NATA Aptitude Test (Part B)

Sample Paper – 7

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: $1,\ 3,\ 6,\ 10,\ 15,\ ?$

(A) 18

(B) 20

(C) 21

(D) 24

Q2. In a timber depot stocking 6000 planks, 40% are teak and 25% are sal; the rest are pine. How many pine planks are there?

(A) 1800

(B) 2100

(C) 2400

(D) 2000

Q3. Two lengths of timber are cut in the ratio $4 : 5$. If their total length is 108 cm, what is the longer length?

(A) 48 cm

(B) 60 cm

(C) 54 cm

(D) 72 cm

Q4. The average weight of six wooden boards is 25 kg. If one board weighing 15 kg is taken away, what is the average weight of the remaining five boards?

(A) 24 kg

(B) 26 kg

(C) 27 kg

(D) 28 kg

Q5. A delivery van carrying furniture travels 200 km in 4 hours. At the same speed, how far will it travel in 7 hours?

(A) 300 km

(B) 350 km

(C) 320 km

(D) 400 km

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

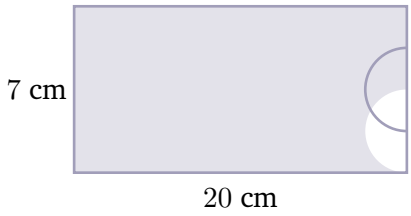
(A) Rs. 4000

(B) Rs. 4200

(C) Rs. 4400

(D) Rs. 2200

Q7. In the figure below, a rectangular workbench top of length 20 cm and breadth 7 cm has a semicircle cut 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) 98 cm^2

(D) 130.50 cm^2

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

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

(B) $\frac{13}{12}$

(C) $\frac{5}{12}$

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

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

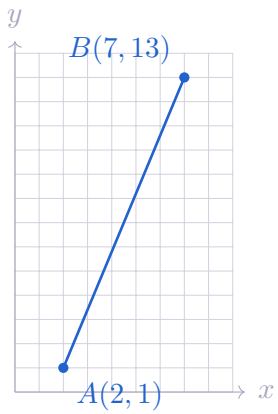
(A) -4 and -5

(B) 2 and 10

(C) 4 and 5

(D) 1 and 20

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



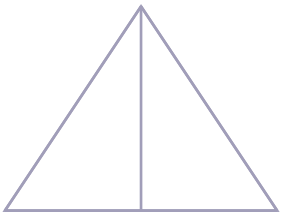
(A) 12

(B) 13

(C) 15

(D) 17

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



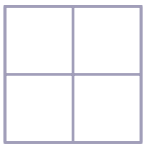
(A) 3

(B) 4

(C) 5

(D) 6

Q12. How many squares (of all sizes) are there in the 2×2 grid shown below?



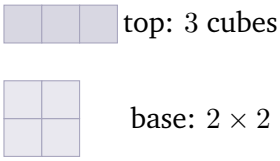
(A) 4

(B) 5

(C) 6

(D) 8

Q13. The solid below is built from identical wooden unit cubes: a 2×2 base with a row of 3 cubes on top. How many unit cubes are used in all?



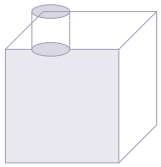
(A) 5

(B) 6

(C) 7

(D) 9

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



(A) Two squares side by side

(B) A circle centred inside a square

(C) A single plain square

(D) A small square inside a larger square

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

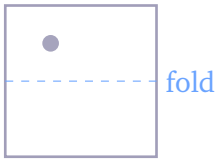
(A) The foot points left and the vertical stroke is on the right

(B) The foot still points right

(C) The letter looks identical to the original

(D) The letter turns upside down

Q16. The square sheet below is folded once along its horizontal centre line, then a single round hole is punched. When the paper is unfolded, how are the holes arranged?



(A) One hole at the centre

(B) Two holes side by side (left and right)

(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?

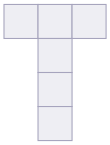
(A) 90° anticlockwise

(B) 45° clockwise

(C) 45° anticlockwise

(D) 90° clockwise

Q18. Which of the flat figures described below folds up into a closed cube? (A cube net has exactly six squares arranged so no two overlap when folded.) The "T" net is shown.



(A) A single row of six squares bent into an L of four

(B) A 3×2 block of six squares

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

(D) Five squares only

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 **CHAIR** is written as **HCIAR**, how is **PLANK** written in the same code?

(A) LPANK

(B) LPNAK

(C) PLNAK

(D) LPAKN

Q21. Pointing to a man, Meera said, "He is the son of the only daughter of my mother." How is the man related to Meera?

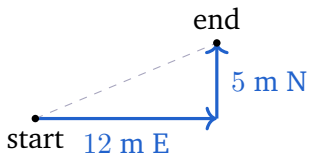
(A) Brother

(B) Son

(C) Nephew

(D) Cousin

Q22. A carpenter 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) 15 m, East

Q23. Statements: (i) All carpenters are craftsmen. (ii) All craftsmen are skilled. Which conclusion definitely follows?

(A) All carpenters are skilled

(B) All skilled people are carpenters

(C) Some craftsmen are not skilled

(D) No carpenter is skilled

Q24. Four apprentices W, X, Y and Z sit around a square workbench 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) Y

(B) W

(C) Z

(D) Cannot be determined

Q25. What is the angle between the hour hand and the minute hand of a clock at exactly 8:40?

(A) 20°

(B) 30°

(C) 40°

(D) 25°

Q26. Find the odd one out: $16,\ 81,\ 100,\ 625,\ 343$.

(A) 81

(B) 343

(C) 625

(D) 100

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

(A) Fragile

(B) Sturdy

(C) Hollow

(D) Faint

Q28. Complete the analogy: **Carpenter** is to **Wood** as **Mason** is to _____.

(A) Hammer

(B) Wall

(C) Brick

(D) House

Q29. Choose the word that best completes the sentence: "The handcrafted cabinet was admired for its _____ joinery, which fitted together without a single nail."

(A) clumsy

(B) precise

(C) loose

(D) rough

Q30. In the standard artists' colour wheel, mixing the two primary colours blue and yellow produces which secondary colour?

(A) Orange

(B) Violet

(C) Green

(D) Brown

Q31. In a composition, the single element that first draws the eye and around which the design is organised is called the:

(A) Focal point (centre of interest)

(B) Margin

(C) Background

(D) Texture

Q32. Three of the following are timber (wood) products and one is not made from wood. Pick the **odd one out**.

(A) Plywood

(B) Veneer

(C) Particle board

(D) Terracotta

Q33. The columned temple shown below, crowned by a triangular pediment, is a masterpiece of ancient classical architecture. In which country does it stand?

(A) Italy

(B) Greece

(C) Egypt

(D) Turkey

Q34. The building shown below combines a columned porch (portico) in front with a great hemispherical dome behind. In which city does this ancient temple stand?

(A) Athens

(B) Florence

(C) Rome

(D) Paris

Q35. The ancient royal tombs shown below were faced and built chiefly from blocks of which stone?

(A) White marble

(B) Limestone

(C) Red sandstone

(D) Black basalt

Q36. The slender tower shown below, narrowing in stepped setbacks as it rises, is currently the tallest building in the world. In which city does it stand?

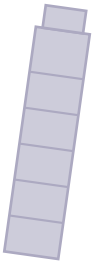
(A) Shanghai

(B) Kuala Lumpur

(C) New York

(D) Dubai

Q37. The cylindrical, tilting tower shown below, with its many tiers of arched galleries, was built to serve which function for the cathedral beside it?



(A) A lighthouse for ships

(B) A defensive watchtower

(C) A free-standing bell tower (campanile)

(D) A grain-storage silo

Q38. Which celebrated white concrete museum in New York, with its spiralling ramp interior, was designed by Frank Lloyd Wright?

(A) The Louvre

(B) The Guggenheim Museum

(C) The Tate Modern

(D) The Pompidou Centre

Q39. A South Indian temple with a tall pyramidal gateway tower over its entrance, called a *gopuram*, belongs to which architectural style?

(A) Nagara

(B) Vesara

(C) Dravidian

(D) Gothic

Q40. A vertical post or pillar that carries mainly a compressive (downward) load and transfers it to the foundation is called a:

(A) Beam

(B) Column

(C) Lintel

(D) Truss

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

(A) Pre-Cast Carbon

(B) Polished Concrete Coating

(C) Plain Cement Concrete

(D) Painted Ceramic Cladding

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

(A) Architecture

(B) Cinema

(C) Music

(D) Medicine

Part B2: Numerical Answer Questions

Q43. What is 38% of 400? *(Numerical Answer Type: write your answer as a number.)*

Q44. A rectangular sheet measures 20 cm by 8 cm. Find its area (in square cm). *(Numerical Answer Type: write your answer as a number.)*

Q45. An amount of Rs. 144 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. 12000 for 2 years at 10% per annum, compounded annually. *(Numerical Answer Type: write your answer as a number.)*

Q47. A vehicle covers 300 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: $8,\ 16,\ 24,\ 32,\ 40,\ ?$ *(Numerical Answer Type: write your answer as a number.)*

Q49. Find the average of the five numbers $68,\ 70,\ 72,\ 74,\ 76$. *(Numerical Answer Type: write your answer as a number.)*

Q50. Two angles of a triangle measure 60° and 75°. Find the third angle (in degrees). *(Numerical Answer Type: write your answer as a number.)*

Detailed Solutions

Q1.

Solution

Concept — Triangular numbers: The nth triangular number is the sum $1 + 2 + \cdots + n$; each term adds the next whole number.

Step 1 — Find the differences: $3 - 1 = 2$, $6 - 3 = 3$, $10 - 6 = 4$, $15 - 10 = 5$. The differences are $2, 3, 4, 5$, so the next difference is 6.

Step 2 — Add it on:

$$15 + 6 = 21.$$

Why other options are wrong:

- (A) 18, (B) 20, (D) 24: none matches the required gap of $+6$.

Final Answer: The next triangular number is $21 \Rightarrow$ C

Answer: (C) Go Back to Q1

Q2.

Solution

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

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

Step 2 — Compute the number:

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

Why other options are wrong:

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

Final Answer: There are 2100 pine planks $\Rightarrow$ B

Answer: (B) 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 $= 4 + 5 = 9$, so one part $= \frac{108}{9} = 12$.

Step 2 — Longer length: The longer piece has 5 parts:

$$5 \times 12 = 60 \text{ cm}.$$

Why other options are wrong:

- (A) 48 cm is the shorter piece (4 parts); (C) 54 cm is half of 108; (D) 72 cm does not fit the $4 : 5$ split.

Final Answer: The longer length is 60 cm $\Rightarrow$ 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: $6 \times 25 = 150$ kg.

Step 2 — New average: Remove 15 kg: new total $= 150 - 15 = 135$ over 5 boards, so

$$\text{average} = \frac{135}{5} = 27 \text{ kg}.$$

Why other options are wrong:

- (A) 24, (B) 26, (D) 28: none equals $135 \div 5$.

Final Answer: The new average is 27 kg $\Rightarrow$ 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 $= \frac{200}{4} = 50$ km/h.

Step 2 — Distance in 7 h:

$$50 \times 7 = 350 \text{ km}.$$

Why other options are wrong:

- (A) 300 km is 6 h; (C) 320 km and (D) 400 km use the wrong speed or time.

Final Answer: The van travels 350 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:

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

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

Why other options are wrong:

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

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

Answer: (B) 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) 98 uses the wrong rectangle; (D) 130.50 uses 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 opposite side by Pythagoras, then form $\tan\theta = \frac{\text{opp}}{\text{adj}}$.

Step 1 — Find the opposite side: With adj $= 12$, hyp $= 13$: opp $= \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5$.

Step 2 — Form the tangent:

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

Why other options are wrong:

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

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 (D) $1, 20$ give product 20 but sum $\neq 9$.

Final Answer: The roots are 4 and $5 \Rightarrow$ C

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

Final Answer: The distance $AB = 13 \Rightarrow$ B

Answer: (B) Go Back to Q10

Q11.

Solution

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

Step 1 — Read the figure: A large triangle has its apex joined to the midpoint of the base by a vertical line (a median), splitting it into a left and a right triangle.

Step 2 — Tally: Two small triangles (left and right) plus the whole big triangle give a total of 3.

Why other options are wrong:

- (B) 4, (C) 5 and (D) 6 over-count; there are no horizontal cross-lines to make more.

Final Answer: There are 3 triangles $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) 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 $n = 2$:

$$1^2 + 2^2 = 1 + 4 = 5.$$

Step 2 — Interpret: 4 unit squares plus 1 of size 2×2, giving 5 in total.

Why other options are wrong:

- (A) 4 counts only unit squares; (C) 6 and (D) 8 over-count.

Final Answer: There are 5 squares $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q12

Q13.

Solution

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

Step 1 — Base layer: A 2×2 arrangement uses $2 \times 2 = 4$ cubes.

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

Step 3 — Total:

$$4 + 3 = 7.$$

Why other options are wrong:

- (A) 5 and (B) 6 undercount; (D) 9 adds too many.

Final Answer: 7 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 cube's top face is a large square; the cylinder centred on it appears as a circle inside that square outline.

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

Why other options are wrong:

- (A) two side-by-side squares is a front-style view; (C) a plain square ignores the cylinder; (D) a small square is wrong because a cylinder reads as a circle.

Final Answer: A circle centred in a larger 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 its foot pointing right. A mirror on the right reverses left-right, so the spine moves to the right and the foot points left.

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

Why other options are wrong:

- (B) foot still right ignores the flip; (C) "identical" is false; (D) upside-down would need a horizontal mirror.

Final Answer: Foot points 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 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 $\Rightarrow$ $\boxed{\text{D}}$

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 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) $90°$ anticlockwise turns the wrong way and too far; (C) $45°$ anticlockwise is the wrong direction; (D) $90°$ clockwise skips a step.

Final Answer: The arrow turns $45°$ clockwise 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. Besides the cross, several other shapes such as the "T" net also fold into a cube.

Step 1 — Test the T: A column of four squares forms the four sides; the two extra squares on the top row become the top and one face. Folding closes the box with no overlap, so it is a valid net.

Step 2 — Reject the others: A valid net needs exactly six squares arranged so folding closes the cube.

Why other options are wrong:

- (A) an L of four squares is too few; (B) a 3×2 solid block overlaps when folded; (D) five squares cannot close all six faces.

Final Answer: The T-shaped net 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: $B = 2, D = 4, G = 7, K = 11, P = 16$. 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 swapping pairs: Compare the code with the original to spot the rearrangement.

Step 1 — Find the rule: CHAIR $\rightarrow$ HCIAR: the first two letters swap ($CH \rightarrow HC$), the next two swap ($AI \rightarrow IA$), and the last letter (R) stays. So each adjacent pair of letters is swapped, leaving any leftover last letter unchanged.

Step 2 — Apply to PLANK: Swap $PL \rightarrow LP$, swap $AN \rightarrow NA$, keep K, giving

LPNAK.

Why other options are wrong:

- (A) LPANK swaps only the first pair; (C) PLNAK forgets the first swap; (D) LPAKN moves the wrong letters.

Final Answer: PLANK is coded as LPNAK $\Rightarrow$ 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 Meera's mother is Meera herself.

Step 2 — "The son of that daughter": The son of Meera is Meera's son.

Why other options are wrong:

- (A) Brother would be the mother's son, not the daughter's; (C) Nephew and (D) Cousin are the wrong relations.

Final Answer: The man is Meera's son $\Rightarrow$ B

Answer: (B) 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) 15 m is unrelated.

Final Answer: He is 13 m away, to the North-East $\Rightarrow$ 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 carpenters $\subseteq$ craftsmen $\subseteq$ skilled, so every carpenter is skilled.

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

Why other options are wrong:

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

Final Answer: All carpenters are skilled $\Rightarrow$ $\boxed{\text{A}}$

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 W and X: W is immediately right of X. Facing the centre, going anticlockwise the order around is $\ldots X, W \ldots$ so that W is on X's right.

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

Why other options are wrong:

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

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

Answer: (C) Go Back to Q24

Q25.

Solution

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

Step 1 — Substitute $H = 8$, $M = 40$:

$$\theta = |30 \times 8 - 5.5 \times 40| = |240 - 220| = 20^\circ.$$

Step 2 — Sense-check: At $8{:}40$ the minute hand is at 8 and the hour hand has moved two-thirds past 8 toward 9, leaving a small 20° gap.

Why other options are wrong:

- (B) 30° ignores the hour-hand drift; (C) 40° and (D) 25° misapply the formula.

Final Answer: The angle is $20^\circ \Rightarrow \boxed{\text{A}}$

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 $343 = 7^3$ is a perfect *cube*, not a square.

Step 2 — Identify the misfit: 343 breaks the "square" pattern.

Why other options are wrong:

- (A) 81, (C) 625, (D) 100 are all genuine squares.

Final Answer: The odd one out is $343 \Rightarrow \boxed{\text{B}}$

Answer: (B) 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 frame) means strongly built, so its synonym is **Sturdy**.

Why other options are wrong:

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

Final Answer: ROBUST means Sturdy $\Rightarrow$ 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 carpenter works with wood; "worker $\rightarrow$ main material."

Step 2 — Apply it: A mason works with **Brick** (and stone), matching "worker $\rightarrow$ main material."

Why other options are wrong:

- (A) Hammer is a tool, not a material; (B) Wall and (D) House are products, not the raw material the mason works with.

Final Answer: Mason is to Brick $\Rightarrow$ C

Answer: (C) Go Back to Q28

Q29.

Solution

Concept — Sentence completion: Pick the word that fits the admiring tone and the idea of perfectly fitted joints.

Step 1 — Read the tone: A cabinet "admired" for joinery that fits without a nail needs a positive word about accuracy.

Step 2 — Best fit: "Precise" (exact, accurate) fits joinery that fits together perfectly.

Why other options are wrong:

- (A) clumsy, (C) loose and (D) rough are all negative and clash with "admired."

Final Answer: The joinery was admired as "precise" $\Rightarrow$ B

Answer: (B) 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 blue and yellow: Blue + yellow gives **Green**.

Step 2 — Confirm: The three artists' secondaries are orange (red+yellow), green (blue+yellow) and violet (red+blue).

Why other options are wrong:

- (A) Orange comes from red+yellow; (B) Violet from red+blue; (D) Brown is a tertiary/neutral mix, not a clean secondary.

Final Answer: Blue and yellow make Green $\Rightarrow$ C

Answer: (C) Go Back to Q30

Q31.

Solution

Concept — Emphasis in composition: Emphasis is created by a dominant element that catches the eye first; this is the focal point.

Step 1 — Match the description: The element that first draws the eye and organises the rest of the design is the **focal point** (centre of interest).

Why other options are wrong:

- (B) Margin is the blank edge; (C) Background sits behind the subject; (D) Texture is a surface quality, not a focus.

Final Answer: The eye-catching element is the focal point $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q31

Q32.

Solution

Concept — Wood-based vs other materials: Engineered wood products are all made from timber; clay products are not.

Step 1 — Classify: Plywood, veneer and particle board are all made from wood. Terracotta is baked clay (a ceramic), not wood.

Step 2 — Odd one out: Terracotta is the non-wood material.

Why other options are wrong:

- (A) Plywood is glued wood plies; (B) Veneer is a thin wood sheet; (C) Particle board is bonded wood chips.

Final Answer: The non-wood material is Terracotta $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q32

Q33.

Solution

Concept — Reading a classical temple's silhouette: A row of fluted columns on a stepped base, carrying a horizontal entablature and topped by a low triangular pediment, is the signature of an ancient Greek temple such as the Parthenon.

Step 1 — Place it: The Parthenon and similar Doric temples stand on the Acropolis in Athens, so the country is **Greece**.

Why other options are wrong:

- (A) Italy's classical temples are Roman, often with arches and domes; (C) Egypt built pyramids and hypostyle halls; (D) Turkey is known for Byzantine domes.

Final Answer: The Greek temple stands in Greece $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q33

Q34.

Solution

Concept — A portico plus a dome: A columned porch in front of a great hemispherical dome identifies the **Pantheon**, the Roman temple to all the gods.

Step 1 — Recall the city: The Pantheon, rebuilt by Hadrian around 126 CE, stands in **Rome**, Italy.

Why other options are wrong:

- (A) Athens has the Parthenon; (B) Florence has Brunelleschi's cathedral dome; (D) Paris has the Panthéon, a later building inspired by Rome's.

Final Answer: The Pantheon stands in Rome $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q34

Q35.

Solution

Concept — Material of the pyramids: The triangular royal tombs shown are the Egyptian pyramids at Giza.

Step 1 — Recall the material: Their core and outer casing were built from huge blocks of **limestone** (with some granite inside), quarried locally along the Nile.

Why other options are wrong:

- (A) White marble is Greek/Mughal, not Egyptian pyramids; (C) Red sandstone is used in Indian forts; (D) Black basalt was used only for some floors, not the bulk.

Final Answer: The pyramids are built chiefly of limestone $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q35

Q36.

Solution

Concept — The tallest building: A slender tower stepping inward in setbacks as it rises is the **Burj Khalifa**, currently the tallest building in the world at about 828 m.

Step 1 — Recall the city: The Burj Khalifa, opened in 2010, stands in **Dubai**, in the United Arab Emirates.

Why other options are wrong:

- (A) Shanghai has the Shanghai Tower; (B) Kuala Lumpur has the Petronas Towers; (C) New York has One World Trade Center, all shorter.

Final Answer: The Burj Khalifa stands in Dubai $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q36

Q37.

Solution

Concept — A tilting tiered tower: A cylindrical, tilting tower with stacked tiers of arched galleries beside a cathedral is the **Leaning Tower of Pisa**.

Step 1 — Recall its function: It was built as the **campanile**, the free-standing bell tower of Pisa Cathedral, and began to tilt because of soft ground.

Why other options are wrong:

- (A) it is not a lighthouse; (B) not a watchtower; (D) not a grain silo, as it serves the cathedral as a bell tower.

Final Answer: It is a free-standing bell tower (campanile) $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q37

Q38.

Solution

Concept — Architects and their works: A few museums are landmarks tied to one architect.

Step 1 — Recall the building: The **Solomon R. Guggenheim Museum** (1959) in New York, with its white spiral ramp winding up around a central atrium, was designed by **Frank Lloyd Wright**.

Why other options are wrong:

- (A) the Louvre is in Paris (its glass pyramid is by I. M. Pei); (C) the Tate Modern is in London; (D) the Pompidou Centre is in Paris, by Piano and Rogers.

Final Answer: The spiral New York museum is the Guggenheim $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) 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 South Indian temple with a tall pyramidal gateway tower called a *gopuram* (Madurai, Thanjavur) belongs to the **Dravidian** style.

Why other options are wrong:

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

Final Answer: A gopuram-fronted South Indian temple is Dravidian $\Rightarrow$ C

Answer: (C) Go Back to Q39

Q40.

Solution

Concept — Structural terms: Members are named by their orientation and the kind of load they carry.

Step 1 — Define the term: A **column** is a vertical member that carries mainly a compressive (downward) load and transfers it down to the foundation.

Why other options are wrong:

- (A) Beam is horizontal and carries bending; (C) Lintel spans an opening; (D) Truss is a triangulated frame.

Final Answer: A vertical load-bearing post is a column $\Rightarrow$ B

Answer: (B) Go Back to Q40

Q41.

Solution

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

Step 1 — Expand PCC: PCC stands for **Plain Cement Concrete** – concrete without steel reinforcement, used as a levelling or bedding layer below footings and floors.

Why other options are wrong:

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

Final Answer: PCC = Plain Cement Concrete $\Rightarrow \boxed{\text{C}}$

Answer: (C) 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 **Aga Khan Award for Architecture**, established in 1977 and given every three years, honours building projects that improve the quality of life in societies with a significant Muslim presence.

Why other options are wrong:

- (B) Cinema, (C) Music and (D) Medicine have their own honours, not the Aga Khan Award for Architecture.

Final Answer: The Aga Khan Award is for architecture $\Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q42

Q43.

Solution

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

$$\frac{38}{100} \times 400 = 152.$$

Final Answer: $\Rightarrow \boxed{152}$

Answer: (152) Go Back to Q43

Q44.

Solution

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

$$20 \times 8 = 160 \text{ cm}^2.$$

Final Answer: $\Rightarrow \boxed{160}$

Answer: (160) 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:**

$$\frac{5}{8} \times 144 = 90.$$

Final Answer: $\Rightarrow \boxed{90}$

Answer: (90) Go Back to Q45

Q46.

Solution

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

$$12000 \times (1.1)^2 = 12000 \times 1.21 = 14520.$$

Final Answer: $\Rightarrow \boxed{14520}$

Answer: (14520) Go Back to Q46

Q47.

Solution

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

$$\frac{300}{4} = 75 \text{ km/h}.$$

Final Answer: $\Rightarrow \boxed{75}$

Answer: (75) Go Back to Q47

Q48.

Solution

Concept — Number series: each term is a multiple of 8 $(8 \times 1,\ 8 \times 2, \ldots)$. **Step 1 — Next term:**

$$8 \times 6 = 48.$$

Final Answer: $\Rightarrow \boxed{48}$

Answer: (48) Go Back to Q48

Q49.

Solution

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

$$\frac{360}{5} = 72.$$

Final Answer: $\Rightarrow \boxed{72}$

Answer: (72) Go Back to Q49

Q50.

Solution

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

$$180 - 60 - 75 = 45.$$

Final Answer: $\Rightarrow \boxed{45}$

Answer: (45) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	B	4	C	5	B
6	B	7	A	8	C	9	C	10	B
11	A	12	B	13	C	14	B	15	A
16	D	17	B	18	C	19	A	20	B
21	B	22	C	23	A	24	C	25	A
26	B	27	B	28	C	29	B	30	C
31	A	32	D	33	B	34	C	35	B
36	D	37	C	38	B	39	C	40	B
41	C	42	A	43	152	44	160	45	90
46	14520	47	75	48	48	49	72	50	45