NATA Aptitude Test (Part B)

Sample Paper – 1

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: $3,\ 6,\ 11,\ 18,\ 27,\ ?$

(A) 36

(B) 38

(C) 40

(D) 42

Q2. In a town of 8000 people, 45% are men and 35% are women; the rest are children. How many children are there in the town?

(A) 1200

(B) 1500

(C) 1600

(D) 1800

Q3. Two numbers are in the ratio $5 : 7$. If their sum is 96, what is the larger number?

(A) 56

(B) 42

(C) 49

(D) 63

Q4. The average of five numbers is 42. If one number, 30, is removed, what is the average of the remaining four numbers?

(A) 40

(B) 44

(C) 48

(D) 45

Q5. A car travels 180 km in 3 hours. Maintaining the same speed, how far will it travel in 5 hours?

(A) 240 km

(B) 300 km

(C) 280 km

(D) 360 km

Q6. Find the compound interest on Rs. 10000 for 2 years at 10% per annum, compounded annually.

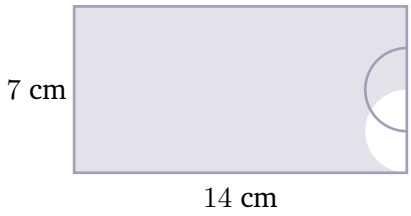
(A) Rs. 2000

(B) Rs. 2200

(C) Rs. 2100

(D) Rs. 1100

Q7. In the figure below, a rectangle of length 14 cm and breadth 7 cm has a semicircle removed from one short side (radius $= 3.5$ cm). Using $\pi = \frac{22}{7}$, find the area of the shaded region.



(A) 78.75 cm^2

(B) 98 cm^2

(C) 80.75 cm^2

(D) 88.50 cm^2

Q8. If $\sin\theta = \frac{3}{5}$ and θ is acute, what is the value of $\tan\theta$?

(A) $\frac{4}{5}$

(B) $\frac{5}{3}$

(C) $\frac{5}{4}$

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

Q9. What are the roots of the quadratic equation $x^2 - 7x + 12 = 0$?

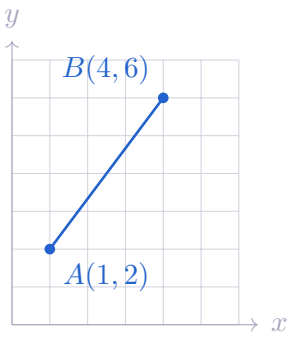
(A) -3 and -4

(B) 3 and 4

(C) 2 and 6

(D) 1 and 12

Q10. Find the distance between the points $A(1, 2)$ and $B(4, 6)$ shown on the grid below.



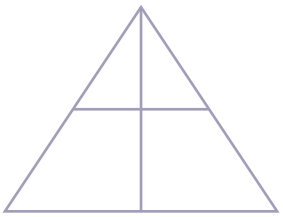
(A) 7

(B) 4

(C) 5

(D) 6

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



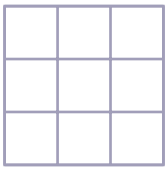
(A) 6

(B) 7

(C) 8

(D) 9

Q12. How many squares (of all sizes) are there in the 3×3 grid shown below?



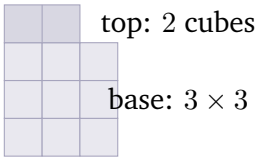
(A) 9

(B) 13

(C) 12

(D) 14

Q13. The solid below is built from identical unit cubes stacked as a 3×3 base with a smaller block on top. How many unit cubes are used in all?



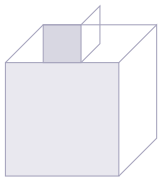
(A) 9

(B) 12

(C) 11

(D) 13

Q14. A solid is made of a cube with a smaller cube sitting centrally on its top face, as shown. What is its **top view** (the shape seen looking straight down)?



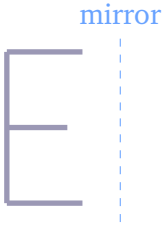
(A) A single plain square

(B) A circle inside a square

(C) A small square centred inside a larger square

(D) Two squares side by side

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



(A) The arms point to the left and the vertical stroke is on the right

(B) The arms still point to 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 vertical centre line, then a single round hole is punched near the folded edge. When the paper is unfolded, how many holes appear and how are they arranged?

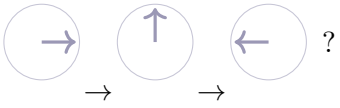
(A) One hole at the centre

(B) Two holes, one above the other

(C) Four holes in a square pattern

(D) Two holes placed symmetrically about the vertical 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?



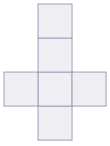
(A) 45° clockwise

(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.) The standard "cross" net is shown.



(A) A row of seven squares in a line

(B) A single L-shape of three squares

(C) The cross-shaped arrangement of six squares shown above

(D) Four squares forming a 2×2 block

Q19. Find the next term in the letter series: $A,\ C,\ F,\ J,\ O,\ ?$

(A) U

(B) T

(C) S

(D) V

Q20. If in a certain code **CHAIR** is written as **DIBJS**, how is **TABLE** written in the same code?

(A) UBCMF

(B) SABLD

(C) UBCNF

(D) UCBMF

Q21. Pointing to a photograph, Ravi said, "She is the daughter of the only son of my grandfather." How is the girl in the photograph related to Ravi?

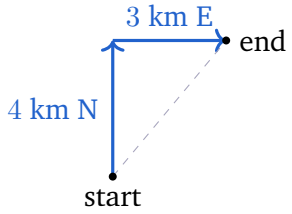
(A) Cousin

(B) Sister

(C) Niece

(D) Aunt

Q22. A person walks 4 km North, then turns right and walks 3 km East, as traced below. How far is she from her starting point, and in which general direction?



(A) 7 km, North-East

(B) 1 km, East

(C) 5 km, North-East

(D) 6 km, East

Q23. Statements: (i) All architects are designers. (ii) All designers are creative. Which conclusion definitely follows?

(A) All architects are creative

(B) All creative people are architects

(C) Some designers are not creative

(D) No architect is creative

Q24. Four friends P, Q, R and S sit around a circular table facing the centre. P is to the immediate left of Q, and R is directly opposite P. Who sits to the immediate right of Q?

(A) S

(B) R

(C) P

(D) Cannot be determined

Q25. What is the angle between the hour hand and the minute hand of a clock at exactly $3{:}00$?

(A) 45°

(B) 90°

(C) 60°

(D) 120°

Q26. Find the odd one out: $64,\ 125,\ 216,\ 100,\ 343$.

(A) 216

(B) 343

(C) 100

(D) 125

Q27. Choose the word that is closest in meaning (synonym) to **LUCID**.

(A) Clear

(B) Murky

(C) Heavy

(D) Curved

Q28. Complete the analogy: **Architect** is to **Building** as **Author** is to _____.

(A) Library

(B) Reader

(C) Pen

(D) Book

Q29. Choose the word that best completes the sentence: "The new museum was praised for its _____ design, which made the most of natural light."

(A) careless

(B) innovative

(C) dull

(D) cramped

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

(A) Orange, Green, Violet

(B) Red, Green, Blue

(C) Red, Yellow, Blue

(D) Black, White, Grey

Q31. A composition in which the left half is an exact mirror image of the right half about a central axis is said to have which kind of balance?

(A) Symmetrical (formal) balance

(B) Asymmetrical balance

(C) Radial balance

(D) No balance

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

(A) Stone

(B) Timber

(C) Bamboo

(D) Cement

Q33. Identify the monument shown below.

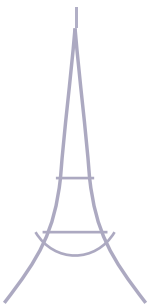
(A) Humayun's Tomb

(B) Taj Mahal

(C) Bibi Ka Maqbara

(D) Gol Gumbaz

Q34. The iron lattice tower shown below stands in which city?



(A) Paris

(B) London

(C) Rome

(D) Tokyo

Q35. The tapering tower shown below is built chiefly of which material?

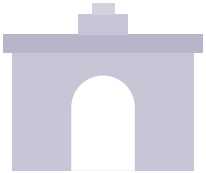
(A) White marble

(B) Glass

(C) Steel

(D) Red sandstone

Q36. The war-memorial archway shown below stands in New Delhi. Which architect designed it?



(A) Le Corbusier

(B) Charles Correa

(C) Edwin Lutyens

(D) B. V. Doshi

Q37. The shell-roofed building shown below is best described as an example of which kind of architecture?

(A) Ancient Egyptian

(B) Modern (20th-century expressionist)

(C) Gothic

(D) Mughal

Q38. Which famous house, built over a waterfall, was designed by the architect Frank Lloyd Wright?

(A) Fallingwater

(B) Villa Savoye

(C) Farnsworth House

(D) Robie House

Q39. A North Indian temple crowned by a curving tower called a *shikhara* belongs to which architectural style?

(A) Dravidian

(B) Vesara

(C) Nagara

(D) Gothic

Q40. A horizontal beam placed across the top of a door or window opening, carrying the load above it, is called a:

(A) Cantilever

(B) Plinth

(C) Truss

(D) Lintel

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

(A) Rapid Curing Concrete

(B) Reinforced Cement Concrete

(C) Rolled Carbon Composite

(D) Rough Cast Cement

Q42. The Pritzker Prize, often called the "Nobel of architecture," is awarded for outstanding work in which field?

(A) Architecture

(B) Painting

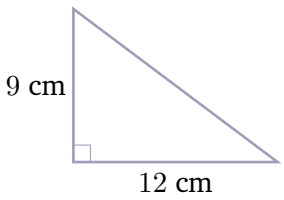
(C) Music

(D) Literature

Part B2: Numerical Answer Questions

Q43. What is 35% of 240? *(Numerical Answer Type: write your answer as a number.)*

Q44. Find the area (in cm^2) of the right-angled triangle shown below, whose base is 12 cm and height is 9 cm. *(Numerical Answer Type: write your answer as a number.)*



Q45. A sum of Rs. 720 is divided between two people in the ratio $5 : 4$. How many rupees does the person with the larger share receive? *(Numerical Answer Type: write your answer as a number.)*

Q46. Find the total amount (in rupees) when Rs. 8000 is invested for 2 years at 5% per annum, compounded annually. *(Numerical Answer Type: write your answer as a number.)*

Q47. A train running at a constant speed covers 150 km in 2 hours. How many kilometres will it cover in 4 hours at the same speed? *(Numerical Answer Type: write your answer as a number.)*

Q48. Find the next term of the series: $2,\ 6,\ 12,\ 20,\ 30,\ ?$ *(Numerical Answer Type: write your answer as a number.)*

Q49. The marks of five students are 72, 85, 90, 68 and 85. What is their average (mean) mark? *(Numerical Answer Type: write your answer as a number.)*

Q50. In a triangle, two of the angles measure 55° and 65°. What is the measure (in degrees) of the third angle? *(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: $6-3=3$, $11-6=5$, $18-11=7$, $27-18=9$. The differences are the odd numbers $3, 5, 7, 9$, so the next difference is 11.

Step 2 — Add it on:

$$27+11=38.$$

Why other options are wrong:

- (A) 36, (C) 40, (D) 42: none matches the required gap of $+11$.

Final Answer: The next term is $38 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q1

Q2.

Solution

Concept — Percentages of a whole: The parts must add to 100%; children make up whatever remains after men and women.

Step 1 — Percentage of children: $100\% - 45\% - 35\% = 20\%$.

Step 2 — Compute the number:

$$20\% \text{ of } 8000 = \frac{20}{100} \times 8000 = 1600.$$

Why other options are wrong:

- (A) 1200 is 15%; (B) 1500 and (D) 1800 do not match 20% of 8000.

Final Answer: There are 1600 children $\Rightarrow \boxed{\text{C}}$

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 $= 5 + 7 = 12$, so one part $= \frac{96}{12} = 8$.

Step 2 — Larger number: The larger share has 7 parts:

$$7 \times 8 = 56.$$

Why other options are wrong:

- (B) 42 is the smaller number (5 parts $\times 8$ would be 40; here it tempts you with 6×7).
- (C) 49 and (D) 63 do not fit the $5 : 7$ split of 96.

Final Answer: The larger number is $56 \Rightarrow \boxed{\text{A}}$

Answer: (A) 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: $5 \times 42 = 210$.

Step 2 — New average: Remove 30: new total $= 210 - 30 = 180$ over 4 numbers, so

$$\text{average} = \frac{180}{4} = 45.$$

Why other options are wrong:

- (A) 40, (B) 44, (C) 48: none equals $180 \div 4$.

Final Answer: The new average is $45 \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q4

Q5.

Solution

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

Step 1 — Find the speed: speed $= \frac{180}{3} = 60$ km/h.

Step 2 — Distance in 5 h:

$$60 \times 5 = 300 \text{ km}.$$

Why other options are wrong:

- (A) 240 km is 4 h; (C) 280 km and (D) 360 km use the wrong speed or time.

Final Answer: The car travels 300 km $\Rightarrow$ B

Answer: (B) 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:

$$A = 10000\left(1 + \frac{10}{100}\right)^2 = 10000 \times (1.1)^2 = 12100.$$

Step 2 — Interest: CI $= 12100 - 10000 = 2100$.

Why other options are wrong:

- (A) Rs. 2000 is simple interest; (B) Rs. 2200 over-counts; (D) Rs. 1100 is one year only.

Final Answer: The compound interest is Rs. 2100 $\Rightarrow$ C

Answer: (C) Go Back to Q6

Q7.

Solution

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

Step 1 — Rectangle: $14 \times 7 = 98$ cm^2.

Step 2 — Semicircle (radius 3.5):

$$\tfrac{1}{2}\pi r^2 = \tfrac{1}{2} \times \tfrac{22}{7} \times 3.5^2 = \tfrac{1}{2} \times \tfrac{22}{7} \times 12.25 = 19.25 \text{ cm}^2.$$

Step 3 — Subtract: $98 - 19.25 = 78.75$ cm^2.

Why other options are wrong:

- (B) 98 ignores the cut; (C) 80.75 and (D) 88.50 use a wrong semicircle area.

Final Answer: The shaded area is 78.75 cm^2 $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q7

Q8.

Solution

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

Step 1 — Find the adjacent side: With opp $= 3$, hyp $= 5$: adj $= \sqrt{5^2 - 3^2} = \sqrt{16} = 4$.

Step 2 — Form the tangent:

$$\tan\theta = \frac{3}{4}.$$

Why other options are wrong:

- (A) $\frac{4}{5} = \cos\theta$; (B) $\frac{5}{3}$ and (C) $\frac{5}{4}$ are reciprocals (sec/cosec-like), not $\tan$.

Final Answer: $\tan\theta = \frac{3}{4} \Rightarrow \boxed{\text{D}}$

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 $a + b = 7$ and $ab = 12$.

Step 1 — Find the pair: Two numbers with sum 7 and product 12 are 3 and 4, since $3 + 4 = 7$ and $3 \times 4 = 12$.

Step 2 — Write the roots:

$$x = 3 \quad \text{or} \quad x = 4.$$

Why other options are wrong:

- (A) $-3, -4$ give $+7x$ wrong sign; (C) $2, 6$ and (D) $1, 12$ give product 12 but sum $\neq 7$.

Final Answer: The roots are 3 and $4 \Rightarrow$ B

Answer: (B) 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: $\Delta x = 4 - 1 = 3$, $\Delta y = 6 - 2 = 4$.

Step 2 — Apply the formula:

$$\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5.$$

Why other options are wrong:

- (A) $7 = 3 + 4$ adds the legs; (B) 4 and (D) 6 ignore the right-triangle relation.

Final Answer: The distance $AB = 5 \Rightarrow$ 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 median and the cross-line: The big triangle has a median from the apex and a horizontal line joining the midpoints of the two slanted sides, splitting it into small regions.

Step 2 — Tally: Small triangles: 4 (two upper, two lower). Medium: the top small triangle plus the whole upper half give 2 more, and each half of the base gives 1 more $\times 2$. Adding the whole big triangle, the total counts to 8.

Why other options are wrong:

- (A) 6 and (B) 7 miss some composite triangles; (D) 9 double-counts.

Final Answer: There are 8 triangles $\Rightarrow$ C

Answer: (C) Go Back to Q11

Q12.

Solution

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

Step 1 — Apply for $n = 3$:

$$1^2 + 2^2 + 3^2 = 1 + 4 + 9 = 14.$$

Step 2 — Interpret: 9 unit squares, 4 of size 2×2, and 1 of size 3×3, giving 14 in total.

Why other options are wrong:

- (A) 9 counts only unit squares; (B) 13 and (C) 12 miss one size.

Final Answer: There are 14 squares $\Rightarrow$ D

Answer: (D) Go Back to Q12

Q13.

Solution

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

Step 1 — Base layer: A 3×3 arrangement uses $3 \times 3 = 9$ cubes.

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

Step 3 — Total:

$$9 + 2 = 11.$$

Why other options are wrong:

- (A) 9 forgets the top; (B) 12 over-counts; (D) 13 adds too many.

Final Answer: 11 unit cubes are used $\Rightarrow$ C

Answer: (C) 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 big cube's top face is a large square; the small cube centred on it appears as a small square inside that outline.

Step 2 — Result: The top view is a small square nested centrally inside a larger square.

Why other options are wrong:

- (A) ignores the small cube; (B) a circle is wrong (no curved parts); (D) two side-by-side squares is a front-style view, not the top.

Final Answer: A small square centred in a larger square $\Rightarrow$ C

Answer: (C) 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 E: The letter E 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 E is not turned upside down and is not identical to the original.

Why other options are wrong:

- (B) 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 $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) 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 vertical fold: The fold line is the vertical centre of the sheet. One punch goes through two layers.

Step 2 — Unfold: Two holes appear, one on each side, placed symmetrically about the vertical centre line.

Why other options are wrong:

- (A) one hole ignores the second layer; (B) "one above the other" needs a horizontal fold; (C) four holes needs two folds.

Final Answer: Two holes symmetric about the centre line $\Rightarrow$ $\boxed{\text{D}}$

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 up ($90°$), then left ($180°$). Each step is a turn of $90°$ in the anticlockwise sense.

Step 2 — Next term: Continuing $90°$ anticlockwise, the arrow would point down ($270°$).

Why other options are wrong:

- (A) $45°$ is too small; (C) $90°$ clockwise turns the wrong way; (D) $180°$ skips a step.

Final Answer: The arrow turns $90°$ anticlockwise each step $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) 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 familiar "cross" (or plus) shape is the classic valid net.

Step 1 — Test the cross: The vertical column of four squares wraps round as four side faces; the two squares on the arms 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 2×2 block is only four squares and overlaps when folded.

Final Answer: The cross of six squares folds into a cube $\Rightarrow$ $\boxed{\text{C}}$

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: $A = 1, C = 3, F = 6, J = 10, O = 15$. Differences are $2, 3, 4, 5$, so the next gap is 6.

Step 2 — Next letter: $15 + 6 = 21$, and the 21st letter is U.

Why other options are wrong:

- (B) $T = 20$ uses gap 5; (C) $S = 19$ and (D) $V = 22$ miss the gap of 6.

Final Answer: The next letter is $U \Rightarrow$ A

Answer: (A) Go Back to Q19

Q20.

Solution

Concept — Coding by shifting letters: Compare each coded letter with the original to find the rule.

Step 1 — Find the shift: $C \to D, H \to I, A \to B, I \to J, R \to S$: every letter moves forward by 1.

Step 2 — Apply to TABLE: $T \to U, A \to B, B \to C, L \to M, E \to F$, giving

UBCMF.

Why other options are wrong:

- (B) SABLD shifts backward/wrong; (C) UBCNF mis-shifts L; (D) UCBMF swaps two letters.

Final Answer: TABLE is coded as UBCMF $\Rightarrow$ A

Answer: (A) Go Back to Q20

Q21.

Solution

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

Step 1 — "The only son of my grandfather": The only son of Ravi's grandfather is Ravi's own father.

Step 2 — "The daughter of my father": The daughter of Ravi's father is Ravi's sister.

Why other options are wrong:

- (A) Cousin would need an uncle, but the son is the "only" one; (C) Niece and (D) Aunt are the wrong generation.

Final Answer: The girl is Ravi's sister $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q21

Q22.

Solution

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

Step 1 — Apply Pythagoras:

$$\sqrt{4^2 + 3^2} = \sqrt{16 + 9} = \sqrt{25} = 5 \text{ km}.$$

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

Why other options are wrong:

- (A) 7 km adds the legs; (B) 1 km subtracts them; (D) 6 km is unrelated.

Final Answer: She is 5 km away, to the North-East $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q22

Q23.

Solution

Concept — Syllogism (chaining sets): If all A are B and all B are C, then all A are C.

Step 1 — Chain the statements: All architects $\subseteq$ designers $\subseteq$ creative, so every architect is creative.

Step 2 — Check direction: The reverse (all creative are architects) does not follow.

Why other options are wrong:

- (B) reverses the inclusion; (C) and (D) contradict the given "all" statements.

Final Answer: All architects are creative $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q23

Q24.

Solution

Concept — Circular seating: For people facing the centre, "left" and "right" are from the seated person's own viewpoint.

Step 1 — Place P and Q: P is immediately left of Q. Facing the centre, going clockwise the order around is $\ldots Q, P \ldots$ so that P is on Q's left.

Step 2 — Use R opposite P: With four seats, R sits opposite P; the only remaining seat, to Q's immediate right, is taken by S.

Why other options are wrong:

- (B) R is opposite P, not beside Q; (C) P is on Q's left; (D) the data fix the arrangement.

Final Answer: S sits to Q's immediate right $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q24

Q25.

Solution

Concept — Clock angles: The 12 hour marks split the dial into 12 equal gaps of 30° each.

Step 1 — Hand positions at 3:00: The minute hand points to 12, the hour hand to 3. They are 3 hour-gaps apart.

Step 2 — Compute the angle:

$$3 \times 30^\circ = 90^\circ.$$

Why other options are wrong:

- (A) 45° halves it; (C) 60° is two gaps; (D) 120° is four gaps.

Final Answer: The angle is $90^\circ \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q25

Q26.

Solution

Concept — Odd one out by pattern: Test the numbers against a common rule such as "perfect cube."

Step 1 — Check for cubes: $64 = 4^3$, $125 = 5^3$, $216 = 6^3$, $343 = 7^3$ are all perfect cubes. But $100 = 10^2$ is a perfect *square*, not a cube.

Step 2 — Identify the misfit: 100 breaks the "cube" pattern.

Why other options are wrong:

- (A) 216, (B) 343, (D) 125 are all genuine cubes.

Final Answer: The odd one out is $100 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q26

Q27.

Solution

Concept — Synonyms: A synonym has the same meaning. "Lucid" means clear and easy to understand.

Step 1 — Match the meaning: "Lucid" (as in a lucid explanation) means transparent or clear, so its synonym is **Clear**.

Why other options are wrong:

- (B) Murky is the opposite (an antonym); (C) Heavy and (D) Curved are unrelated to clarity.

Final Answer: LUCID means Clear $\Rightarrow$ A

Answer: (A) 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: An architect creates (designs) a building; "maker $\rightarrow$ thing made."

Step 2 — Apply it: An author creates a **Book**, matching "maker $\rightarrow$ thing made."

Why other options are wrong:

- (A) Library stores books but is not made by the author; (B) Reader uses the book; (C) Pen is only a tool.

Final Answer: Author is to Book $\Rightarrow$ D

Answer: (D) Go Back to Q28

Q29.

Solution

Concept — Sentence completion: Pick the word that fits the positive tone of "praised."

Step 1 — Read the tone: A design that is praised and makes good use of light is being complimented, so a positive word is needed.

Step 2 — Best fit: "Innovative" (new and inventive) fits a praised design.

Why other options are wrong:

- (A) careless, (C) dull and (D) cramped are all negative and clash with "praised."

Final Answer: The design was praised as "innovative" $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q29

Q30.

Solution

Concept — Colour theory: On the artists' (subtractive) colour wheel, the primary colours cannot be mixed from others and combine to make all the rest.

Step 1 — Recall the primaries: The traditional artists' primaries are **Red, Yellow and Blue** (RYB).

Step 2 — Confirm: Mixing pairs of these gives the secondaries: orange, green and violet.

Why other options are wrong:

- (A) orange/green/violet are the secondaries; (B) red/green/blue are the *light* (additive) primaries, not the artists' set; (D) black/white/grey are neutrals.

Final Answer: The artists' primaries are Red, Yellow, Blue $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q30

Q31.

Solution

Concept — Balance in composition: Balance is how visual weight is distributed. When both halves mirror each other, the balance is formal.

Step 1 — Match the description: A left half that exactly mirrors the right about a central axis is **symmetrical (formal) balance**, as in the facade of the Taj Mahal.

Why other options are wrong:

- (B) asymmetrical uses unlike but balanced elements; (C) radial radiates from a centre; (D) "no balance" contradicts the mirror.

Final Answer: Mirror-image halves give symmetrical balance $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q31

Q32.

Solution

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

Step 1 — Classify: Stone, timber and bamboo are natural materials. Cement is manufactured by burning and grinding limestone and clay.

Step 2 — Odd one out: Cement is the man-made material.

Why other options are wrong:

- (A) Stone, (B) Timber and (C) Bamboo all occur naturally.

Final Answer: The man-made material is Cement $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q32

Q33.

Solution

Concept — Reading a monument's silhouette: A central onion dome with a finial, four detached corner minarets and a tall arched entrance on a raised platform is a unique signature.

Step 1 — Match the features: This symmetrical garden-tomb form is the **Taj Mahal**, the white-marble Mughal mausoleum at Agra.

Why other options are wrong:

- (A) Humayun's Tomb has a different dome and no four corner minarets like these; (C) Bibi Ka Maqbara is a smaller imitation; (D) Gol Gumbaz is a single huge dome with corner towers, not minarets.

Final Answer: The monument is the Taj Mahal $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q33

Q34.

Solution

Concept — Identifying a landmark tower: A tall iron lattice tower with two curved legs tapering to a point, joined by platforms, is the **Eiffel Tower**.

Step 1 — Recall the city: The Eiffel Tower, built for the 1889 World's Fair, stands on the Champ de Mars in **Paris**, France.

Why other options are wrong:

- (B) London has Big Ben; (C) Rome has the Colosseum; (D) Tokyo's tower is a different, red-and-white structure.

Final Answer: The Eiffel Tower is in Paris $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q34

Q35.

Solution

Concept — Material of a landmark: A tall fluted, tapering tower with projecting balconies dividing it into storeys is the **Qutub Minar** in Delhi.

Step 1 — Recall its material: Its lower storeys are built mainly of **red sandstone** (with marble in the upper stages), so the dominant material is red sandstone.

Why other options are wrong:

- (A) white marble appears only at the top; (B) Glass and (C) Steel are modern materials, not used in this medieval minaret.

Final Answer: The tower is built chiefly of red sandstone $\Rightarrow$ D

Answer: (D) Go Back to Q35

Q36.

Solution

Concept — A triumphal war memorial: A single large free-standing archway with a heavy cornice in New Delhi is the **India Gate**, a memorial to the First World War dead.

Step 1 — Recall the designer: It was designed by **Edwin Lutyens**, the British architect who planned much of New Delhi.

Why other options are wrong:

- (A) Le Corbusier planned Chandigarh; (B) Charles Correa and (D) B. V. Doshi are later Indian architects.

Final Answer: India Gate was designed by Edwin Lutyens $\Rightarrow$ C

Answer: (C) Go Back to Q36

Q37.

Solution

Concept — A building known by its roof: The soaring, sail-like shell roofs on a low podium beside water identify the **Sydney Opera House** by Jørn Utzon.

Step 1 — Place its style: Its sculptural concrete shells make it a celebrated work of **20th-century modern (expressionist) architecture**, not any historical style.

Why other options are wrong:

- (A) Ancient Egyptian, (C) Gothic and (D) Mughal are all historical styles unrelated to these modern shells.

Final Answer: It is a work of modern architecture $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q37

Q38.

Solution

Concept — Architects and their works: A few houses are landmarks of modern design tied to one architect.

Step 1 — Recall the house: Fallingwater (1935, Pennsylvania) was designed by **Frank Lloyd Wright**, built with cantilevered terraces directly over a waterfall; it is the classic example of his "organic architecture."

Why other options are wrong:

- (B) Villa Savoye is by Le Corbusier; (C) Farnsworth House is by Mies van der Rohe; (D) Robie House is also by Wright but a city Prairie house, not over a waterfall.

Final Answer: The house over a waterfall is Fallingwater $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) 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 crowned by a tall curving tower called a *shikhara*, common in North and Central India (Khajuraho, Konark), belongs to the **Nagara** style.

Why other options are wrong:

- (A) Dravidian is the South Indian style with a pyramidal vimana and gopurams; (B) Vesara is a Deccan hybrid; (D) Gothic is European.

Final Answer: A shikhara-topped North Indian temple is Nagara $\Rightarrow$ $\boxed{C}$

Answer: (C) Go Back to Q39

Q40.

Solution

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

Step 1 — Define the term: A **lintel** is a horizontal beam laid across the top of a door or window opening, carrying the wall load above and transferring it to the supports on either side.

Why other options are wrong:

- (A) Cantilever is supported at one end only; (B) Plinth is the base of a wall above ground; (C) Truss is a triangulated roof frame.

Final Answer: A beam over an opening is a lintel $\Rightarrow$ $\boxed{D}$

Answer: (D) Go Back to Q40

Q41.

Solution

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

Step 1 — Expand RCC: RCC stands for **Reinforced Cement Concrete** – concrete cast around steel reinforcing bars so it can resist tension as well as compression.

Why other options are wrong:

- (A), (C) and (D) are invented expansions; only "Reinforced Cement Concrete" is the standard meaning.

Final Answer: RCC = Reinforced Cement Concrete $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q41

Q42.

Solution

Concept — Major prizes by field: Certain prizes are the top honour in a single discipline.

Step 1 — Identify the field: The **Pritzker Prize**, founded in 1979 and called the "Nobel of architecture," is awarded each year to a living architect for lasting contributions to the built environment.

Why other options are wrong:

- (B) Painting, (C) Music and (D) Literature have their own honours, not the Pritzker.

Final Answer: The Pritzker Prize is for architecture $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q42

Q43.

Solution

Concept — Percentage of a number: $p\%$ of N is $\frac{p}{100} \times N$.

Step 1 — Compute:

$$35\% \text{ of } 240 = \frac{35}{100} \times 240 = 84.$$

Verification: 10% of 240 is 24, so 35% is $3.5 \times 24 = 84$. ✓

Final Answer: 35% of $240 = 84 \Rightarrow \boxed{84}$

Answer: (84) Go Back to Q43

Q44.

Solution

Concept — Area of a triangle: Area $= \frac{1}{2} \times$ base $\times$ height.

Step 1 — Substitute: base $= 12$, height $= 9$:

$$\frac{1}{2} \times 12 \times 9 = 54 \text{ cm}^2.$$

Verification: $\frac{1}{2} \times 12 = 6$, and $6 \times 9 = 54$. ✓

Final Answer: The area is 54 cm^2 $\Rightarrow \boxed{54}$

Answer: (54) Go Back to Q44

Q45.

Solution

Concept — Sharing in a ratio: Divide the total by the sum of the ratio terms, then take the larger number of parts.

Step 1 — One part: Total parts $= 5 + 4 = 9$, so one part $= \frac{720}{9} = 80$.

Step 2 — Larger share: $5 \times 80 = 400$.

Verification: Shares are 400 and $4 \times 80 = 320$; $400 + 320 = 720$. ✓

Final Answer: The larger share is Rs. $400 \Rightarrow \boxed{400}$

Answer: (400) Go Back to Q45

Q46.

Solution

Concept — Compound amount: $A = P\left(1 + \frac{r}{100}\right)^n$.

Step 1 — Substitute:

$$A = 8000\left(1 + \tfrac{5}{100}\right)^2 = 8000 \times (1.05)^2 = 8000 \times 1.1025 = 8820.$$

Verification: Year 1: $8000 \to 8400$; Year 2: $8400 \times 1.05 = 8820$. ✓

Final Answer: The amount is Rs. $8820 \Rightarrow \boxed{8820}$

Answer: (8820) Go Back to Q46

Q47.

Solution

Concept — Constant speed: Distance is proportional to time at fixed speed.

Step 1 — Speed: $\frac{150}{2} = 75$ km/h.

Step 2 — Distance in 4 h: $75 \times 4 = 300$ km.

Verification: 4 h is twice 2 h, so distance doubles: $150 \times 2 = 300$. ✓

Final Answer: The train covers 300 km $\Rightarrow \boxed{300}$

Answer: (300) Go Back to Q47

Q48.

Solution

Concept — Series of products: Recognise the pattern $n(n+1)$, or study the differences.

Step 1 — Spot the rule: $2 = 1 \cdot 2,\ 6 = 2 \cdot 3,\ 12 = 3 \cdot 4,\ 20 = 4 \cdot 5,\ 30 = 5 \cdot 6$. The next is $6 \cdot 7 = 42$.

Verification: Differences are $4, 6, 8, 10$, so the next difference is 12: $30 + 12 = 42$. ✓

Final Answer: The next term is $42 \Rightarrow \boxed{42}$

Answer: (42) Go Back to Q48

Q49.

Solution

Concept — Mean (average): Mean $= \dfrac{\text{sum of values}}{\text{number of values}}$.

Step 1 — Sum: $72 + 85 + 90 + 68 + 85 = 400$.

Step 2 — Divide by 5:

$$\frac{400}{5} = 80.$$

Verification: $400 \div 5 = 80$, a whole number. ✓

Final Answer: The average mark is $80 \Rightarrow \boxed{80}$

Answer: (80) Go Back to Q49

Q50.

Solution

Concept — Angle sum of a triangle: The three interior angles of any triangle add up to $180°$.

Step 1 — Subtract the known angles:

$$180° - 55° - 65° = 60°.$$

Verification: $55 + 65 + 60 = 180$. ✓

Final Answer: The third angle is $60° \Rightarrow \boxed{60}$

Answer: (60) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	C	3	A	4	D	5	B
6	C	7	A	8	D	9	B	10	C
11	C	12	D	13	C	14	C	15	A
16	D	17	B	18	C	19	A	20	A
21	B	22	C	23	A	24	A	25	B
26	C	27	A	28	D	29	B	30	C
31	A	32	D	33	B	34	A	35	D
36	C	37	B	38	A	39	C	40	D
41	B	42	A	43	84	44	54	45	400
46	8820	47	300	48	42	49	80	50	60