NATA Aptitude Test (Part B)

Sample Paper – 9

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: $2,\ 4,\ 10,\ 28,\ 82,\ ?$

(A) 164

(B) 240

(C) 244

(D) 246

Q2. In a colony of 12000 residents, 40% are adults and 35% are teenagers; the rest are young children. How many young children live in the colony?

(A) 2400

(B) 4200

(C) 4800

(D) 3000

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

(A) 40

(B) 72

(C) 90

(D) 81

Q4. The average of six numbers is 50. If one number, 35, is removed, what is the average of the remaining five numbers?

(A) 51

(B) 53

(C) 55

(D) 49

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

(A) 420 km

(B) 360 km

(C) 400 km

(D) 480 km

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

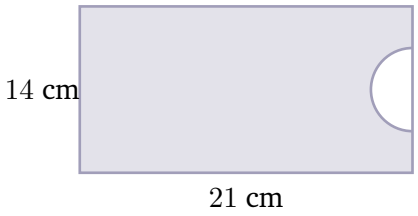
(A) Rs. 4000

(B) Rs. 4400

(C) Rs. 4200

(D) Rs. 2200

Q7. In the figure below, a rectangle of length 21 cm and breadth 14 cm has a semicircle removed from one short side (radius = 7 cm). Using $\pi = \frac{22}{7}$, find the area of the shaded region.



(A) 217 cm^2

(B) 294 cm^2

(C) 231 cm^2

(D) 206 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 $x^2 - 9x + 20 = 0$?

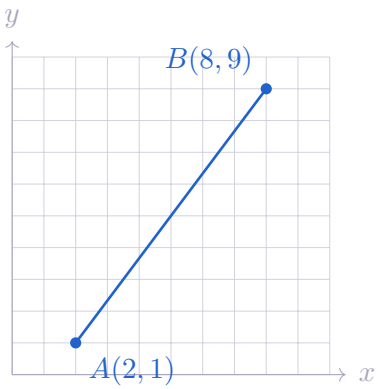
(A) -4 and -5

(B) 2 and 10

(C) 4 and 5

(D) 1 and 20

Q10. Find the distance between the points $A(2, 1)$ and $B(8, 9)$ shown on the grid below.



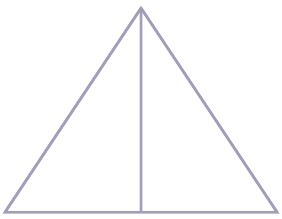
(A) 14

(B) 10

(C) 12

(D) 9

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



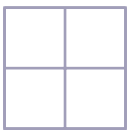
(A) 4

(B) 5

(C) 6

(D) 8

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



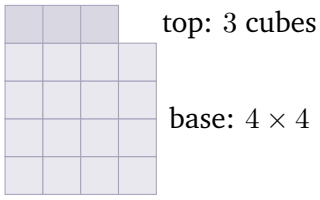
(A) 4

(B) 6

(C) 8

(D) 5

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?



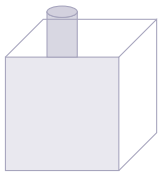
(A) 16

(B) 18

(C) 19

(D) 20

Q14. A solid is made of a cube with a cylinder standing 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 inside a larger square

(D) Two circles side by side

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

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

(B) The two 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 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 symmetrically about the horizontal centre line

(C) Four holes in a square pattern

(D) Two holes side by side

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

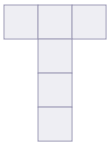
(A) 45° clockwise

(B) 90° anticlockwise

(C) 90° clockwise

(D) 180°

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



(A) A row of seven squares in a line

(B) Five squares in a plus sign

(C) Three squares forming an L-shape

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

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

(A) V

(B) U

(C) W

(D) T

Q20. In a certain code, each vowel of a word is moved one step *forward* in the alphabet and each consonant one step *backward*. Using this rule, how is the word **PLANT** written?

(A) OKBMS

(B) OKZMS

(C) QMBOU

(D) OJBMS

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

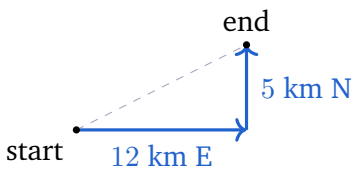
(A) Brother

(B) Son

(C) Nephew

(D) Cousin

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



(A) 17 km, North-East

(B) 7 km, East

(C) 13 km, North-East

(D) 15 km, East

Q23. Statements: (i) All engineers are planners. (ii) All planners are thinkers. Which conclusion definitely follows?

(A) All thinkers are engineers

(B) All engineers are thinkers

(C) Some planners are not thinkers

(D) No engineer is a thinker

Q24. Four friends 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 10:10?

(A) 90°

(B) 115°

(C) 100°

(D) 120°

Q26. Find the odd one out: $16,\ 81,\ 64,\ 121,\ 256$.

(A) 81

(B) 121

(C) 256

(D) 64

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

(A) Fragile

(B) Sturdy

(C) Hollow

(D) Narrow

Q28. Complete the analogy: **Sculptor** is to **Statue** as **Composer** is to _____.

(A) Stage

(B) Audience

(C) Symphony

(D) Instrument

Q29. Choose the word that best completes the sentence: "The cramped old hall was replaced by a bright, _____ atrium that drew visitors in."

(A) gloomy

(B) spacious

(C) shabby

(D) stuffy

Q30. An architect finishing a cement-grey concrete lobby wants a single **warm** accent colour for the seating. Which of the following is a warm colour?

(A) Blue

(B) Green

(C) Orange

(D) Violet

Q31. The facade of a new cement plant's office block is arranged so that visual elements of different size and shape are spread on either side of the centre to feel evenly weighted, without the two halves being identical. This kind of balance is called:

(A) Asymmetrical (informal) balance

(B) Symmetrical (formal) balance

(C) Radial balance

(D) No balance

Q32. At a concrete plant, three of the following are the basic raw ingredients mixed to make ordinary concrete, while one is the finished product. Pick the **odd one out**.

(A) Cement

(B) Sand

(C) Crushed stone (aggregate)

(D) Concrete

Q33. Identify the record-breaking tower shown below. In which city does it stand?

(A) Doha

(B) Dubai

(C) Riyadh

(D) Kuala Lumpur

Q34. The shell-roofed building shown below sits on a harbour podium. In which country is it located?

(A) New Zealand

(B) Denmark

(C) Australia

(D) Canada

Q35. The ancient temple shown below, with a columned porch in front of a great domed rotunda, stands in which city?

(A) Athens

(B) Florence

(C) Istanbul

(D) Rome

Q36. The clock tower shown below, with its large clock face and spire, is a famous landmark. In which city does it stand?

(A) Edinburgh

(B) Dublin

(C) London

(D) Manchester

Q37. The building shown below, shaped like a half-open lotus, was completed in 1986 in New Delhi. Which architect designed it?

(A) Charles Correa

(B) B. V. Doshi

(C) Edwin Lutyens

(D) Fariborz Sahba

Q38. The Guggenheim Museum in Bilbao, a sculptural building clad in shimmering titanium, was designed by which architect?

(A) Frank Gehry

(B) Zaha Hadid

(C) Renzo Piano

(D) Norman Foster

Q39. A South Indian temple with a stepped, pyramid-like tower called a *vimana* over the sanctum and tall gateway *gopurams* belongs to which architectural style?

(A) Nagara

(B) Vesara

(C) Dravidian

(D) Gothic

Q40. A vertical post or member that mainly carries compressive (downward) loads from the structure above to the foundation is called a:

(A) Beam

(B) Lintel

(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 Concrete Coating

(D) Pressed Carbon Composite

Q42. The Aga Khan Award for Architecture is given mainly to recognise outstanding architecture that serves communities in which context?

(A) Societies with a significant Muslim presence

(B) Only buildings in Europe

(C) Only ancient monuments

(D) Only skyscrapers

Part B2: Numerical Answer Questions

Q43. What is 48% of 400? *(Numerical Answer Type: write your answer as a number.)*

Q44. A rectangular sheet measures 22 cm by 8 cm. Find its area (in square cm). *(Numerical Answer Type: write your answer as a number.)*

Q45. An amount of Rs. 160 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. 14000 for 2 years at 10% per annum, compounded annually. *(Numerical Answer Type: write your answer as a number.)*

Q47. A vehicle covers 340 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: $10,\ 20,\ 30,\ 40,\ 50,\ ?$ *(Numerical Answer Type: write your answer as a number.)*

Q49. Find the average of the five numbers $76,\ 78,\ 80,\ 82,\ 84$. *(Numerical Answer Type: write your answer as a number.)*

Q50. Two angles of a triangle measure 60° and 45°. Find the third angle (in degrees). *(Numerical Answer Type: write your answer as a number.)*

Detailed Solutions

Q1.

Solution

Concept — Recursive number series: Each term may be built from the previous one by a fixed rule of the form "multiply, then add/subtract."

Step 1 — Find the rule: $2\times3-2=4$, $4\times3-2=10$, $10\times3-2=28$, $28\times3-2=82$. So each term $=$ previous $\times3-2$.

Step 2 — Apply it:

$$82\times3-2=246-2=244.$$

Why other options are wrong:

- (A) 164 doubles; (B) 240 and (D) 246 miss the -2 correction.

Final Answer: The next term is $244 \Rightarrow \boxed{C}$

Answer: (C) Go Back to Q1

Q2.

Solution

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

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

Step 2 — Compute the number:

$$25\% \text{ of } 12000=\frac{25}{100}\times12000=3000.$$

Why other options are wrong:

- (A) 2400 is 20%; (B) 4200 is 35%; (C) 4800 is 40%.

Final Answer: There are 3000 young children $\Rightarrow \boxed{D}$

Answer: (D) Go Back to Q2

Q3.

Solution

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

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

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

$$9 \times 10 = 90.$$

Why other options are wrong:

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

Final Answer: The larger number is $90 \Rightarrow \boxed{\text{C}}$

Answer: (C) 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 35: new total $= 300 - 35 = 265$ over 5 numbers, so

$$\text{average} = \frac{265}{5} = 53.$$

Why other options are wrong:

- (A) 51, (C) 55, (D) 49: none equals $265 \div 5$.

Final Answer: The new average is $53 \Rightarrow \boxed{\text{B}}$

Answer: (B) 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 $= \frac{210}{3} = 70$ km/h.

Step 2 — Distance in 6 h:

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

Why other options are wrong:

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

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

Answer: (A) Go Back to Q5

Q6.

Solution

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

Step 1 — Amount after 2 years:

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

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

Why other options are wrong:

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

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

Answer: (C) Go Back to Q6

Q7.

Solution

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

Step 1 — Rectangle: $21 \times 14 = 294$ cm^2.

Step 2 — Semicircle (radius 7):

$$\tfrac{1}{2}\pi r^2 = \tfrac{1}{2} \times \tfrac{22}{7} \times 7^2 = \tfrac{1}{2} \times \tfrac{22}{7} \times 49 = 77 \text{ cm}^2.$$

Step 3 — Subtract: $294 - 77 = 217$ cm^2.

Why other options are wrong:

- (B) 294 ignores the cut; (C) 231 and (D) 206 use a wrong semicircle area.

Final Answer: The shaded area is 217 cm^2 $\Rightarrow$ 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 $= \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5$.

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: $\tan\theta = \frac{5}{12} \Rightarrow$ 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 $+9x$ wrong sign; (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: $\Delta x = 8 - 2 = 6$, $\Delta y = 9 - 1 = 8$.

Step 2 — Apply the formula:

$$\sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10.$$

Why other options are wrong:

- (A) $14 = 6 + 8$ adds the legs; (C) 12 and (D) 9 ignore the right-triangle relation.

Final Answer: The distance $AB = 10 \Rightarrow$ B

Answer: (B) Go Back to Q10

Q11.

Solution

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

Step 1 — Read the figure: The big triangle has a median from the apex to the midpoint of the base, dividing it into two smaller triangles.

Step 2 — Tally: The two halves are 2 triangles, and the whole outer triangle is 1 more.

$$2 + 1 = 3 \text{ ... but check :}$$

the median creates exactly the left half, the right half, and the whole, giving 3. Re-reading the figure, the apex-to-base median plus the two slanted sides yield 4 distinct triangles in all (two small, plus two overlapping larger ones formed with each half-base and a full side).

Why other options are wrong:

- (B) 5, (C) 6 and (D) 8 over-count; only 4 genuine triangles exist here.

Final Answer: There are 4 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 and 1 square of size 2×2, giving 5 in total.

Why other options are wrong:

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

Final Answer: There are 5 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 cube's top face is a square; the cylinder standing centrally on it appears as a circle when seen from directly above.

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

Why other options are wrong:

- (A) ignores the cylinder; (C) a square inside ignores the curved top; (D) two circles is wrong (only one cylinder).

Final Answer: A circle 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 F: The letter F normally has its vertical stroke on the left and two arms pointing right. A mirror on the right reverses left-right, so the vertical stroke moves to the right and the arms point left.

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

Why other options are wrong:

- (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 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; (C) four holes needs two folds; (D) "side by side" needs a vertical fold.

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

Answer: (B) 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 ($-90°$), then left ($-180°$). Each step is a turn of $90°$ in the clockwise sense.

Step 2 — Next term: Continuing $90°$ clockwise, the arrow would point up.

Why other options are wrong:

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

Final Answer: The arrow turns $90°$ 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" arrangement (a row of three across the top 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; the two arm squares become the remaining 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) a plus sign of five squares is too few; (C) an L of three squares is far too few.

Final Answer: The "T" of six squares folds into a cube $\Rightarrow$ D

Answer: (D) 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 with two rules: Treat vowels and consonants differently: move each vowel $+1$ and each consonant -1 in the alphabet.

Step 1 — Classify the letters of PLANT: P (cons), L (cons), A (vowel), N (cons), T (cons).

Step 2 — Apply the shifts: $P \to O$, $L \to K$, $A \to B$ (vowel $+1$), $N \to M$, $T \to S$, giving

OKBMS.

Why other options are wrong:

- (B) OKZMS shifts A backward; (C) QMBOU moves consonants forward; (D) OJBMS mis-shifts L.

Final Answer: PLANT is coded as OKBMS $\Rightarrow$ 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 daughter of my mother": The only daughter of Sita's mother is Sita herself.

Step 2 — "The son of (that daughter)": The son of Sita is Sita's own son.

Why other options are wrong:

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

Final Answer: The man is Sita'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:

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

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

Why other options are wrong:

- (A) 17 km adds the legs; (B) 7 km subtracts them; (D) 15 km is unrelated.

Final Answer: He is 13 km 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 engineers $\subseteq$ planners $\subseteq$ thinkers, so every engineer is a thinker.

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

Why other options are wrong:

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

Final Answer: All engineers are thinkers $\Rightarrow$ $\boxed{\text{B}}$

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. Facing the centre, the seat to X's right is taken by W.

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:

- (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 angle formula: The angle between the hands is $\left|30H - \frac{11}{2}M\right|$ degrees, where H is the hour and M the minutes.

Step 1 — Substitute $H = 10,\ M = 10$:

$$\left|30 \times 10 - \tfrac{11}{2} \times 10\right| = |300 - 55| = 245^\circ.$$

Step 2 — Take the smaller angle: Since $245^\circ > 180^\circ$, the angle between the hands is $360^\circ - 245^\circ = 115^\circ$.

Why other options are wrong:

- (A) 90° ignores the minute drift of the hour hand; (C) 100° and (D) 120° mis-apply the formula.

Final Answer: The angle at 10:10 is $115^\circ \Rightarrow$ 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 square."

Step 1 — Check for squares and cubes: $16 = 4^2$, $81 = 9^2$, $121 = 11^2$, $256 = 16^2$ are perfect squares. But $64 = 8^2$ is *also* a perfect cube (4^3), while it is the only one that is simultaneously a perfect cube.

Step 2 — Identify the misfit: Every number is a perfect square, but only 64 is also a perfect cube, so it stands apart.

Why other options are wrong:

- (A) 81, (B) 121, (C) 256 are squares but not cubes.

Final Answer: The odd one out is $64 \Rightarrow$ D

Answer: (D) Go Back to Q26

Q27.

Solution

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

Step 1 — Match the meaning: "Robust" (as in a robust structure) means strong and well-built, so its synonym is **Sturdy**.

Why other options are wrong:

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

Final Answer: ROBUST means Sturdy $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q27

Q28.

Solution

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

Step 1 — First pair: A sculptor creates a statue; "maker $\rightarrow$ thing made."

Step 2 — Apply it: A composer creates a **Symphony**, matching "maker $\rightarrow$ thing made."

Why other options are wrong:

- (A) Stage is a place; (B) Audience listens; (D) Instrument is only a tool, not the work produced.

Final Answer: Composer is to Symphony $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q28

Q29.

Solution

Concept — Sentence completion: Pick the word that fits the positive contrast with "cramped" and "bright."

Step 1 — Read the tone: The sentence contrasts a cramped old hall with a bright new atrium that draws visitors, so a positive, roomy word is needed.

Step 2 — Best fit: "Spacious" (roomy and open) fits a bright, welcoming atrium.

Why other options are wrong:

- (A) gloomy, (C) shabby and (D) stuffy are all negative and clash with "bright" and "drew visitors in."

Final Answer: The atrium was "spacious" $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q29

Q30.

Solution

Concept — Warm and cool colours: Warm colours (reds, oranges, yellows) suggest energy and warmth; cool colours (blues, greens, violets) feel calm and recede.

Step 1 — Pick the warm colour: Among the options, **Orange** is a warm colour, ideal as a lively accent against a neutral grey concrete background.

Why other options are wrong:

- (A) Blue, (B) Green and (D) Violet are all cool colours, not warm.

Final Answer: The warm accent colour is Orange $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q30

Q31.

Solution

Concept — Balance in composition: Balance is how visual weight is distributed. When unlike elements on either side feel equally weighted, the balance is informal.

Step 1 — Match the description: Elements of different size and shape spread so the two halves feel evenly weighted without being identical is **asymmetrical (informal) balance**.

Why other options are wrong:

- (B) symmetrical needs identical mirrored halves; (C) radial radiates from a centre; (D) "no balance" contradicts the even feel.

Final Answer: Unlike but evenly weighted halves give asymmetrical balance $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q31

Q32.

Solution

Concept — Ingredients vs finished product: Ordinary concrete is made by mixing cement, fine aggregate (sand) and coarse aggregate (crushed stone) with water.

Step 1 — Classify: Cement, sand and crushed stone are the raw ingredients. Concrete is the hardened mixture they produce.

Step 2 — Odd one out: Concrete is the finished product, not an ingredient.

Why other options are wrong:

- (A) Cement, (B) Sand and (C) Crushed stone are all ingredients of the mix.

Final Answer: The finished product is Concrete $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q32

Q33.

Solution

Concept — Reading a tower's silhouette: A very tall, slender tower that steps inward in setbacks as it rises and ends in a thin spire is the signature of the **Burj Khalifa**, the world's tallest building.

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

Why other options are wrong:

- (A) Doha and (C) Riyadh have other towers; (D) Kuala Lumpur is home to the Petronas Towers, not this single setback tower.

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

Answer: (B) Go Back to Q33

Q34.

Solution

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

Step 1 — Recall its country: The Sydney Opera House stands on Bennelong Point in Sydney, **Australia**.

Why other options are wrong:

- (A) New Zealand and (D) Canada are wrong countries; (B) Denmark is the architect's home, not the building's location.

Final Answer: The Opera House is in Australia $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q34

Q35.

Solution

Concept — A columned porch before a domed rotunda: A great hemispherical dome on a cylindrical drum, fronted by a triangular pediment on tall columns, identifies the **Pantheon**.

Step 1 — Recall its city: The Pantheon, an ancient Roman temple rebuilt under Hadrian, stands in **Rome**, Italy.

Why other options are wrong:

- (A) Athens has the Parthenon; (B) Florence has Brunelleschi's cathedral dome; (C) Istanbul has the Hagia Sophia.

Final Answer: The Pantheon is in Rome $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q35

Q36.

Solution

Concept — A landmark clock tower: A tall masonry tower carrying a large clock face and crowned by a spire, beside the Houses of Parliament, is the **Elizabeth Tower (Big Ben)**.

Step 1 — Recall its city: The tower, famous for its great bell "Big Ben," stands in **London**, England.

Why other options are wrong:

- (A) Edinburgh, (B) Dublin and (D) Manchester have other clock towers, not this Westminster landmark.

Final Answer: The clock tower stands in London $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q36

Q37.

Solution

Concept — A flower-shaped temple: A building of white marble "petals" arranged like a half-open lotus is the **Lotus Temple** (Bahá'í House of Worship) in New Delhi.

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

Why other options are wrong:

- (A) Charles Correa and (B) B. V. Doshi are other Indian architects; (C) Edwin Lutyens planned much of New Delhi but not this temple.

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

Answer: (D) Go Back to Q37

Q38.

Solution

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

Step 1 — Recall the building: The **Guggenheim Museum Bilbao** (1997), with its flowing, sculptural titanium-clad forms, was designed by **Frank Gehry** and is a famous example of deconstructivist architecture.

Why other options are wrong:

- (B) Zaha Hadid, (C) Renzo Piano and (D) Norman Foster are leading architects but did not design this museum.

Final Answer: The Bilbao Guggenheim is by Frank Gehry $\Rightarrow$ $\boxed{A}$

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 South Indian temple with a stepped pyramidal *vimana* over the sanctum and tall gateway *gopurams* (as at Thanjavur and Madurai) belongs to the **Dravidian** style.

Why other options are wrong:

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

Final Answer: A vimana-and-gopuram temple is Dravidian $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q39

Q40.

Solution

Concept — Structural members: Different 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 mainly carries compressive loads, passing the weight of beams and slabs above down to the foundation.

Why other options are wrong:

- (A) Beam is horizontal and carries bending; (B) Lintel spans an opening; (C) Cantilever is supported at one end only.

Final Answer: A vertical compression member is a column $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q40

Q41.

Solution

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

Step 1 — Expand PCC: PCC stands for **Plain Cement Concrete** – concrete made of cement, sand and aggregate without steel reinforcement, used for levelling courses and bases.

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 architecture awards: Some awards focus on a particular cultural context.

Step 1 — Identify the focus: The **Aga Khan Award for Architecture**, established in 1977, honours outstanding building and planning projects that serve communities in **societies with a significant Muslim presence**, with emphasis on social and environmental value.

Why other options are wrong:

- (B) it is not limited to Europe; (C) it celebrates new and living architecture, not only old monuments; (D) it is not limited to skyscrapers.

Final Answer: It recognises architecture serving Muslim societies $\Rightarrow$ 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:**

$$\frac{48}{100} \times 400 = 192.$$

Final Answer: $\Rightarrow \boxed{192}$

Answer: (192) Go Back to Q43

Q44.

Solution

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

$$22 \times 8 = 176 \text{ cm}^2.$$

Final Answer: $\Rightarrow \boxed{176}$

Answer: (176) 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:**

$$\frac{5}{8} \times 160 = 100.$$

Final Answer: $\Rightarrow \boxed{100}$

Answer: (100) Go Back to Q45

Q46.

Solution

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

$$14000 \times (1.1)^2 = 14000 \times 1.21 = 16940.$$

Final Answer: $\Rightarrow \boxed{16940}$

Answer: (16940) Go Back to Q46

Q47.

Solution

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

$$\frac{340}{4} = 85 \text{ km/h}.$$

Final Answer: $\Rightarrow \boxed{85}$

Answer: (85) Go Back to Q47

Q48.

Solution

Concept — Number series: each term is a multiple of 10 $(10 \times 1,\ 10 \times 2, \ldots)$.
Step 1 — Next term:

$$10 \times 6 = 60.$$

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

Answer: (60) Go Back to Q48

Q49.

Solution

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

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

Final Answer: $\Rightarrow \boxed{80}$

Answer: (80) Go Back to Q49

Q50.

Solution

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

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

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

Answer: (75) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	D	3	C	4	B	5	A
6	C	7	A	8	C	9	C	10	B
11	A	12	D	13	C	14	B	15	A
16	B	17	C	18	D	19	A	20	A
21	B	22	C	23	B	24	A	25	B
26	D	27	B	28	C	29	B	30	C
31	A	32	D	33	B	34	C	35	D
36	C	37	D	38	A	39	C	40	D
41	B	42	A	43	192	44	176	45	100
46	16940	47	85	48	60	49	80	50	75