NID DAT Aptitude

Sample Paper – 3

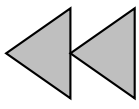
Duration: 45 Minutes **Maximum Marks: 30**

Instructions

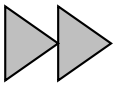
- This paper contains **22 Multiple Choice Questions** (Single Correct Answer), modelled on the Aptitude (Part A) section of the **NID DAT** entrance examination.
- **Questions 1–14** carry **+1 mark** each; **Questions 15–22** carry **+2 marks** each.
- There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct per question.
- Syllabus: Visual Reasoning, Logical Reasoning, Design Awareness & GK, Design Theory & Principles.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

SECTION A: Visual Reasoning (Q1–Q8) [1 mark each]

Q1. The figure below shows a right-pointing arrow made of two triangles. Which option correctly shows its **mirror image** (reflected left–right)?

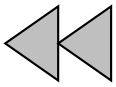


Original

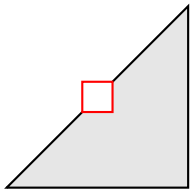
(A) 

(B) 

(C) 

(D) 

Q2. A square sheet of paper is folded diagonally (bottom-left corner to top-right corner). A rectangular notch is then cut at the mid-point of the fold edge, as shown. When the paper is **unfolded**, which option shows the correct result?



Folded (fold along diagonal)

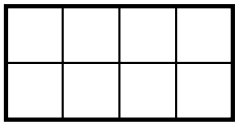
(A) Square with one rectangular hole near the centre-left edge

(B) Square with one rectangular hole at a corner

(C) Square with **two symmetrical rectangular holes** on opposite sides of the diagonal

(D) Square with a circular hole at the centre

Q3. The figure below shows a **4-column, 2-row** grid. How many rectangles (of all sizes) can be found in the figure, including the whole grid itself?



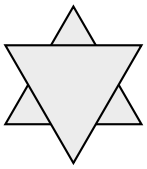
(A) **30**

(B) 24

(C) 18

(D) 36

Q4. Study the figure below (a Star of David formed by two overlapping equilateral triangles). Which of the following shapes is **hidden (embedded)** within this figure?



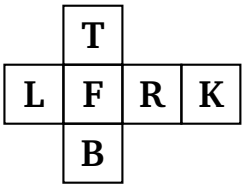
(A) Pentagon

(B) Square

(C) Circle

(D) **Triangle**

Q5. The figure shows a T-shaped net of a cube with letters on each face: **T** (top), **B** (bottom), **L** (left), **R** (right), **F** (front), **K** (back). When folded, which pair of faces are **opposite** to each other?



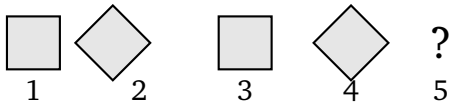
(A) T and F are opposite

(B) **T and B are opposite; L and R are opposite; F and K are opposite**

(C) L and K are opposite

(D) F and B are opposite

Q6. The four figures below show a square rotating by 45° at each step. What is the **5th figure** in the series?



(A) **An upright square (same as Figures 1 and 3)**

(B) A diamond (rotated 45° square)

(C) A circle

(D) A triangle

Q7. What is the **mirror image** (left–right reflection) of the text **'8B3D'**?

(A) D3B8

(B) ᗡƐᗺ8 (same characters in same order)

(C) 8B3D

(D) **DƎB8** (each character individually mirrored, reading right to left: mirrored D, mirrored 3, mirrored B, mirrored 8)

Q8. Five geometric shapes are described below. Four of them can be **rotated** to look identical to each other, but one can only be obtained by a **mirror reflection** (not rotation). Identify the **odd one out**.

(A) An isosceles triangle pointing upward

(B) An isosceles triangle pointing downward (rotated $180°$ from A)

(C) **A scalene triangle with its longest side on the right** (mirror image of the others, cannot be obtained by rotation alone)

(D) An isosceles triangle pointing to the right (rotated $90°$ from A)

SECTION B: Logical Reasoning (Q9–Q13) [1 mark each]

Q9. In a certain code language, CAT $=$ 3120 and BAT $=$ 2120. Using the same rule, what is the value of RAT?

(A) 17120

(B) **18120**

(C) 19120

(D) 16120

Q10. What is the **next number** in the series below?

$$2,\ 6,\ 12,\ 20,\ 30,\ \_\_\_\_$$

(A) 36

(B) 40

(C) 38

(D) **42**

Q11. Identify the **next term** in the series: AZ, BY, CX, DW, ____

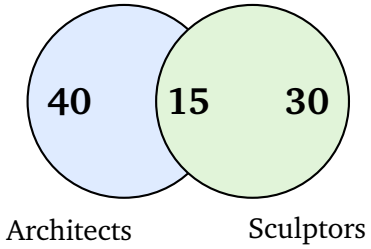
(A) **EV**

(B) EU

(C) FV

(D) EW

Q12. In a design college, a survey shows that **40 students** are architects, **30 students** are sculptors, and **15 students** belong to **both** groups. The Venn diagram below represents this data. How many students are **only architects** (and not sculptors)?



(A) 30

(B) **25**

(C) 15

(D) 20

Q13. Starting from Point A and **facing West**, Rohit walks **5 km**, then turns **right** and walks **4 km**, then turns **right** again and walks **5 km**. In which direction is Rohit **now** from Point A?

(A) **North**

(B) South

(C) East

(D) West

SECTION C: Design Awareness & GK (Q14) [1 mark]

Q14. The stylized '**W**' logo belongs to which of the following fashion or retail brands?

(A) Westside

(B) Woodland

(C) **Wrangler**

(D) Woolmark

SECTION D: Design Awareness & GK (Q15–Q18) [2 marks each]

Q15. **Art Nouveau** design style (c. 1890–1910) is primarily characterized by:

(A) Geometric grids and bold primary colors

(B) **Organic, flowing lines and forms inspired by natural elements**

(C) Industrial minimalism and a function-first approach

(D) Pixelated digital patterns and bright neon tones

Q16. The influential design book *The Design of Everyday Things* was written by:

(A) Steve Jobs

(B) **Don Norman**

(C) Tim Brown

(D) Dieter Rams

Q17. **Ikat** weaving, known for its distinctive blurred or feathered pattern created by resist-dyeing the yarns before weaving, is most prominently associated with which Indian state?

(A) Rajasthan

(B) Gujarat

(C) **Odisha**

(D) Punjab

Q18. The **Pritzker Architecture Prize**, widely regarded as the "Nobel Prize of Architecture," was first awarded in which year?

(A) **1979**

(B) 1990

(C) 1969

(D) 2000

SECTION E: Design Theory & Principles (Q19–Q22) [2 marks each]

Q19. A **triadic color scheme** is one where the three chosen colors are:

(A) Adjacent to each other on the color wheel (analogous)

(B) **Equally spaced at** $120°$ **apart on the color wheel**

(C) Formed by two complementary pairs

(D) Variations in lightness (tints and shades) of a single hue

Q20. **Visual hierarchy** in design is primarily established through variation in:

(A) Paper quality and texture

(B) Number of different typefaces used

(C) Physical weight of the printed material

(D) **Size, contrast, and placement of elements**

Q21. In design, the principle of **rhythm** refers to:

(A) The use of a single dominant color throughout a composition

(B) The balance achieved between the left and right halves of a layout

(C) The size ratio between the header text and the body text

(D) **Repeated visual elements that create a sense of pattern, flow, or movement**

Q22. **Rubin's Vase** is a classic optical illusion in which the viewer alternates between seeing a vase and two faces. This illusion demonstrates which fundamental design principle?

(A) Rule of Thirds

(B) Golden Ratio

(C) **Figure–Ground Relationship**

(D) Color Contrast

Detailed Solutions

Sol 1.

Solution

Concept — Mirror Image (Visual): When a figure is reflected left–right, all horizontal directions are reversed while vertical positions remain unchanged.

Step 1 — Analyse the original: The original arrow points *right* (both triangles have their apex on the right and base on the left).

Step 2 — Apply left–right mirror: After reflection, the apex of each triangle moves to the *left*, giving a left-pointing arrow. That matches option (A).

Why other options are wrong:

- Option B: Shows an upward-pointing arrow — a 90° rotation, not a mirror image.
- Option C: Shows a downward-pointing arrow — a 270° rotation, not a mirror image.
- Option D: Identical to the original; no reflection applied.

Final Answer: Left-pointing arrow $\Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q1

Sol 2.

Solution

Concept — Paper Folding & Symmetry: When paper folded along an axis is cut, unfolding produces a hole that is the mirror image of the cut shape about the fold axis.

Step 1 — Identify the fold: The square is folded along its main diagonal (bottom-left to top-right).

Step 2 — Identify the cut: A rectangular notch is cut at the midpoint of the fold (the diagonal edge). The cut goes through both layers of paper.

Step 3 — Unfold: When unfolded, the notch and its mirror image about the diagonal appear — giving **two symmetrical rectangular holes** on opposite sides of the diagonal.

Why other options are wrong:

- Option A: Only one hole — ignores the symmetry created by folding.
- Option B: A hole at a corner — incorrect position for a mid-fold cut.
- Option D: A circular hole — the cut is rectangular, not circular.

Final Answer: Two symmetrical rectangular holes $\Rightarrow$ C

Answer: (C) Go Back to Q2

Sol 3.

Solution

Concept — Counting Rectangles in a Grid: In a grid with m vertical lines and n horizontal lines, the number of rectangles is $\binom{m}{2} \times \binom{n}{2}$.

Step 1 — Count lines: A 4×2 grid (4 columns, 2 rows) has **5 vertical lines** and **3 horizontal lines**.

Step 2 — Apply formula:

$$\binom{5}{2} \times \binom{3}{2} = 10 \times 3 = \mathbf{30}$$

Why other options are wrong:

- Option B (24): Undercounts; perhaps only counting unit-square-based rows.
- Option C (18): Significantly undercounts multi-unit rectangles.
- Option D (36): Overcounts; would correspond to a 5×2 or other grid.

Final Answer: $10 \times 3 = 30 \Rightarrow$ A

Answer: (A) Go Back to Q3

Sol 4.

Solution

Concept — Embedded Figures: An embedded figure is a shape that is wholly contained within a more complex figure.

Step 1 — Examine the Star of David: The figure is formed by overlapping two equilateral triangles. The upward-pointing triangle is clearly visible as an independent shape embedded within the star.

Step 2 — Check each option:

- Triangle: The upward-pointing and downward-pointing equilateral triangles are the very components of the star — clearly embedded.
- Pentagon: A pentagon has 5 sides; no such outline appears.
- Square: No right-angled four-sided shape is formed.
- Circle: No curve present.

Final Answer: Triangle is embedded $\Rightarrow$ D

Answer: (D) Go Back to Q4

Sol 5.

Solution

Concept — Cube Net (Opposite Faces): In a cube net, faces separated by exactly two steps along the net are opposite each other when folded.

Step 1 — Map the net: The T-shaped net has:
Row: L – F – R – K (horizontal strip of 4)
Column: T above F; B below F.

Step 2 — Identify opposite pairs:

- **T (above F) is opposite B (below F)**.
- In the horizontal strip L–F–R–K: **L is opposite R** (separated by the face F in the middle); **F is opposite K** (F faces outward when L and R fold in).

Why other options are wrong:

- Option A: T and F are adjacent (T is directly above F), not opposite.
- Option C: L and K are separated by two faces (F and R); L is opposite R, not K.
- Option D: F and B — F is opposite K; B is opposite T.

Final Answer: T$\leftrightarrow$B, L$\leftrightarrow$R, F$\leftrightarrow$K $\Rightarrow$ B

Answer: (B) Go Back to Q5

Sol 6.

Solution

Concept — Figure Series (Rotation Pattern): The square alternates between $0°$ (upright) and $45°$ (diamond) orientation at every step.

Step 1 — Identify the pattern:

Fig 1: upright $\rightarrow$ Fig 2: diamond $\rightarrow$ Fig 3: upright $\rightarrow$ Fig 4: diamond $\rightarrow$ Fig 5: ?

Step 2 — Extend: The pattern repeats with period 2. Figure 5 (odd position) $\Rightarrow$ **upright square**.

Why other options are wrong:

- Option B: Diamond appears at even positions (2, 4), so Figure 5 should not be a diamond.
- Option C/D: No circles or triangles appear in this series.

Final Answer: Upright square $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q6

Sol 7.

Solution

Concept — Mirror Image of Text: A left–right mirror reflection of a string reverses the order of the characters *and* mirrors each character individually.

Step 1 — Reverse the string: `8B3D` reversed $\rightarrow$ `D3B8`.

Step 2 — Mirror each character: Each character is also individually reflected: 'D' becomes a mirrored D, '3' becomes a mirrored 3, 'B' becomes a mirrored B, '8' becomes a mirrored 8 (8 is symmetric, so it looks the same; mirrored D and mirrored B differ visually).

Why other options are wrong:

- Option A (`D3B8`): Reversed order but characters not individually mirrored — only half correct.
- Option B: Same characters in original order — no reflection at all.
- Option C (`8B3D`): Identical to original — not a mirror image.

Final Answer: Mirrored characters in reversed order $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q7

Sol 8.

Solution

Concept — Rotation vs. Reflection: A shape and its mirror image are *congruent* but not always *superimposable by rotation* — this is the concept of chirality.

Step 1 — Examine each shape:

- Options A, B, D are isosceles triangles (which have a line of symmetry), so any rotation of one matches another.
- Option C is a *scalene* triangle (all sides different). A scalene triangle and its mirror image **cannot** be made to coincide by rotation alone.

Step 2 — Conclusion: Since A, B, D can all be rotated to match each other, but C requires reflection, option C is the odd one out.

Why other options are wrong:

- Options A, B, D: Isosceles triangles — each is a rotation of the other.

Final Answer: Scalene triangle (mirror image only) $\Rightarrow$ C

Answer: (C) Go Back to Q8

Sol 9.

Solution

Concept — Letter-Position Coding: Each letter is replaced by its position in the alphabet (A=1, B=2, . . . , Z=26).

Step 1 — Verify the pattern:

$$\text{CAT} = 3 \mid 1 \mid 20 \;\Rightarrow\; 3120\checkmark$$
$$\text{BAT} = 2 \mid 1 \mid 20 \;\Rightarrow\; 2120\checkmark$$

Step 2 — Apply to RAT:

$$\text{R} = 18, \quad \text{A} = 1, \quad \text{T} = 20 \;\Rightarrow\; \mathbf{18120}$$

Why other options are wrong:

- 17120: R=17 would be Q, not R.
- 19120: R=19 would be S, not R.
- 16120: R=16 would be P, not R.

Final Answer: RAT = 18120 $\Rightarrow$ B

Answer: (B) Go Back to Q9

Sol 10.

Solution

Concept — Product of Consecutive Integers: The series follows the rule $a_n = n(n+1)$.

Step 1 — Verify:

$$1\times2=2, \quad 2\times3=6, \quad 3\times4=12, \quad 4\times5=20, \quad 5\times6=30$$

Step 2 — Next term: $n=6$: $6\times7=$ **42**.

Why other options are wrong:

- 36: 6×6 — incorrect; uses same factor twice.
- 40: Not of the form $n(n+1)$.
- 38: Not of the form $n(n+1)$.

Final Answer: $6\times7=42 \Rightarrow$ D

Answer: (D) Go Back to Q10

Sol 11.

Solution

Concept — Paired Alphabet Series: The first letter advances forward (A, B, C, D, ...) while the second letter advances backward (Z, Y, X, W, ...).

Step 1 — Pattern:

AZ, BY, CX, DW, $\underline{\ ?\ }$

First letters: A(1), B(2), C(3), D(4) $\rightarrow$ **E(5)**.

Second letters: Z(26), Y(25), X(24), W(23) $\rightarrow$ **V(22)**.

Step 2 — Next term: EV.

Why other options are wrong:

- EU: Second letter should be V (not U).
- FV: First letter should be E (not F).
- EW: Second letter should decrease (V, not stay at W).

Final Answer: EV $\Rightarrow$ A

Answer: (A) Go Back to Q11

Sol 12.

Solution

Concept — Venn Diagram (Set Difference): The number in *only* one set equals the total for that set minus the intersection.

Step 1 — Identify values:

- Total Architects = 40
- Both (Architects $\cap$ Sculptors) = 15

Step 2 — Calculate:

$$\text{Only Architects} = 40 - 15 = \mathbf{25}$$

Why other options are wrong:

- 30: That is the total sculptor count, not the "only architect" count.
- 15: That is the intersection (both), not "only architects".
- 20: No arithmetic in the given data yields 20 for this value.

Final Answer: $40 - 15 = 25 \Rightarrow$ B

Answer: (B) Go Back to Q12

Sol 13.

Solution

Concept — Direction Sense: Track each segment of the journey using compass directions.

Step 1 — Trace the journey from Point A:

1. Facing **West**, walks **5 km West**. Position: $(-5, 0)$.
2. Turns **right** (from West, right turn $\rightarrow$ **North**), walks **4 km North**. Position: $(-5, 4)$.
3. Turns **right** (from North, right turn $\rightarrow$ **East**), walks **5 km East**. Position: $(0, 4)$.

Step 2 — Direction from A: Final position $(0, 4)$ relative to A at $(0, 0)$ is **directly North**.

Why other options are wrong:

- South: He moved north (positive y), not south.
- East: His x-coordinate returned to 0; he is not east of A.
- West: He started going west but returned to the same x as A.

Final Answer: Rohit is **North** of Point A $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q13

Sol 14.

Solution

Concept — Brand & Logo Recognition (Design GK): Familiarity with iconic brand logos is tested in design aptitude exams.

Step 1 — Identify the brand: The stylized 'W' logo is the trademarked logo of **Wrangler**, the American denim and apparel brand founded in 1947, known for its distinctive 'W' stitching on pockets and its standalone 'W' logo.

Why other options are wrong:

- Westside: Indian retail brand; uses text-based branding, not a 'W' symbol.
- Woodland: Outdoor footwear brand; uses a tree/boot motif, not a 'W'.
- Woolmark: Uses a stylized ball of yarn (skein) as its logo, not a 'W'.

Final Answer: Wrangler $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q14

Sol 15.

Solution

Concept — Art History & Movements: Art Nouveau (literally 'New Art') was a decorative art movement that flourished in Europe from approximately 1890 to 1910.

Step 1 — Key characteristics of Art Nouveau:

- **Organic, flowing, sinuous lines** inspired by plant stems, vines, flowers, insects, and the female form.
- Use of natural materials and naturalistic motifs.
- Emphasis on craftsmanship and the integration of fine art with applied/decorative art.

Why other options are wrong:

- Option A: Geometric grids and primary colors describe **De Stijl** (Mondrian).
- Option C: Industrial minimalism and function-first describes **Bauhaus / Functionalism**.
- Option D: Pixelated digital patterns describe **Digital / Glitch Art** (post-1990s).

Final Answer: Organic flowing lines inspired by nature $\Rightarrow$ B

Answer: (B) Go Back to Q15

Sol 16.

Solution

Concept — Influential Design Literature: *The Design of Everyday Things* is a foundational text in user-centered design and human factors.

Step 1 — Author: The book was written by **Don Norman**, a cognitive scientist and usability engineer, first published in 1988 (originally titled *The Psychology of Everyday Things*). Norman co-founded the Nielsen Norman Group and is famous for the concept of "affordances" in design.

Why other options are wrong:

- Steve Jobs: Apple co-founder; known for design philosophy but did not write this book.
- Tim Brown: CEO of IDEO; wrote *Change by Design* (about design thinking).
- Dieter Rams: German industrial designer (Braun/Vitsoe); known for his "Ten Principles of Good Design," not this book.

Final Answer: Don Norman $\Rightarrow$ B

Answer: (B) Go Back to Q16

Sol 17.

Solution

Concept — Indian Textile Heritage: Ikat is a dyeing technique used to create patterns in textiles, and India is one of the world's leading producers.

Step 1 — Identify the state: Odisha (also spelled Orissa) is most prominently associated with Ikat weaving in India, particularly the **Sambalpuri Ikat** (from Sambalpur, Bolangir, and Sonepur regions) and **Nuapatna** silk ikat. Odisha's ikat has received a **Geographical Indication (GI) tag**.

Why other options are wrong:

- Rajasthan: Known for Bandhani (tie-dye), block printing, and Leheriya — not ikat.
- Gujarat: Also has Patola (a double-ikat silk from Patan), but Odisha is more primarily associated with the technique.
- Punjab: Known for Phulkari embroidery, not ikat.

Final Answer: Odisha $\Rightarrow$ C

Answer: (C) Go Back to Q17

Sol 18.

Solution

Concept — Architecture Awards & History: The Pritzker Prize is the most prestigious international award in architecture.

Step 1 — Founding year: The Pritzker Architecture Prize was established by Jay A. Pritzker and his wife Cindy Pritzker and administered by the Hyatt Foundation. The inaugural prize was awarded in **1979** to Philip Johnson.

Why other options are wrong:

- 1990: The 1990 prize went to Aldo Rossi; it was not the first award.
- 1969: The prize did not yet exist in 1969.
- 2000: The 2000 prize went to Rem Koolhaas; far from the first.

Final Answer: 1979 $\Rightarrow$ A

Answer: (A) Go Back to Q18

Sol 19.

Solution

Concept — Color Theory (Color Schemes): Color schemes define systematic relationships between colors on the color wheel.

Step 1 — Triadic scheme defined: A **triadic** color scheme consists of three colors that are **equally spaced at** 120° intervals around the color wheel (e.g., Red, Yellow, Blue or Orange, Green, Violet).

Why other options are wrong:

- Option A: Colors adjacent on the wheel describe an **analogous** scheme.
- Option C: Two complementary pairs describe a **tetradic / double-complementary** scheme (4 colors).
- Option D: Variations in lightness of one hue describe a **monochromatic** scheme.

Final Answer: Equally spaced at 120° $\Rightarrow$ B

Answer: (B) Go Back to Q19

Sol 20.

Solution

Concept — Visual Hierarchy: Visual hierarchy guides the viewer's eye through a design by making the most important elements stand out.

Step 1 — Key tools of visual hierarchy:

- **Size**: Larger elements attract attention first.
- **Contrast**: High contrast (light/dark, color) makes elements pop.
- **Placement**: Elements placed at the top or center are noticed earlier.

- **Color, Typography, Spacing** also contribute.

Why other options are wrong:

- Option A: Paper quality is a tactile/material property, not a visual design variable.
- Option B: Number of fonts does not by itself establish hierarchy; it often creates clutter.
- Option C: Physical weight of material is irrelevant to 2D visual design hierarchy.

Final Answer: Size, contrast, and placement $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q20

Sol 21.

Solution

Concept — Principles of Design (Rhythm): Rhythm in design is analogous to rhythm in music — it arises from the organised repetition of visual elements.

Step 1 — Definition: Rhythm is created when visual elements (shapes, colors, lines, textures) are **repeated** in a regular or varied pattern, producing a sense of movement, flow, or visual beat for the viewer.

Why other options are wrong:

- Option A: Use of a single dominant color describes a **monochromatic** approach or **dominance/emphasis**.
- Option B: Balance between left and right halves describes **symmetrical balance**.
- Option C: Size ratio between header and body describes **typographic scale / hierarchy**.

Final Answer: Repeated visual elements creating pattern or movement $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q21

Sol 22.

Solution

Concept — Gestalt Principles (Figure-Ground): The figure-ground relationship is a key Gestalt principle describing how the visual system separates objects (figures) from their backgrounds (ground).

Step 1 — Rubin's Vase: Designed by Danish psychologist Edgar Rubin, this ambiguous image can be perceived either as a white vase against a black background, or as two black faces in profile against a white background. The viewer's perception alternates between the two interpretations because the figure and ground are reversible.

Step 2 — Principle demonstrated: This directly illustrates the **Figure–Ground Relationship**.

Why other options are wrong:

- Rule of Thirds: A compositional guideline for placing subjects — not related to perceptual ambiguity.
- Golden Ratio: A mathematical proportion for aesthetically pleasing layouts — not about ambiguous figure/ground.
- Color Contrast: Refers to differences in hue, value, or saturation — not the core principle here.

Final Answer: Figure–Ground Relationship $\Rightarrow \boxed{C}$

Answer: (C) Go Back to Q22

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	C	3	A	4	D	5	B
6	A	7	D	8	C	9	B	10	D
11	A	12	B	13	A	14	C	15	B
16	B	17	C	18	A	19	B	20	D
21	D	22	C						