NATA Aptitude Test (Part B)

Sample Paper – 3

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: $1,\ 8,\ 27,\ 64,\ 125,\ ?$

(A) 196

(B) 216

(C) 225

(D) 250

Q2. A library has 6000 books. 40% are novels and 25% are textbooks; the rest are reference books. How many reference books are there?

(A) 2100

(B) 1800

(C) 2400

(D) 2000

Q3. Two numbers are in the ratio $4 : 9$. If their sum is 104, what is the larger number?

(A) 72

(B) 32

(C) 63

(D) 80

Q4. The average of six numbers is 50. If one number, 40, is removed, what is the average of the remaining five numbers?

(A) 48

(B) 50

(C) 52

(D) 54

Q5. A bus travels 240 km in 4 hours. Maintaining the same speed, how far will it travel in 7 hours?

(A) 360 km

(B) 480 km

(C) 400 km

(D) 420 km

Q6. Find the compound interest on Rs. 20000 for 2 years at 5% per annum, compounded annually.

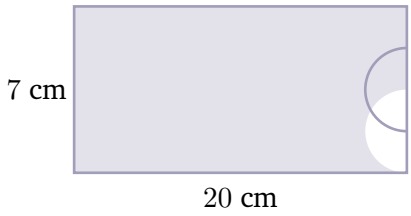
(A) Rs. 2000

(B) Rs. 1025

(C) Rs. 2100

(D) Rs. 2050

Q7. In the figure below, a rectangle of length 20 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) 120.75 cm^2

(B) 140 cm^2

(C) 130.25 cm^2

(D) 125.50 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) $\frac{5}{12}$

(D) $\frac{5}{13}$

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

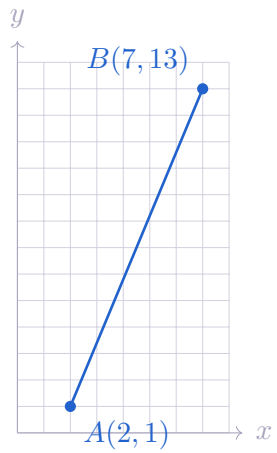
(A) -4 and -5

(B) 2 and 10

(C) 1 and 20

(D) 4 and 5

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



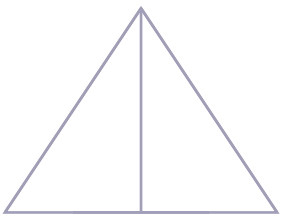
(A) 17

(B) 12

(C) 13

(D) 15

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



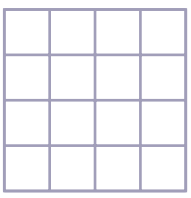
(A) 4

(B) 5

(C) 6

(D) 7

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



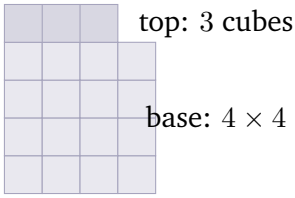
(A) 16

(B) 25

(C) 36

(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?



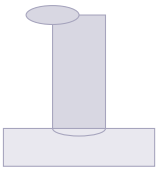
(A) 16

(B) 18

(C) 19

(D) 20

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



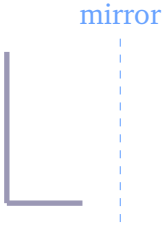
(A) A single plain square

(B) A circle centred inside a square

(C) Two circles side by side

(D) A triangle inside a square

Q15. When the capital letter **L** (shown below) is held up to a vertical mirror placed to its right, what does its reflection look like?



(A) A reversed L, with the vertical stroke on the right and the foot pointing left

(B) The letter looks identical to the original

(C) The letter turns upside down (the foot at the top)

(D) The letter looks like the numeral 7

Q16. A square sheet is folded once along its horizontal 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 placed side by side

(C) Four holes in a square pattern

(D) Two holes, one above the other, symmetric 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?

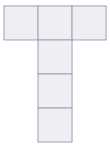
(A) 45° anticlockwise

(B) 90° clockwise

(C) 45° 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 "T" net is shown.



(A) A single straight row of six squares folded into a ring

(B) Five squares forming a plus sign

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

(D) A 2×3 block of six squares

Q19. Find the next term in the letter series: $B,\ D,\ G,\ K,\ P,\ ?$

(A) V

(B) U

(C) W

(D) T

Q20. If in a certain code **SHELF** is written as **FLEHS**, how is **BOOKS** written in the same code?

(A) KOOBS

(B) SKOOB

(C) BSKOO

(D) SOOKB

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?

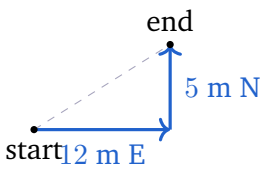
(A) Brother

(B) Father

(C) Cousin

(D) Son

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



(A) 7 m, North

(B) 13 m, North-East

(C) 17 m, East

(D) 13 m, North-West

Q23. Statements: (i) All books are pages. (ii) All pages are paper. Which conclusion definitely follows?

(A) All paper is books

(B) All books are paper

(C) Some paper is not pages

(D) No book is paper

Q24. Four librarians W, X, Y and Z sit around a circular table facing the centre. W is to the immediate right of X, and Y is directly opposite W. Who sits to the immediate left of X?

(A) Z

(B) Y

(C) W

(D) Cannot be determined

Q25. What is the angle between the hour hand and the minute hand of a clock at exactly 2:00?

(A) 30°

(B) 45°

(C) 60°

(D) 90°

Q26. Find the odd one out: $27,\ 64,\ 81,\ 125,\ 216$.

(A) 64

(B) 81

(C) 125

(D) 216

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

(A) Expert

(B) Author

(C) Teacher

(D) Beginner

Q28. Complete the analogy: **Author** is to **Book** as **Composer** is to _____.

(A) Stage

(B) Music

(C) Audience

(D) Instrument

Q29. Choose the word that best completes the sentence: "The old library's reading room felt _____, with sunlight pouring through its tall arched windows."

(A) gloomy

(B) cramped

(C) noisy

(D) welcoming

Q30. On the standard artists' colour wheel, mixing the two primaries **yellow** and **blue** produces which secondary colour?

(A) Orange

(B) Violet

(C) Brown

(D) Green

Q31. A composition that arranges unlike elements of differing size or colour so that the overall visual weight still feels even, without using a mirror axis, is said to have which kind of balance?

(A) Asymmetrical (informal) balance

(B) Symmetrical (formal) balance

(C) Radial balance

(D) No balance

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

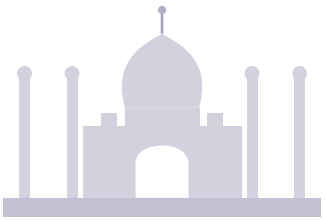
(A) Glass

(B) Brick

(C) Granite

(D) Steel

Q33. Identify the white-marble garden-tomb at Agra shown in silhouette below.



(A) Taj Mahal

(B) Bibi Ka Maqbara

(C) Humayun's Tomb

(D) Gol Gumbaz

Q34. The tall, fluted, tapering brick minaret shown below stands in which city?

(A) Agra

(B) Delhi

(C) Hyderabad

(D) Lucknow

Q35. The stepped, pyramid-like temple tower shown below, rising over the sanctum in shrinking tiers, is the signature feature of which Indian temple style?

(A) Nagara (North Indian)

(B) Gothic

(C) Dravidian (South Indian)

(D) Indo-Saracenic

Q36. The honeycomb-like palace facade shown below, pierced by hundreds of small latticed windows, is the Hawa Mahal. In which country does it stand?

(A) Pakistan

(B) India

(C) Iran

(D) Bangladesh

Q37. The building shown below, shaped like a half-open lotus with twenty-seven marble petals and completed in 1986 in New Delhi, was designed by which architect?

(A) Charles Correa

(B) Edwin Lutyens

(C) Fariborz Sahba

(D) B. V. Doshi

Q38. Which famous glass-and-steel house in Illinois, raised on stilts above a floodplain, was designed by the architect Mies van der Rohe?

(A) Fallingwater

(B) Robie House

(C) Villa Savoye

(D) Farnsworth House

Q39. A South Indian temple entered through a tall, ornate, pyramidal gateway tower over the boundary wall belongs to the Dravidian style. This gateway tower is called a:

(A) Shikhara

(B) Gopuram

(C) Amalaka

(D) Stupa

Q40. A beam or slab that projects out beyond its support and is fixed at only one end (as in a balcony) is called a:

(A) Lintel

(B) Plinth

(C) Cantilever

(D) Column

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

(A) Pre-Cast Cladding

(B) Plain Cement Concrete

(C) Polished Coloured Cement

(D) Partial Carbon Composite

Q42. The Aga Khan Award for Architecture is given specifically to recognise outstanding work in which area?

(A) Architecture serving Muslim communities

(B) Painting and sculpture

(C) Classical music

(D) Film direction

Part B2: Numerical Answer Questions

Q43. What is 18% of 400? *(Numerical Answer Type: write your answer as a number.)*

Q44. A rectangular sheet measures 16 cm by 8 cm. Find its area (in square cm). *(Numerical Answer Type: write your answer as a number.)*

Q45. An amount of Rs. 112 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. 8000 for 2 years at 10% per annum, compounded annually. *(Numerical Answer Type: write your answer as a number.)*

Q47. A vehicle covers 220 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: $4,\ 8,\ 12,\ 16,\ 20,\ ?$ *(Numerical Answer Type: write your answer as a number.)*

Q49. Find the average of the five numbers $52,\ 54,\ 56,\ 58,\ 60$. *(Numerical Answer Type: write your answer as a number.)*

Q50. Two angles of a triangle measure 60° and 60°. Find the third angle (in degrees). *(Numerical Answer Type: write your answer as a number.)*

Detailed Solutions

Q1.

Solution

Concept — Number series of perfect cubes: Check whether the terms are the cubes of consecutive whole numbers.

Step 1 — Spot the rule: $1 = 1^3$, $8 = 2^3$, $27 = 3^3$, $64 = 4^3$, $125 = 5^3$. The terms are consecutive cubes, so the next is 6^3.

Step 2 — Compute:

$$6^3 = 6 \times 6 \times 6 = 216.$$

Why other options are wrong:

- (A) $196 = 14^2$ and (C) $225 = 15^2$ are squares, not cubes; (D) 250 is not a perfect cube.

Final Answer: The next term is $216 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q1

Q2.

Solution

Concept — Percentages of a whole: The parts must add to 100%; reference books make up whatever remains.

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

Step 2 — Compute the number:

$$35\% \text{ of } 6000 = \frac{35}{100} \times 6000 = 2100.$$

Why other options are wrong:

- (B) 1800 is 30%; (C) 2400 is 40%; (D) 2000 does not match 35% of 6000.

Final Answer: There are 2100 reference books $\Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q2

Q3.

Solution

Concept — Dividing in a ratio: Split the total into 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 $= \frac{104}{13} = 8$.

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

$$9 \times 8 = 72.$$

Why other options are wrong:

- (B) 32 is the smaller number (4 parts); (C) 63 and (D) 80 do not fit the $4 : 9$ split of 104.

Final Answer: The larger number is $72 \Rightarrow \boxed{\text{A}}$

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: $6 \times 50 = 300$.

Step 2 — New average: Remove 40: new total $= 300 - 40 = 260$ over 5 numbers, so

$$\text{average} = \frac{260}{5} = 52.$$

Why other options are wrong:

- (A) 48, (B) 50, (D) 54: none equals $260 \div 5$.

Final Answer: The new average is $52 \Rightarrow \boxed{\text{C}}$

Answer: (C) 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 $= \frac{240}{4} = 60$ km/h.

Step 2 — Distance in 7 h:

$$60 \times 7 = 420 \text{ km}.$$

Why other options are wrong:

- (A) 360 km is 6 h; (C) 400 km and (B) 480 km use the wrong speed or time.

Final Answer: The bus travels 420 km $\Rightarrow$ D

Answer: (D) 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:

$$A = 20000\left(1 + \frac{5}{100}\right)^2 = 20000 \times (1.05)^2 = 22050.$$

Step 2 — Interest: CI $= 22050 - 20000 = 2050$.

Why other options are wrong:

- (A) Rs. 2000 is simple interest; (C) Rs. 2100 over-counts; (B) Rs. 1025 is one year only.

Final Answer: The compound interest is Rs. 2050 $\Rightarrow$ D

Answer: (D) Go Back to Q6

Q7.

Solution

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

Step 1 — Rectangle: $20 \times 7 = 140$ 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: $140 - 19.25 = 120.75$ cm^2.

Why other options are wrong:

- (B) 140 ignores the cut; (C) 130.25 and (D) 125.50 use a wrong semicircle area.

Final Answer: The shaded area is 120.75 cm$^2 \Rightarrow \boxed{\text{A}}$

Answer: (A) 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 adj $= 12$, hyp $= 13$: 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) $\frac{12}{5} = \cot\theta$ (inverted); (B) $\frac{13}{12} = \sec\theta$; (D) $\frac{5}{13} = \sin\theta$.

Final Answer: $\tan\theta = \frac{5}{12} \Rightarrow \boxed{\text{C}}$

Answer: (C) 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:

- (A) $-4, -5$ give the wrong sign of the middle term; (B) $2, 10$ and (C) $1, 20$ give product 20 but sum $\neq 9$.

Final Answer: The roots are 4 and $5 \Rightarrow \boxed{\text{D}}$

Answer: (D) 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 $AB = 13 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q10

Q11.

Solution

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

Step 1 — Read the figure: The big triangle has both medians from the base vertices to the apex, plus the base is split at its midpoint, creating several small regions.

Step 2 — Tally: The two cevians and the apex give 4 small triangles; pairs of these combine into 2 larger triangles, and the whole outer triangle adds 1, giving $4 + 2 + 1 = 7$.

Why other options are wrong:

- (A) 4 and (B) 5 miss composite triangles; (C) 6 misses the whole outer triangle.

Final Answer: There are 7 triangles $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) 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 $n = 4$:

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

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) 36 miss or over-count sizes.

Final Answer: There are 30 squares $\Rightarrow$ $\boxed{\text{D}}$

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:

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

Final Answer: 19 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 square slab's top face is a large square; the cylinder standing on it appears as a circle inside that outline.

Step 2 — Result: The top view is a circle centred inside a square.

Why other options are wrong:

- (A) ignores the cylinder; (C) two circles needs two cylinders; (D) the cylinder is round, not triangular.

Final Answer: A circle centred inside a square $\Rightarrow$ B

Answer: (B) 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 L: The letter L normally has its vertical stroke on the left and the foot pointing right. A mirror on the right reverses left-right, so the vertical stroke moves to the right and the foot points left.

Step 2 — Confirm: Top and bottom are unchanged, so the foot stays at the bottom and the letter is not turned upside down.

Why other options are wrong:

- (B) "identical" ignores the flip; (C) upside-down needs a horizontal mirror; (D) a 7 would also flip the top arm, which L has not.

Final Answer: A reversed L, spine on the right and foot pointing left $\Rightarrow$ $\boxed{A}$

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 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 the other, 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, one above the other, symmetric about the centre line $\Rightarrow$ $\boxed{D}$

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:

- (A) $45°$ anticlockwise turns the wrong way; (B) $90°$ is too large; (D) $180°$ skips steps.

Final Answer: The arrow turns $45°$ clockwise each step $\Rightarrow$ C

Answer: (C) 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" shape (a row of three with a column of three hanging from the middle) is a valid net.

Step 1 — Test the T: The vertical column of four squares wraps round as four faces while the two side squares of the top row become the remaining two faces; nothing overlaps, so it folds into a cube.

Step 2 — Reject the others: A valid net must close the box without any face overlapping another.

Why other options are wrong:

- (A) a straight row of six wraps round and leaves two faces open while two overlap; (B) a plus of five squares has only five faces; (D) a 2×3 block overlaps when folded.

Final Answer: The T of six squares 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:

- (B) $U = 21$ uses gap 5; (C) $W = 23$ uses gap 7; (D) $T = 20$ uses gap 4.

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

Answer: (A) Go Back to Q19

Q20.

Solution

Concept — Coding by reversing the word: Compare the code with the original to spot the rule.

Step 1 — Find the rule: SHELF reversed letter-by-letter is F-L-E-H-S = FLEHS. So the code simply writes the word backwards.

Step 2 — Apply to BOOKS: Reversing B-O-O-K-S gives

SKOOB.

Why other options are wrong:

- (A) KOOBS, (C) BSKOO and (D) SOOKB are jumbles that are not the exact reversal.

Final Answer: BOOKS is coded as SKOOB $\Rightarrow$ B

Answer: (B) 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 . . . ": So the man is the son of Meena, which makes him Meena's son.

Why other options are wrong:

- (A) Brother and (C) Cousin are the wrong generation; (B) Father reverses the relation.

Final Answer: The man is Meena's son $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) 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 her to the North-East of the start.

Why other options are wrong:

- (A) 7 m subtracts the legs; (C) 17 m adds them; (D) North-West is the wrong quadrant.

Final Answer: She is 13 m away, to the North-East $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) 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 books $\subseteq$ pages $\subseteq$ paper, so every book is paper.

Step 2 — Check direction: The reverse (all paper is books) does not follow.

Why other options are wrong:

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

Final Answer: All books are paper $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) 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 W and X: W is immediately right of X. With four seats, the remaining two seats are opposite these two.

Step 2 — Use Y opposite W: Y sits opposite W; the only seat left, to X's immediate left, is taken by Z.

Why other options are wrong:

- (B) Y is opposite W, not beside X; (C) W is on X's right; (D) the data fix the arrangement.

Final Answer: Z sits to X's immediate left $\Rightarrow$ $\boxed{\text{A}}$

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 2:00: The minute hand points to 12, the hour hand to 2. They are 2 hour-gaps apart.

Step 2 — Compute the angle:

$$2 \times 30^\circ = 60^\circ.$$

Why other options are wrong:

- (A) 30° is one gap; (B) 45° is not a multiple of 30° here; (D) 90° is three gaps (that is 3:00).

Final Answer: The angle is $60^\circ \Rightarrow \boxed{\text{C}}$

Answer: (C) 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: $27 = 3^3$, $64 = 4^3$, $125 = 5^3$, $216 = 6^3$ are all perfect cubes. But $81 = 3^4 = 9^2$ is a perfect square (and fourth power), not a cube.

Step 2 — Identify the misfit: 81 breaks the "cube" pattern.

Why other options are wrong:

- (A) 64, (C) 125, (D) 216 are all genuine cubes.

Final Answer: The odd one out is $81 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q26

Q27.

Solution

Concept — Synonyms: A synonym has the same meaning. "Novice" means a person new to something.

Step 1 — Match the meaning: A novice is someone just starting out, so the closest synonym is **Beginner**.

Why other options are wrong:

- (A) Expert is the opposite (an antonym); (C) Teacher and (B) Author are unrelated roles.

Final Answer: NOVICE means Beginner $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) 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 author creates a book; "creator $\rightarrow$ thing created."

Step 2 — Apply it: A composer creates **Music**, matching "creator $\rightarrow$ thing created."

Why other options are wrong:

- (A) Stage is where music is performed, not what is created; (C) Audience listens; (D) Instrument is only a tool.

Final Answer: Composer is to Music $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q28

Q29.

Solution

Concept — Sentence completion: Pick the word that fits the warm, positive picture of sunlight pouring in.

Step 1 — Read the tone: A room flooded with sunlight through tall windows sounds pleasant, so a positive word is needed.

Step 2 — Best fit: "Welcoming" matches a bright, inviting reading room.

Why other options are wrong:

- (A) gloomy and (B) cramped are negative and clash with the bright light; (C) noisy is unrelated to the description.

Final Answer: The reading room felt "welcoming" $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q29

Q30.

Solution

Concept — Colour theory: On the artists' (subtractive) colour wheel, mixing two primaries gives a secondary colour.

Step 1 — Mix the primaries: Yellow + Blue = **Green**.

Step 2 — Confirm: The other secondaries are orange (red + yellow) and violet (red + blue).

Why other options are wrong:

- (A) orange is red + yellow; (B) violet is red + blue; (C) brown is a muddy mix of all three, not a clean secondary.

Final Answer: Yellow + Blue gives Green $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q30

Q31.

Solution

Concept — Balance in composition: Balance is how visual weight is distributed. When unlike elements are arranged so the weights still feel even without a mirror axis, the balance is informal.

Step 1 — Match the description: Differing sizes or colours balanced without a central mirror line describe **asymmetrical (informal) balance**.

Why other options are wrong:

- (B) symmetrical needs mirror-image halves; (C) radial radiates from a centre; (D) "no balance" contradicts "feels even."

Final Answer: Even visual weight without a mirror axis is asymmetrical balance $\Rightarrow$ A

Answer: (A) 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, brick and steel are all manufactured (melted, fired or smelted). Granite is a natural rock quarried from the ground.

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

Why other options are wrong:

- (A) Glass is made by melting sand; (B) Brick is fired clay; (D) Steel is smelted from iron ore.

Final Answer: The natural material is Granite $\Rightarrow$ C

Answer: (C) Go Back to Q32

Q33.

Solution

Concept — Reading a monument's silhouette: A large 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 white-marble garden-tomb form is the **Taj Mahal**, the Mughal mausoleum at Agra.

Why other options are wrong:

- (C) Humayun's Tomb has a different dome and no four corner minarets like these; (B) 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 $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q33

Q34.

Solution

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

Step 1 — Recall its city: The Qutub Minar, the tallest brick minaret in the world, stands at Mehrauli in **Delhi**.

Why other options are wrong:

- (A) Agra has the Taj Mahal; (C) Hyderabad has the Charminar; (D) Lucknow has the Bara Imambara.

Final Answer: The Qutub Minar stands in Delhi $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q34

Q35.

Solution

Concept — Indian temple styles by tower shape: The crowning tower distinguishes the two main styles.

Step 1 — Match the feature: A stepped, pyramid-like tower (*vimana*) that shrinks in horizontal tiers over the sanctum is the signature of the **Dravidian (South Indian)** style, as at Thanjavur and Madurai.

Why other options are wrong:

- (A) Nagara temples have a curved, beehive-like shikhara, not stepped tiers; (B) Gothic is European; (D) Indo-Saracenic is a colonial-era hybrid, not a tower type.

Final Answer: A stepped, tiered temple tower is Dravidian $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q35

Q36.

Solution

Concept — Identifying a landmark facade: A tall, honeycomb-like screen pierced by hundreds of small latticed windows (jharokhas) is the **Hawa Mahal** ("Palace of Winds").

Step 1 — Recall its country: The Hawa Mahal stands in Jaipur, Rajasthan, which is in **India**.

Why other options are wrong:

- (A) Pakistan, (C) Iran and (D) Bangladesh do not house the Hawa Mahal, which is in India.

Final Answer: The Hawa Mahal is in India $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q36

Q37.

Solution

Concept — Identifying a modern landmark: A building shaped like a half-open lotus with twenty-seven free-standing marble petals is the **Lotus Temple** (Baha'i House of Worship) in New Delhi.

Step 1 — Recall the architect: The Lotus Temple was designed by the Iranian-Canadian architect **Fariborz Sahba** and completed in 1986.

Why other options are wrong:

- (A) Charles Correa and (D) B. V. Doshi are noted Indian architects but did not design it; (B) Edwin Lutyens worked decades earlier on New Delhi's layout.

Final Answer: The Lotus Temple was designed by Fariborz Sahba $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) 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: The **Farnsworth House** (1951, Plano, Illinois) was designed by **Mies van der Rohe** as a single glass-walled room raised on steel stilts above a floodplain; it is a classic of minimalist modern design.

Why other options are wrong:

- (A) Fallingwater and (B) Robie House are by Frank Lloyd Wright; (C) Villa Savoye is by Le Corbusier.

Final Answer: The glass house on stilts is the Farnsworth House $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q38

Q39.

Solution

Concept — Dravidian temple parts: South Indian temples are entered through monumental gateway towers in the enclosing wall.

Step 1 — Name the part: The tall, ornate, pyramidal gateway tower over the entrance of a Dravidian temple is the **Gopuram**, as seen at Madurai and Srirangam.

Why other options are wrong:

- (A) Shikhara is the curved North Indian tower; (C) Amalaka is the ribbed disc crowning a shikhara; (D) Stupa is a Buddhist dome.

Final Answer: The Dravidian gateway tower is the gopuram $\Rightarrow$ B

Answer: (B) Go Back to Q39

Q40.

Solution

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

Step 1 — Define the term: A **cantilever** is a beam or slab fixed at one end only and projecting out beyond its support, as in a balcony or a diving board.

Why other options are wrong:

- (A) Lintel spans an opening and is supported at both ends; (B) Plinth is the base of a wall; (D) Column carries axial load vertically.

Final Answer: A member fixed at one end only is a cantilever $\Rightarrow$ C

Answer: (C) 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 without steel reinforcement, used for levelling courses and bases below footings.

Why other options are wrong:

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

Final Answer: PCC = Plain Cement Concrete $\Rightarrow$ B

Answer: (B) Go Back to Q41

Q42.

Solution

Concept — Major prizes by field: Certain prizes honour a specific area of design.

Step 1 — Identify the field: The **Aga Khan Award for Architecture**, established in 1977, recognises outstanding building and planning projects that serve communities in the Muslim world.

Why other options are wrong:

- (B) Painting, (C) Music and (D) Film have their own honours, not this architecture award.

Final Answer: The Aga Khan Award is for architecture serving Muslim communities $\Rightarrow$ A

Answer: (A) Go Back to Q42

Q43.

Solution

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

$$\frac{18}{100} \times 400 = 72.$$

Final Answer: $\Rightarrow$ 72

Answer: (72) Go Back to Q43

Q44.

Solution

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

$$16 \times 8 = 128 \text{ cm}^2.$$

Final Answer: $\Rightarrow \boxed{128}$

Answer: (128) 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:**

$$\frac{5}{8} \times 112 = 70.$$

Final Answer: $\Rightarrow \boxed{70}$

Answer: (70) Go Back to Q45

Q46.

Solution

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

$$8000 \times (1.1)^2 = 8000 \times 1.21 = 9680.$$

Final Answer: $\Rightarrow \boxed{9680}$

Answer: (9680) Go Back to Q46

Q47.

Solution

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

$$\frac{220}{4} = 55 \text{ km/h}.$$

Final Answer: $\Rightarrow \boxed{55}$

Answer: (55) Go Back to Q47

Q48.

Solution

Concept — Number series: each term is a multiple of 4 ($4 \times 1,\ 4 \times 2, \ldots$). **Step 1 — Next term:**

$$4 \times 6 = 24.$$

Final Answer: $\Rightarrow \boxed{24}$

Answer: (24) Go Back to Q48

Q49.

Solution

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

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

Final Answer: $\Rightarrow \boxed{56}$

Answer: (56) Go Back to Q49

Q50.

Solution

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

$$180 - 60 - 60 = 60.$$

Final Answer: $\Rightarrow \boxed{60}$

Answer: (60) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	A	4	C	5	D
6	D	7	A	8	C	9	D	10	C
11	D	12	D	13	C	14	B	15	A
16	D	17	C	18	C	19	A	20	B
21	D	22	B	23	B	24	A	25	C
26	B	27	D	28	B	29	D	30	D
31	A	32	C	33	A	34	B	35	C
36	B	37	C	38	D	39	B	40	C
41	B	42	A	43	72	44	128	45	70
46	9680	47	55	48	24	49	56	50	60