

NATA Aptitude Test (Part B)

Sample Paper – 8

Duration: 90 Minutes

Maximum Marks: 120

Instructions

- This paper is the **Part B (Aptitude)** portion of the NATA (National Aptitude Test in Architecture), with **50** questions for **120 marks**.
- It has two parts: **Part B1 – 42 Multiple Choice Questions** (Q1–Q42, one correct option) and **Part B2 – 8 Numerical Answer Questions** (Q43–Q50, write the answer as a number).
- **Questions 1–30 carry +2 marks each** and **Questions 31–50 carry +3 marks each**. There is **no negative marking**; an unattempted or wrong answer scores 0.
- Questions cover **Mathematics and Numerical Ability, Visual and Spatial Reasoning, Logical Reasoning, Language Interpretation, Design Sensitivity, and General Knowledge in Architecture and Design**.
- Personal calculators, mobile phones and other electronic gadgets are strictly prohibited.

Part B1: Multiple Choice Questions

Q1. Find the next number in the series: 5, 8, 13, 20, 29, ?

- (A) 40
- (B) 42
- (C) 38
- (D) 36

Q2. In a library of 9000 books, 40% are on science and 25% are on history; the rest are fiction. How many fiction books are there?

- (A) 2700



- (B) 3600
- (C) 3150
- (D) 2250

Q3. Two numbers are in the ratio 4 : 9. If their sum is 130, what is the larger number?

- (A) 40
- (B) 90
- (C) 72
- (D) 81

Q4. The average of six numbers is 50. If one number, 20, is removed, what is the average of the remaining five numbers?

- (A) 52
- (B) 54
- (C) 58
- (D) 56

Q5. A bus travels 210 km in 3 hours. Maintaining the same speed, how far will it travel in 6 hours?

- (A) 420 km
- (B) 360 km
- (C) 480 km
- (D) 400 km

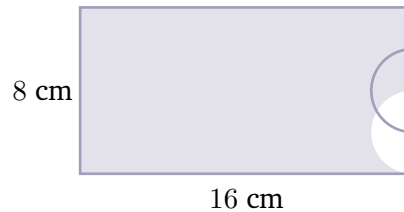
Q6. Find the compound interest on Rs. 20000 for 2 years at 10% per annum, compounded annually.

- (A) Rs. 4000
- (B) Rs. 4400
- (C) Rs. 4200



(D) Rs. 2200

Q7. In the figure below, a rectangle of length 16 cm and breadth 8 cm has a semicircle removed from one short side (radius = 4 cm). Using $\pi = \frac{22}{7}$, find the area of the shaded region.



- (A) 128 cm^2
- (B) 102.86 cm^2
- (C) 103.14 cm^2
- (D) 115.43 cm^2

Q8. If $\cos \theta = \frac{12}{13}$ and θ is acute, what is the value of $\tan \theta$?

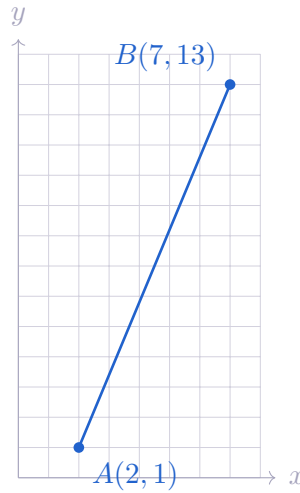
- (A) $\frac{12}{5}$
- (B) $\frac{13}{12}$
- (C) $\frac{5}{13}$
- (D) $\frac{5}{12}$

Q9. What are the roots of the quadratic equation $x^2 - 9x + 20 = 0$?

- (A) 4 and 5
- (B) 1 and 20
- (C) 2 and 10
- (D) -4 and -5

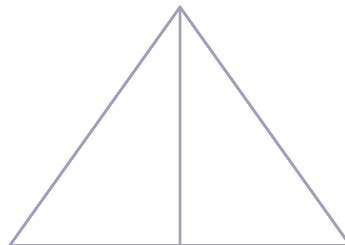
Q10. Find the distance between the points $A(2, 1)$ and $B(7, 13)$ shown on the grid below.





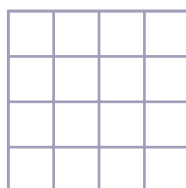
- (A) 17
- (B) 12
- (C) 13
- (D) 15

Q11. Count the total number of triangles in the figure below.



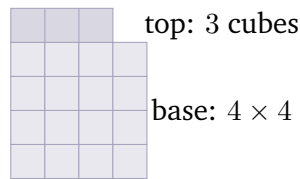
- (A) 5
- (B) 7
- (C) 6
- (D) 8

Q12. How many squares (of all sizes) are there in the 4×4 grid shown below?



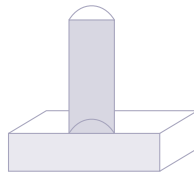
- (A) 16
- (B) 25
- (C) 20
- (D) 30

Q13. The solid below is built from identical unit cubes stacked as a 4×4 base with a smaller block on top. How many unit cubes are used in all?



- (A) 19
- (B) 18
- (C) 16
- (D) 20

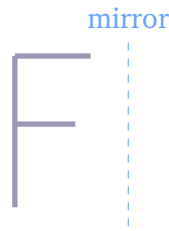
Q14. A solid is made of a cylinder standing upright on a square slab, as shown. What is its **top view** (the shape seen looking straight down)?



- (A) Two squares side by side
- (B) A single plain square
- (C) A circle inside a square
- (D) A triangle inside a square

Q15. When the capital letter F (shown below) is held up to a vertical mirror placed to its right, which way do the two horizontal arms of its reflection point?





- (A) The arms still point to the right
- (B) The arms point to the left and the spine is on the right
- (C) The letter looks identical to the original
- (D) The letter turns upside down

Q16. A square sheet is folded once along its horizontal centre line, then a single round hole is punched near the folded edge. The fold is shown below. When the paper is unfolded, how many holes appear and how are they arranged?



- (A) One hole at the centre
- (B) Two holes placed side by side
- (C) Four holes in a square pattern
- (D) Two holes placed symmetrically about the horizontal centre line

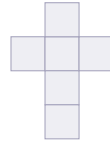
Q17. In the series below, an arrow rotates by a fixed angle at each step. Through what angle does it turn from one figure to the next?



- (A) 45° clockwise
- (B) 90° anticlockwise
- (C) 90° clockwise
- (D) 180°



Q18. Which of the flat figures described below is a valid **net** that folds up into a closed cube? (A net of a cube has exactly six squares arranged so no two overlap when folded.) A valid “T”-style net is shown.

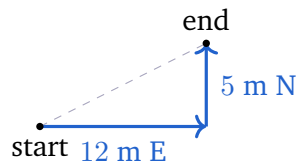


- (A) A row of seven squares in a line
(B) A single L-shape of three squares
(C) The six-square arrangement shown above
(D) Five squares forming a plus sign
- Q19.** Find the next term in the letter series: $B, D, G, K, P, ?$
- (A) U
(B) V
(C) W
(D) T
- Q20.** If in a certain code **CAB** is written as **XZY** (each letter replaced by its mirror in the alphabet, so $A \leftrightarrow Z, B \leftrightarrow Y$), how is **DOG** written in the same code?
- (A) **WMT**
(B) **XLT**
(C) **WLR**
(D) **WLT**
- Q21.** Pointing to a man, Meena said, “He is the son of the only daughter of my mother.” How is the man related to Meena?
- (A) Son
(B) Brother



- (C) Nephew
- (D) Cousin

Q22. A worker walks 12 m East, then turns left and walks 5 m North, as traced below. How far is he from his starting point, and in which general direction?



- (A) 17 m, North-East
 - (B) 7 m, East
 - (C) 13 m, North-East
 - (D) 11 m, East
- Q23.** Statements: (i) All engineers are graduates. (ii) No graduate is illiterate. Which conclusion definitely follows?
- (A) Some engineers are illiterate
 - (B) No engineer is illiterate
 - (C) All graduates are engineers
 - (D) All illiterates are graduates
- Q24.** Five friends J, K, L, M and N sit around a circular table facing the centre. K is immediately to the right of J, L is immediately to the right of K, and M is immediately to the right of L. Who sits immediately to the right of M?
- (A) J
 - (B) Cannot be determined
 - (C) K
 - (D) N



- Q25.** What is the angle between the hour hand and the minute hand of a clock at exactly 1:30?
- (A) 135°
(B) 120°
(C) 150°
(D) 145°
- Q26.** Find the odd one out: 16, 81, 100, 625, 128.
- (A) 625
(B) 81
(C) 128
(D) 100
- Q27.** Choose the word that is closest in meaning (synonym) to **ROBUST**.
- (A) Feeble
(B) Strong
(C) Narrow
(D) Hollow
- Q28.** Complete the analogy: **Sculptor** is to **Statue** as **Composer** is to _____.
- (A) Orchestra
(B) Baton
(C) Listener
(D) Symphony
- Q29.** Choose the word that best completes the sentence: “The cramped old office was replaced by a _____ hall that felt open and airy.”
- (A) spacious
(B) gloomy



- (C) crowded
- (D) narrow

Q30. In the standard artists' colour wheel, which of the following is a set of the three **secondary** colours?

- (A) Red, Yellow, Blue
- (B) Black, White, Grey
- (C) Orange, Green, Violet
- (D) Red, Green, Blue

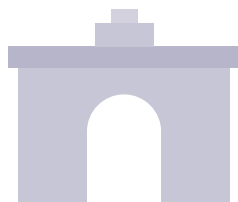
Q31. A composition in which elements are arranged evenly around a central point, like the petals of a flower or a wheel, is said to have which kind of balance?

- (A) Symmetrical (formal) balance
- (B) Radial balance
- (C) Asymmetrical balance
- (D) No balance

Q32. Three of the following are man-made (manufactured) building materials and one is natural. Pick the **odd one out**.

- (A) Glass
- (B) Steel
- (C) Plastic
- (D) Granite

Q33. The free-standing archway shown below stands at the centre of New Delhi. What is it?



- (A) India Gate
- (B) Gateway of India
- (C) Buland Darwaza
- (D) Teen Darwaza

Q34. The house of worship shown below, shaped like a half-open lotus, stands in which city?



- (A) Mumbai
- (B) Kolkata
- (C) New Delhi
- (D) Chennai

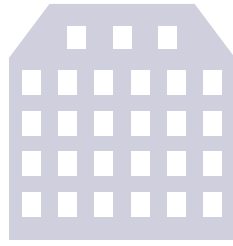
Q35. The marble mausoleum shown below, with a central onion dome and four corner minarets, is located in which country?



- (A) Iran
- (B) India
- (C) Turkey
- (D) Uzbekistan

Q36. The tall honeycomb facade of small latticed windows shown below belongs to the Hawa Mahal. What was the main purpose of its many windows?





- (A) To store grain inside the walls
- (B) To mount cannons for defence
- (C) To hold oil lamps for festivals
- (D) To let royal women view the street unseen and let breeze flow

Q37. The square monument shown below, with four arches and four corner minarets, is the Charminar. In which city does it stand?



- (A) Hyderabad
- (B) Ahmedabad
- (C) Lucknow
- (D) Bijapur

Q38. The master plan of the city of Chandigarh and many of its main buildings were designed by which architect?

- (A) Frank Lloyd Wright
- (B) Antoni Gaudí
- (C) Le Corbusier
- (D) Zaha Hadid

Q39. A South Indian temple with a stepped pyramidal tower over the sanctum (*vimana*) and tall gateway towers (*gopurams*) belongs to which architectural style?



- (A) Nagara
- (B) Dravidian
- (C) Vesara
- (D) Gothic

Q40. A structural beam or slab that projects out beyond its support and is fixed only at one end, like a balcony with no column under its outer edge, is called a:

- (A) Lintel
- (B) Plinth
- (C) Truss
- (D) Cantilever

Q41. In construction, the abbreviation **PCC** stands for which of the following?

- (A) Plain Cement Concrete
- (B) Pre-Cut Column
- (C) Polished Clay Coating
- (D) Pressed Carbon Composite

Q42. The Aga Khan Award for Architecture is given every three years for outstanding work in which field?

- (A) Cinema
- (B) Medicine
- (C) Architecture
- (D) Athletics

Part B2: Numerical Answer Questions

Q43. What is 42% of 400? (*Numerical Answer Type: write your answer as a number.*)



- Q44.** A rectangular sheet measures 21 cm by 8 cm. Find its area (in square cm). *(Numerical Answer Type: write your answer as a number.)*
- Q45.** An amount of Rs. 152 is divided between two people in the ratio 3 : 5. How much (in rupees) does the person with the larger share get? *(Numerical Answer Type: write your answer as a number.)*
- Q46.** Find the amount (in rupees) on Rs. 13000 for 2 years at 10% per annum, compounded annually. *(Numerical Answer Type: write your answer as a number.)*
- Q47.** A vehicle covers 320 km in 4 hours at a steady pace. Find its speed (in km/h). *(Numerical Answer Type: write your answer as a number.)*
- Q48.** Find the next term of the series: 9, 18, 27, 36, 45, ? *(Numerical Answer Type: write your answer as a number.)*
- Q49.** Find the average of the five numbers 72, 74, 76, 78, 80. *(Numerical Answer Type: write your answer as a number.)*
- Q50.** Two angles of a triangle measure 60° and 80° . Find the third angle (in degrees). *(Numerical Answer Type: write your answer as a number.)*



Detailed Solutions

Q1.

Solution

Concept — Number series with growing differences: Look at how much is added at each step; often the gaps themselves follow a pattern.

Step 1 — Find the differences: $8 - 5 = 3$, $13 - 8 = 5$, $20 - 13 = 7$, $29 - 20 = 9$. The differences are the odd numbers 3, 5, 7, 9, so the next difference is 11.

Step 2 — Add it on:

$$29 + 11 = 40.$$

Why other options are wrong:

- (B) 42, (C) 38, (D) 36: none matches the required gap of +11.

Final Answer: The next term is 40 \Rightarrow

Answer: (A) [Go Back to Q1](#)

Q2.

Solution

Concept — Percentages of a whole: The parts must add to 100%; fiction makes up whatever remains after science and history.

Step 1 — Percentage of fiction: $100\% - 40\% - 25\% = 35\%$.

Step 2 — Compute the number:

$$35\% \text{ of } 9000 = \frac{35}{100} \times 9000 = 3150.$$

Why other options are wrong:

- (A) 2700 is 30%; (B) 3600 is 40%; (D) 2250 is 25% – none equals 35% of 9000.

Final Answer: There are 3150 fiction books \Rightarrow

Answer: (C) [Go Back to Q2](#)



Q3.

Solution

Concept — Dividing in a ratio: Split the total into equal parts equal to the sum of the ratio terms, then scale.

Step 1 — Value of one part: Total parts = $4 + 9 = 13$, so one part = $\frac{130}{13} = 10$.

Step 2 — Larger number: The larger share has 9 parts:

$$9 \times 10 = 90.$$

Why other options are wrong:

- (A) 40 is the smaller number (4 parts).
- (C) 72 and (D) 81 do not fit the 4 : 9 split of 130.

Final Answer: The larger number is 90 \Rightarrow **B**

Answer: (B) [Go Back to Q3](#)

Q4.

Solution

Concept — Average and total: The total of a set = average \times count. Remove a value by subtracting it from the total.

Step 1 — Original total: $6 \times 50 = 300$.

Step 2 — New average: Remove 20: new total = $300 - 20 = 280$ over 5 numbers, so

$$\text{average} = \frac{280}{5} = 56.$$

Why other options are wrong:

- (A) 52, (B) 54, (C) 58: none equals $280 \div 5$.

Final Answer: The new average is 56 \Rightarrow **D**

Answer: (D) [Go Back to Q4](#)



Q5.

Solution

Concept — Constant speed: Distance = speed \times time; at fixed speed distance is proportional to time.

Step 1 — Find the speed: speed = $\frac{210}{3} = 70$ km/h.

Step 2 — Distance in 6 h:

$$70 \times 6 = 420 \text{ km.}$$

Why other options are wrong:

- (B) 360 km, (C) 480 km and (D) 400 km use the wrong speed or time.

Final Answer: The bus travels 420 km \Rightarrow

[Go Back to Q5](#)

Q6.

Solution

Concept — Compound interest: Amount $A = P \left(1 + \frac{r}{100}\right)^n$, and $CI = A - P$.

Step 1 — Amount after 2 years:

$$A = 20000 \left(1 + \frac{10}{100}\right)^2 = 20000 \times (1.1)^2 = 24200.$$

Step 2 — Interest: $CI = 24200 - 20000 = 4200$.

Why other options are wrong:

- (A) Rs. 4000 is simple interest; (B) Rs. 4400 over-counts; (D) Rs. 2200 is one year only.

Final Answer: The compound interest is Rs. 4200 \Rightarrow

[Go Back to Q6](#)



Q7.

Solution

Concept — Composite area: Shaded area = rectangle area – semicircle area.

Step 1 — Rectangle: $16 \times 8 = 128 \text{ cm}^2$.

Step 2 — Semicircle (radius 4):

$$\frac{1}{2}\pi r^2 = \frac{1}{2} \times \frac{22}{7} \times 4^2 = \frac{1}{2} \times \frac{22}{7} \times 16 = \frac{176}{7} \approx 25.14 \text{ cm}^2.$$

Step 3 — Subtract: $128 - 25.14 = 102.86 \text{ cm}^2$.

Why other options are wrong:

- (A) 128 ignores the cut; (C) 103.14 and (D) 115.43 use a wrong semicircle area.

Final Answer: The shaded area is $102.86 \text{ cm}^2 \Rightarrow$ **B**

Answer: (B) [Go Back to Q7](#)

Q8.

Solution

Concept — Right-triangle trig: For $\cos \theta = \frac{\text{adj}}{\text{hyp}}$, find the third side by Pythagoras, then form $\tan \theta = \frac{\text{opp}}{\text{adj}}$.

Step 1 — Find the opposite side: With $\text{adj} = 12$, $\text{hyp} = 13$: $\text{opp} = \sqrt{13^2 - 12^2} = \sqrt{25} = 5$.

Step 2 — Form the tangent:

$$\tan \theta = \frac{5}{12}.$$

Why other options are wrong:

- (A) $\frac{12}{5} = \cot \theta$; (B) $\frac{13}{12} = \sec \theta$; (C) $\frac{5}{13} = \sin \theta$.

Final Answer: $\tan \theta = \frac{5}{12} \Rightarrow$ **D**

Answer: (D) [Go Back to Q8](#)



Q9.

Solution

Concept — Factorising a quadratic: For $x^2 - (a + b)x + ab = 0$, the roots are a and b , where $a + b = 9$ and $ab = 20$.

Step 1 — Find the pair: Two numbers with sum 9 and product 20 are 4 and 5, since $4 + 5 = 9$ and $4 \times 5 = 20$.

Step 2 — Write the roots:

$$x = 4 \quad \text{or} \quad x = 5.$$

Why other options are wrong:

- (B) 1, 20 and (C) 2, 10 give product 20 but sum $\neq 9$; (D) $-4, -5$ give $+9x$ with wrong sign.

Final Answer: The roots are 4 and 5 \Rightarrow **A**

Answer: (A) [Go Back to Q9](#)

Q10.

Solution

Concept — Distance formula: For points (x_1, y_1) and (x_2, y_2) , distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

Step 1 — Differences: $\Delta x = 7 - 2 = 5$, $\Delta y = 13 - 1 = 12$.

Step 2 — Apply the formula:

$$\sqrt{5^2 + 12^2} = \sqrt{25 + 144} = \sqrt{169} = 13.$$

Why other options are wrong:

- (A) $17 = 5 + 12$ adds the legs; (B) 12 and (D) 15 ignore the right-triangle relation.

Final Answer: The distance $AB = 13 \Rightarrow$ **C**

Answer: (C) [Go Back to Q10](#)



Q11.

Solution

Concept — Counting triangles: Count small triangles first, then combine them into larger ones.

Step 1 — The cevians: The big triangle has three lines drawn from each vertex to the foot on the opposite side, all meeting near the centre, splitting it into smaller regions.

Step 2 — Tally: The three cevians from the vertices to the base point split the figure into 6 small triangles, and the whole outer triangle adds 1 more for 7 counting visible composite triangles.

Why other options are wrong:

- (A) 5 and (C) 6 miss the whole-triangle count; (D) 8 double-counts a region.

Final Answer: There are 7 triangles \Rightarrow

Answer: (B) [Go Back to Q11](#)

Q12.

Solution

Concept — Squares in an $n \times n$ grid: The number of squares of all sizes is $1^2 + 2^2 + \dots + n^2$.

Step 1 — Apply for $n = 4$:

$$1^2 + 2^2 + 3^2 + 4^2 = 1 + 4 + 9 + 16 = 30.$$

Step 2 — Interpret: 16 unit squares, 9 of size 2×2 , 4 of size 3×3 , and 1 of size 4×4 , giving 30 in total.

Why other options are wrong:

- (A) 16 counts only unit squares; (B) 25 and (C) 20 miss some sizes.

Final Answer: There are 30 squares \Rightarrow

Answer: (D) [Go Back to Q12](#)



Q13.

Solution

Concept — Counting stacked cubes: Add the cubes layer by layer.

Step 1 — Base layer: A 4×4 arrangement uses $4 \times 4 = 16$ cubes.

Step 2 — Top block: A small block of 3 cubes sits on top.

Step 3 — Total:

$$16 + 3 = 19.$$

Why other options are wrong:

- (C) 16 forgets the top; (B) 18 under-counts; (D) 20 adds too many.

Final Answer: 19 unit cubes are used \Rightarrow

[Go Back to Q13](#)

Q14.

Solution

Concept — Orthographic views: The top view shows the outline seen looking straight down, with hidden inner edges drawn as lines.

Step 1 — Look down on the solid: The square slab's top face is a large square; the cylinder standing on it appears as a circle when seen from directly above.

Step 2 — Result: The top view is a circle nested inside the square outline of the slab.

Why other options are wrong:

- (A) two side-by-side squares is a front-style view; (B) a plain square ignores the cylinder; (D) the cylinder shows as a circle, not a triangle.

Final Answer: A circle inside a square \Rightarrow

[Go Back to Q14](#)



Q15.

Solution

Concept — Mirror images: A vertical mirror swaps left and right (a lateral flip) while keeping up and down the same.

Step 1 — Flip the F: The letter F normally has its vertical stroke on the left and arms pointing right. A mirror on the right reverses left-right, so the vertical stroke moves to the right and the arms point left.

Step 2 — Confirm: Top and bottom are unchanged, so the F is not turned upside down and is not identical to the original.

Why other options are wrong:

- (A) arms still right ignores the flip; (C) “identical” is false; (D) upside-down would need a horizontal mirror.

Final Answer: Arms point left, spine on the right ⇒ **B**

Answer: (B) [Go Back to Q15](#)

Q16.

Solution

Concept — Paper folding and punching: A single fold creates a line of symmetry; a punch through both layers makes a hole on each layer, mirrored about the fold line.

Step 1 — One horizontal fold: The fold line is the horizontal centre of the sheet. One punch goes through two layers.

Step 2 — Unfold: Two holes appear, one above and one below, placed symmetrically about the horizontal centre line.

Why other options are wrong:

- (A) one hole ignores the second layer; (B) “side by side” needs a vertical fold; (C) four holes needs two folds.

Final Answer: Two holes symmetric about the horizontal centre line ⇒ **D**

Answer: (D) [Go Back to Q16](#)



Q17.

Solution

Concept — Rotation in a figure series: Measure the turn of the arrow from one frame to the next.

Step 1 — Track the arrow: It points right (0°), then down-right (-45°), then down (-90°). Each step is a turn of 45° in the clockwise sense.

Step 2 — Next term: Continuing 45° clockwise, the arrow would point down-left (-135°).

Why other options are wrong:

- (B) 90° anticlockwise turns the wrong way and too far; (C) 90° clockwise is too big; (D) 180° skips steps.

Final Answer: The arrow turns 45° clockwise each step \Rightarrow **A**

Answer: (A) [Go Back to Q17](#)

Q18.

Solution

Concept — Nets of a cube: A cube net has exactly six squares that fold without overlap into the six faces. The “T” arrangement shown – a row of three with two below the middle and one above it – is a valid net.

Step 1 — Test the figure shown: The central column of four squares wraps round as four side faces; the two squares attached to the middle column become the top and bottom. No overlap occurs, so it folds into a cube.

Step 2 — Reject the others: A net must have exactly six squares arranged so folding closes the box.

Why other options are wrong:

- (A) seven squares are too many; (B) three squares are too few; (D) a plus sign is only five squares and cannot close a cube.

Final Answer: The six-square “T” arrangement folds into a cube \Rightarrow **C**

Answer: (C) [Go Back to Q18](#)



Q19.

Solution

Concept — Letter series by position: Convert letters to their alphabet positions and study the gaps.

Step 1 — Positions: $B = 2, D = 4, G = 7, K = 11, P = 16$. Differences are 2, 3, 4, 5, so the next gap is 6.

Step 2 — Next letter: $16 + 6 = 22$, and the 22nd letter is V .

Why other options are wrong:

- (A) $U = 21$ uses gap 5; (C) $W = 23$ overshoots; (D) $T = 20$ uses gap 4.

Final Answer: The next letter is $V \Rightarrow$ **B**

Answer: (B) [Go Back to Q19](#)

Q20.

Solution

Concept — Atbash (mirror) coding: Each letter is replaced by its mirror in the alphabet: $A \leftrightarrow Z, B \leftrightarrow Y$, and in general the letter at position n becomes the letter at position $27 - n$.

Step 1 — Mirror each letter of DOG: D (pos 4) \rightarrow pos 23 = W ; O (pos 15) \rightarrow pos 12 = L ; G (pos 7) \rightarrow pos 20 = T .

Step 2 — Combine:

DOG \rightarrow WLT.

Why other options are wrong:

- (A) WMT mis-mirrors O ; (B) XLT mis-mirrors D ; (C) WLR mis-mirrors G .

Final Answer: DOG is coded as WLT \Rightarrow **D**

Answer: (D) [Go Back to Q20](#)



Q21.

Solution

Concept — Blood relations: Decode the phrase step by step, starting from the innermost relation.

Step 1 — “The only daughter of my mother”: The only daughter of Meena’s mother is Meena herself.

Step 2 — “The son of myself”: The son of Meena is her own son.

Why other options are wrong:

- (B) Brother and (D) Cousin are the wrong generation; (C) Nephew would need a sibling, but Meena is the “only” daughter.

Final Answer: The man is Meena’s son \Rightarrow

[Go Back to Q21](#)

Q22.

Solution

Concept — Direction sense as a right triangle: The East leg and the North leg meet at a right angle; the straight-line distance is the hypotenuse.

Step 1 — Apply Pythagoras:

$$\sqrt{12^2 + 5^2} = \sqrt{144 + 25} = \sqrt{169} = 13 \text{ m.}$$

Step 2 — Direction: Moving East then North lands him to the North-East of the start.

Why other options are wrong:

- (A) 17 m adds the legs; (B) 7 m subtracts them; (D) 11 m is unrelated.

Final Answer: He is 13 m away, to the North-East \Rightarrow

[Go Back to Q22](#)



Q23.

Solution

Concept — Syllogism (chaining sets): Combine “all” and “no” statements carefully to see what must be true.

Step 1 — Chain the statements: All engineers are graduates, and no graduate is illiterate. So every engineer, being a graduate, is also not illiterate.

Step 2 — Conclusion: Therefore no engineer is illiterate.

Why other options are wrong:

- (A) contradicts the chain; (C) reverses the inclusion; (D) is unsupported by the statements.

Final Answer: No engineer is illiterate \Rightarrow

[Go Back to Q23](#)

Q24.

Solution

Concept — Circular seating: For people facing the centre, going clockwise corresponds to each person’s own right side.

Step 1 — Place them in order: “Immediately to the right” means the next seat clockwise. So clockwise the order is J, K, L, M, N and then back to J .

Step 2 — Find M’s right neighbour: The seat clockwise after M is N , so N sits immediately to the right of M .

Why other options are wrong:

- (A) J is to the right of N , not M ; (C) K is to the right of J ; (B) the data fix the arrangement.

Final Answer: N sits immediately to M ’s right \Rightarrow

[Go Back to Q24](#)



Q25.

Solution

Concept — Clock angles: Use angle = $|30H - 5.5M|$ degrees, where H is the hour and M the minutes.

Step 1 — Substitute $H = 1, M = 30$:

$$|30 \times 1 - 5.5 \times 30| = |30 - 165| = 135^\circ.$$

Step 2 — Check the picture: At 1:30 the minute hand points to 6, and the hour hand is halfway between 1 and 2; the gap between them is 135° .

Why other options are wrong:

- (B) 120° ignores the hour-hand drift; (C) 150° and (D) 145° miscount the half-hour shift.

Final Answer: The angle is $135^\circ \Rightarrow$

Answer: (A) [Go Back to Q25](#)

Q26.

Solution

Concept — Odd one out by pattern: Test the numbers against a common rule such as “perfect square.”

Step 1 — Check for squares: $16 = 4^2$, $81 = 9^2$, $100 = 10^2$, $625 = 25^2$ are all perfect squares. But $128 = 2^7$ is not a perfect square.

Step 2 — Identify the misfit: 128 breaks the “perfect square” pattern.

Why other options are wrong:

- (A) 625, (B) 81, (D) 100 are all perfect squares.

Final Answer: The odd one out is 128 \Rightarrow

Answer: (C) [Go Back to Q26](#)



Q27.

Solution

Concept — Synonyms: A synonym has the same meaning. “Robust” means strong and sturdy.

Step 1 — Match the meaning: “Robust” (as in a robust structure) means strong and able to withstand stress, so its synonym is **Strong**.

Why other options are wrong:

- (A) Feeble is the opposite (an antonym); (C) Narrow and (D) Hollow are unrelated to strength.

Final Answer: ROBUST means Strong ⇒ **B**

Answer: (B) [Go Back to Q27](#)

Q28.

Solution

Concept — Verbal analogy: Find the relationship in the first pair, then apply the same relation.

Step 1 — First pair: A sculptor creates a statue; “maker → thing made.”

Step 2 — Apply it: A composer creates a **symphony**, matching “maker → thing made.”

Why other options are wrong:

- (A) Orchestra performs the music but is not made by the composer; (C) Listener receives it; (B) Baton is only a tool.

Final Answer: Composer is to Symphony ⇒ **D**

Answer: (D) [Go Back to Q28](#)



Q29.

Solution

Concept — Sentence completion: Pick the word that fits the contrast with “cramped” and the idea of “open and airy.”

Step 1 — Read the contrast: The new hall is the opposite of the cramped old office and feels open, so a word meaning roomy is needed.

Step 2 — Best fit: “Spacious” (having plenty of room) fits an open, airy hall.

Why other options are wrong:

- (B) gloomy, (C) crowded and (D) narrow all clash with “open and airy.”

Final Answer: The hall is “spacious” ⇒

Answer: (A) [Go Back to Q29](#)

Q30.

Solution

Concept — Colour theory: On the artists’ (subtractive) colour wheel, secondary colours are made by mixing two primaries.

Step 1 — Recall the secondaries: Mixing pairs of the primaries red, yellow and blue gives **orange, green and violet** – the three secondary colours.

Step 2 — Confirm: Red + yellow = orange; yellow + blue = green; blue + red = violet.

Why other options are wrong:

- (A) red/yellow/blue are the primaries; (D) red/green/blue are the *light* (additive) primaries; (B) black/white/grey are neutrals.

Final Answer: The artists’ secondaries are Orange, Green, Violet ⇒

Answer: (C) [Go Back to Q30](#)



Q31.

Solution

Concept — Balance in composition: Balance is how visual weight is distributed. When elements spread evenly around a centre, the balance is radial.

Step 1 — Match the description: Elements arranged evenly around a central point, like flower petals or wheel spokes, give **radial balance**, as in a rose window or a mandala.

Why other options are wrong:

- (A) symmetrical mirrors left and right about an axis; (C) asymmetrical uses unlike but balanced elements; (D) “no balance” contradicts the even arrangement.

Final Answer: Elements around a centre give radial balance ⇒ **B**

Answer: (B) [Go Back to Q31](#)

Q32.

Solution

Concept — Natural vs man-made materials: Manufactured materials are produced by processing; natural materials are used roughly as found.

Step 1 — Classify: Glass, steel and plastic are all manufactured. Granite is a natural igneous rock quarried directly from the earth.

Step 2 — Odd one out: Granite is the natural material.

Why other options are wrong:

- (A) Glass is made from melted sand; (B) Steel is made from iron and carbon; (C) Plastic is made from polymers.

Final Answer: The natural material is Granite ⇒ **D**

Answer: (D) [Go Back to Q32](#)



Q33.

Solution

Concept — Reading a monument's silhouette: The outline shows a single large free-standing archway with a heavy projecting cornice and a small stepped finial on top, in the manner of a triumphal arch. In New Delhi this profile belongs to the **India Gate**.

Step 1 — Match the features: One wide arched opening, a massive horizontal cornice band and a low cap point to a ceremonial memorial arch standing free on an axis.

Step 2 — Recall what it is: India Gate, designed by Edwin Lutyens, is a war memorial at the heart of New Delhi.

Why other options are wrong:

- (C) Buland Darwaza is a tall gateway at Fatehpur Sikri with steps; (B) Gateway of India is in Mumbai by the sea; (D) Teen Darwaza is a triple-arched gate in Ahmedabad.

Final Answer: The monument is India Gate ⇒

[Go Back to Q33](#)

Q34.

Solution

Concept — A building shaped as a symbol: The figure shows a cluster of curved petal-like shells opening outward like a lotus flower. This is the **Lotus Temple**, a Bahá'í House of Worship.

Step 1 — Recall its location: The Lotus Temple, designed by Fariborz Sahba and completed in 1986, stands in **New Delhi**.

Step 2 — Confirm: Its 27 marble-clad “petals” are arranged in clusters of three to form nine sides.

Why other options are wrong:

- (A) Mumbai, (B) Kolkata and (D) Chennai do not house the Lotus Temple.

Final Answer: The Lotus Temple is in New Delhi ⇒

[Go Back to Q34](#)



Q35.

Solution

Concept — Placing a landmark by country: The silhouette shows a large central onion dome on a raised platform, four detached corner minarets and a tall central arch. This symmetrical garden-tomb form is the **Taj Mahal**.

Step 1 — Recall its location: The Taj Mahal stands at Agra, in **India**, built by the Mughal emperor Shah Jahan in the 17th century.

Step 2 — Confirm: It is a UNESCO World Heritage Site and one of the New Seven Wonders of the World.

Why other options are wrong:

- (A) Iran, (C) Turkey and (D) Uzbekistan have their own famous domed monuments, but not the Taj Mahal.

Final Answer: The Taj Mahal is in India ⇒

[Go Back to Q35](#)

Q36.

Solution

Concept — A facade of many windows: The figure shows a tall pyramidal facade pierced by row upon row of small latticed (jharokha) windows, like a honeycomb. This is the **Hawa Mahal**, the “Palace of Winds.”

Step 1 — Recall its purpose: Its 953 small windows let royal women view the street life and processions below while remaining unseen, and let cool breeze flow through the building.

Step 2 — Confirm: This is why it is called the Palace of Winds.

Why other options are wrong:

- (A) the windows are not grain stores; (B) they are not gun ports; (C) they are not lamp niches.

Final Answer: The windows let women view the street unseen and let breeze flow ⇒

[Go Back to Q36](#)



Q37.

Solution

Concept — A square monument with four minarets: The figure shows a square block with arched openings on each side and a tall slender minaret rising at each of the four corners. This is the **Charminar**, meaning “four minarets.”

Step 1 — Recall the building: The Charminar was built in 1591 by Muhammad Quli Qutb Shah, with four grand arches.

Step 2 — Its city: The Charminar stands at the heart of the old city of **Hyderabad**, Telangana.

Why other options are wrong:

- (C) Lucknow is known for the Bara Imambara; (B) Ahmedabad for its mosques and stepwells; (D) Bijapur for the Gol Gumbaz.

Final Answer: The Charminar is in Hyderabad ⇒

Answer: (A) [Go Back to Q37](#)

Q38.

Solution

Concept — Architects and their works: Some whole cities are tied to a single planning architect.

Step 1 — Recall the city: **Chandigarh**, India’s first planned post-independence city, was master-planned by the French-Swiss architect **Le Corbusier**, who also designed its Capitol Complex (the High Court, Assembly and Secretariat).

Step 2 — Confirm: The Capitol Complex is a UNESCO World Heritage Site as part of his work.

Why other options are wrong:

- (A) Frank Lloyd Wright worked mainly in the USA; (B) Antoni Gaudí worked in Barcelona; (D) Zaha Hadid is a later architect of curving modern buildings.

Final Answer: Chandigarh was planned by Le Corbusier ⇒

Answer: (C) [Go Back to Q38](#)



Q39.

Solution

Concept — Indian temple styles: North and South Indian temples are grouped into named regional styles.

Step 1 — Match the feature: A temple with a stepped pyramidal tower (*vimana*) over the sanctum and tall gateway towers (*gopurams*), common in Tamil Nadu (Madurai, Thanjavur), belongs to the **Dravidian** style.

Step 2 — Confirm: Gopurams are a hallmark of the South Indian (Dravidian) temple.

Why other options are wrong:

- (A) Nagara is the North Indian style with a curving shikhara; (C) Vesara is a Deccan hybrid; (D) Gothic is European.

Final Answer: A vimana-and-gopuram temple is Dravidian ⇒ **B**

Answer: (B) [Go Back to Q39](#)

Q40.

Solution

Concept — Structural terms: Different members are named by how they are supported and carry load.

Step 1 — Define the term: A **cantilever** is a beam or slab fixed at one end only and projecting out into space, so its outer edge has no support beneath it – as in a balcony or a diving board.

Why other options are wrong:

- (A) Lintel spans an opening with supports at both ends; (B) Plinth is the base of a wall above ground; (C) Truss is a triangulated frame.

Final Answer: A member fixed at one end only is a cantilever ⇒ **D**

Answer: (D) [Go Back to Q40](#)



Q41.

Solution

Concept — Construction abbreviations: Common site abbreviations stand for materials and systems.

Step 1 — Expand PCC: PCC stands for **Plain Cement Concrete** – concrete with cement, sand and aggregate but *no* steel reinforcement, often laid as a levelling base course below footings and floors.

Why other options are wrong:

- (B), (C) and (D) are invented expansions; only “Plain Cement Concrete” is the standard meaning.

Final Answer: PCC = Plain Cement Concrete \Rightarrow

[Go Back to Q41](#)

Q42.

Solution

Concept — Major prizes by field: Several awards honour outstanding work in architecture.

Step 1 — Identify the field: The **Aga Khan Award for Architecture**, established in 1977 and given every three years, recognises outstanding work in **architecture**, especially buildings and planning that serve communities with a significant Muslim presence.

Why other options are wrong:

- (A) Cinema, (B) Medicine and (D) Athletics have their own honours, not the Aga Khan Award.

Final Answer: The Aga Khan Award is for architecture \Rightarrow

[Go Back to Q42](#)



Q43.

Solution**Concept — Percentage:** $x\%$ of a number N is $\frac{x}{100} \times N$. **Step 1 — Compute:**

$$\frac{42}{100} \times 400 = 168.$$

Final Answer: \Rightarrow **Answer: (168)** [Go Back to Q43](#)

Q44.

Solution**Concept — Area of a rectangle:** area = length \times breadth. **Step 1 — Compute:**

$$21 \times 8 = 168 \text{ cm}^2.$$

Final Answer: \Rightarrow **Answer: (168)** [Go Back to Q44](#)

Q45.

Solution**Concept — Ratio split:** the shares are $\frac{3}{8}$ and $\frac{5}{8}$ of the total. **Step 1 — Larger share:**

$$\frac{5}{8} \times 152 = 95.$$

Final Answer: \Rightarrow **Answer: (95)** [Go Back to Q45](#)

Q46.

Solution

Concept — Compound interest: amount = $P \left(1 + \frac{R}{100}\right)^T$. **Step 1 — Compute:**

$$13000 \times (1.1)^2 = 13000 \times 1.21 = 15730.$$

Final Answer: \Rightarrow

Answer: (15730) [Go Back to Q46](#)

Q47.

Solution

Concept — Speed: speed = $\frac{\text{distance}}{\text{time}}$. **Step 1 — Compute:**

$$\frac{320}{4} = 80 \text{ km/h.}$$

Final Answer: \Rightarrow

Answer: (80) [Go Back to Q47](#)

Q48.

Solution

Concept — Number series: each term is a multiple of 9 ($9 \times 1, 9 \times 2, \dots$). **Step**

1 — Next term:

$$9 \times 6 = 54.$$

Final Answer: \Rightarrow

Answer: (54) [Go Back to Q48](#)



Q49.

Solution

Concept — Average: $\text{average} = \frac{\text{sum}}{\text{count}}$. **Step 1 — Compute:**

$$\frac{380}{5} = 76.$$

Final Answer: \Rightarrow

[Go Back to Q49](#)

Q50.

Solution

Concept — Angle sum of a triangle: the three angles add to 180° . **Step 1 — Compute:**

$$180 - 60 - 80 = 40.$$

Final Answer: \Rightarrow

[Go Back to Q50](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	C	3	B	4	D	5	A
6	C	7	B	8	D	9	A	10	C
11	B	12	D	13	A	14	C	15	B
16	D	17	A	18	C	19	B	20	D
21	A	22	C	23	B	24	D	25	A
26	C	27	B	28	D	29	A	30	C
31	B	32	D	33	A	34	C	35	B
36	D	37	A	38	C	39	B	40	D
41	A	42	C	43	168	44	168	45	95
46	15730	47	80	48	54	49	76	50	40

