exactly 20m East of their starting point.

67. A

Explanation: Since 'some buildings are tall' and 'all tall things are unstable', the intersection guarantees that some buildings must be unstable. The reverse is not stated.

68. C

Explanation: An architect creates and uses a blueprint to guide the building process. Similarly, a tailor creates and uses a pattern to guide the making of clothing.

69. A

Explanation: The logical progression of building construction starts from the ground up: Foundation (2), Plinth (4), Wall (1), Roof (3), and finally Finishing/Painting (5).

70. C

Explanation: A cylinder, sphere, and cone are three-dimensional (3D) geometric solids, whereas a square is a two-dimensional (2D) planar shape.

71. B

Explanation: The series represents the squares of consecutive numbers starting from 2, minus 1. ($2^2 - 1 = 3$, $3^2 - 1 = 8\dots$ $7^2 - 1 = 48$). Next is $8^2 - 1 = 63$.

72. A

Explanation: An advertisement or instruction recommending an action to achieve a result (lower bills) inherently assumes that the target audience desires that result.

73. A

Explanation: Both Engineers and Architects fall entirely under the larger category of "Professionals." Since a person can theoretically be both, their circles intersect inside the larger one.

74. B

Explanation: Dilate and Contract are antonyms (to expand vs. to shrink). Therefore, the antonym of Enlarge is Shrink.

75. B

Explanation: 'Ubiquitous' means present, appearing, or found everywhere at once. 'Omnipresent' is its exact synonym.

76. B

Explanation: To 'mitigate' means to make something less severe or painful. The antonym is to make it worse ('worsen').

77. A

Explanation: The code corresponds directly to the numerical position of the letters in the English alphabet: 4=D, 15=O, 7=G (DOG).

78. B

Explanation: The word "ARCHITECTURE" does not contain the letter "O", so any word containing "O", such as "TRACTOR", cannot be formed from it.

79. A

Explanation: If a price spike in steel is enough to pause ongoing real estate projects globally, it logically concludes that steel is an indispensable, crucial material in that industry.

80. B

Explanation: Formula for clock angles: $|30H - 5.5M|$. At 3:15, Angle = $|30(3) - 5.5(15)| = |90 - 82.5| = 7.5$ degrees.

81. A

Explanation: The days of the week repeat every 7 days. 61 divided by 7 yields a remainder of 5. Monday + 5 days equals Saturday.

82. B

Explanation: The formula for position from the bottom is: (Total students - Rank from top) + 1. Hence, $(40 - 15) + 1 = 26th$.

83. B

Explanation: In English grammar, the correlative conjunction "neither" is always correctly paired with "nor".

84. B

Explanation: "Back to the drawing board" is an idiom meaning that a current attempt has failed, and one must start the planning process completely over from the beginning.

85. B

Explanation: The phrase "more taller" is a double comparative grammatical error. It should simply be "is much taller" or "is taller".

86. A

Explanation: In each column, the sum of the top two numbers gives the bottom number. Col 1: $2+4=6$ (wait, let's re-verify: Row1+Row2 is not Row3). Correct logic: Col1 + Col2 = Col3. Row1: $2+3=5$. Row2: $4+9=13$. Row3: $5+6=11$.

87. A

Explanation: A reduction in stamp duty lowers the total cost of acquiring property, naturally serving as the economic cause that stimulates the effect of increased real estate sales.

88. B

Explanation: "My mother's only daughter" is the man's sister. So, the woman's mother is the man's sister. This makes the man the maternal uncle of the woman.

89. A

Explanation: A scale provides proportional measurement for an architectural Plan. Similarly, a legend provides the key to reading symbols on a Map.

90. D

Explanation: Elevation, Section, and Plan are all graphical, two-dimensional architectural drawings. An Estimate is a financial or textual calculation document.

