

NID DAT Aptitude

Sample Paper – 9

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.

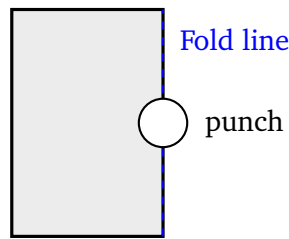
SECTION A — Visual Reasoning (Q1–Q8) [1 Mark Each]

Q1. Which of the following shapes has **NO** line of symmetry?

- (A) Isosceles triangle
- (B) **Scalene triangle**
- (C) Regular pentagon
- (D) Rectangle

Q2. A square sheet of paper is folded once along the **vertical centre line** (the right half folds onto the left). A circular punch is made at the **centre of the right edge** of the folded sheet — exactly on the fold line. When completely unfolded, what does the sheet look like?





Folded sheet (right edge = fold line)

- (A) **One complete circular hole at the centre of the original sheet**
- (B) Two semicircular notches on the left and right edges
- (C) Two complete circular holes, one on each half
- (D) No hole appears — the punch lands outside the paper

Q3. In the 3×3 matrix below, the fill pattern across each row is: **outline only** → **half-filled** → **fully filled**. Rows use circle (top), triangle (middle), and square (bottom). Which shape fills the **missing cell** (bottom-right, marked ?)?

		?

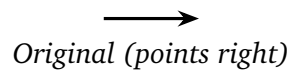
- (A) An outline (empty) square
- (B) A half-filled square
- (C) A fully-filled triangle
- (D) **A fully-filled square**

Q4. Complete the analogy: **Solid circle** is to **Hollow circle** as **Solid triangle** is to:

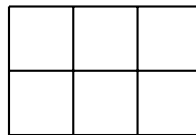
- (A) Solid triangle (unchanged)
- (B) Hollow square
- (C) **Hollow triangle**
- (D) Solid square



- Q5.** The arrow shown below points to the **RIGHT**. After a rotation of **90° counter-clockwise**, the arrow will point:



- (A) Right (unchanged)
(B) Left
(C) Down
(D) **Up**
- Q6.** The figure below shows a grid of unit squares arranged in **3 columns and 2 rows**. How many **rectangles** (including squares) of **all sizes** can be found in this figure?



3-column $\times$ 2-row unit grid

- (A) 12
(B) 15
(C) 16
(D) **18**
- Q7.** In the number table below, each value in a row is **double** the value to its left. What number fills the cell marked ?

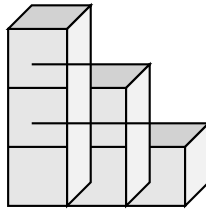
2	4	8
3	6	12
5	10	?

- (A) 15
(B) **20**
(C) 25



(D) 50

- Q8.** The figure below shows a **3-step staircase** built from unit cubes, viewed from the front. Each step is **one cube deep**. How many unit cubes make up the structure in total?



Each step is 1 cube deep

- (A) 4
(B) 5
(C) 6
(D) 7

SECTION B — Logical Reasoning (Q9–Q13) [1 Mark Each]

- Q9.** In a certain code, **ROSE** is written as **TQUG** (each letter is shifted **forward by 2 positions** in the alphabet). Using the same code, **BLUE** is written as:

- (A) CMVF
(B) CNWG
(C) DMWF
(D) DNWG

- Q10.** What is the next number in the series? 3, 9, 27, 81, ____

- (A) 243
(B) 162
(C) 324
(D) 216



- Q11.** In a row of students, Reena is the **15th from the left** and the **20th from the right**. How many students are in the row **in total**?
- (A) 34
(B) 35
(C) 33
(D) 36
- Q12.** How many **odd numbers** are there between **10 and 30** (exclusive, i.e. not including 10 or 30)?
- (A) 8
(B) 10
(C) 9
(D) 11
- Q13.** A cyclist travels **24 km at 12 km/h** and then **36 km at 18 km/h**. What is the **average speed** for the entire journey?
- (A) 15 km/h
(B) 14 km/h
(C) 16 km/h
(D) 18 km/h

SECTION C — Design Awareness / GK (Q14–Q18) [Q14: 1 Mark | Q15–18: 2 Marks Each]

- Q14.** The **Bauhaus** design school — which fundamentally shaped modern design, architecture, and art education worldwide — was founded in:
- (A) 1910
(B) **1919**
(C) 1929
(D) 1933



- Q15.** The tubular-steel '**Wassily Chair**' (Model B3, 1925–26) — inspired by a bicycle's frame and pioneering in its use of bent steel tubes — was designed by:
- (A) Walter Gropius
 - (B) Ludwig Mies van der Rohe
 - (C) **Marcel Breuer**
 - (D) László Moholy-Nagy
- Q16.** German industrial designer **Dieter Rams**, whose minimalist product designs for Braun became globally influential, articulated exactly **how many** 'Principles of Good Design'?
- (A) **10**
 - (B) 5
 - (C) 7
 - (D) 12
- Q17.** The **National Institute of Design (NID)** in Ahmedabad was established in which year, following the recommendations of the **Eames India Report (1958)**?
- (A) 1947
 - (B) 1950
 - (C) 1956
 - (D) **1961**
- Q18.** The '**Warli**' folk art tradition — white geometric motifs (circles, triangles, squares) on a mud background depicting village life and festivals — originates from which Indian state?
- (A) Gujarat
 - (B) **Maharashtra**
 - (C) Madhya Pradesh



(D) Rajasthan

SECTION D — Design Theory & Principles (Q19–Q22) [2 Marks Each]

Q19. The Gestalt principle of '**Figure-Ground**' states that:

- (A) Similar elements are perceived as belonging to the same group
- (B) The eye naturally follows smooth, continuous lines and curves
- (C) **Visual perception organises scenes into a distinct foreground figure against a contrasting background — and the same region can sometimes be read as either figure or ground**
- (D) Incomplete shapes are perceived as whole forms by filling in missing parts

Q20. In colour theory, colours that are **directly opposite each other** on the colour wheel are called:

- (A) Analogous colours
- (B) Triadic colours
- (C) **Complementary colours**
- (D) Monochromatic colours

Q21. The design principle that creates a sense of **visual movement and organised flow** by repeating elements — lines, shapes, colours, or textures — in a regular or varied pattern is called:

- (A) **Rhythm**
- (B) Unity
- (C) Proportion
- (D) Contrast

Q22. In typography, the term '**tracking**' refers to:

- (A) The vertical space between consecutive lines of text (leading)



- (B) **The uniform adjustment of letter-spacing across a whole word, sentence, or block of text**
- (C) The adjustment of space between specific individual letter pairs to improve visual balance (kerning)
- (D) The overall width of a column of body text (the measure)



Answer Key**Questions 1–10 (1 mark each):**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
B	A	D	C	D	D	B	C	D	A

Questions 11–14 (1 mark each):

Q11	Q12	Q13	Q14
A	B	A	B

Questions 15–22 (2 marks each):

Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
C	A	D	B	C	C	A	B

Answer distribution: A = 6 B = 6 C = 5 D = 5

Detailed Solutions

Sol. 1.

Solution

Concept — Lines of Symmetry: A line of symmetry divides a figure into two mirror-image halves. The number of lines depends on the shape's regularity.

Step 1 — Check each shape:

- Isosceles triangle: **1 line** (through apex and midpoint of base).
- **Scalene triangle:** all three sides differ in length; no fold creates matching halves. **0 lines.**
- Regular pentagon: **5 lines** (each vertex to the opposite side's midpoint).
- Rectangle: **2 lines** (horizontal and vertical centre lines; diagonals are NOT lines of symmetry unless it is a square).

Why other options are wrong:

- A (Isosceles): 1 line of symmetry.
- C (Regular pentagon): 5 lines.
- D (Rectangle): 2 lines.

Final Answer: Scalene triangle has no line of symmetry $\Rightarrow$ **B**

Answer: (B) [Go Back to Q1](#)

Sol. 2.

Solution

Concept — Paper Folding and Punching: A punch goes through all layers simultaneously; unfolding reveals mirrored holes.

Step 1 — Understand the fold: Folding along the vertical centre line places the right half exactly over the left. The fold line is the original vertical centre of the square.

Step 2 — Locate the punch: The punch is on the right edge of the folded sheet = exactly on the fold line. It passes through **two layers** at that point.



Step 3 — Unfold: The two half-circles cut on each layer join at the fold line, producing **one complete circular hole** at the vertical centre of the original sheet.

Why other options are wrong:

- B (two edge notches): would result if the punch were on the free edge (not the fold line).
- C (two separate holes): would result if the punch were in the interior, away from the fold line.
- D (no hole): impossible — the punch always removes material.

Final Answer: One complete circular hole at the centre $\Rightarrow$ **A**

Answer: (A) [Go Back to Q2](#)

Sol. 3.

Solution

Concept — Matrix Pattern (Fill-State Sequence): Each row follows the same fill progression: outline $\rightarrow$ half-filled $\rightarrow$ fully filled.

Step 1 — Verify row rules:

- Row 1 (circles): outline $\rightarrow$ half-filled $\rightarrow$ **fully filled**. ✓
- Row 2 (triangles): outline $\rightarrow$ half-filled $\rightarrow$ **fully filled**. ✓
- Row 3 (squares): outline $\rightarrow$ half-filled $\rightarrow$?

Step 2 — Apply the rule: The missing cell must be a **fully filled square**.

Why other options are wrong:

- A (outline square): already in column 1 of row 3.
- B (half-filled square): already in column 2 of row 3.
- C (fully filled triangle): wrong shape — row 3 uses squares, not triangles.

Final Answer: Fully filled square $\Rightarrow$ **D**

Answer: (D) [Go Back to Q3](#)



Sol. 4.

Solution

Concept — Figure Analogy (Property Transformation): Identify the transformation in the given pair and apply it consistently.

Step 1 — Identify transformation:

Solid circle $\xrightarrow{\text{remove fill}}$ Hollow circle

Transformation: remove the fill (solid $\rightarrow$ hollow/outline), keeping the shape unchanged.

Step 2 — Apply to solid triangle:

Solid triangle $\xrightarrow{\text{remove fill}}$ **Hollow triangle**

Why other options are wrong:

- A (solid triangle): no transformation applied.
- B (hollow square): wrong shape; shape must remain a triangle.
- D (solid square): wrong shape and wrong fill state.

Final Answer: Hollow triangle $\Rightarrow$ **C**

Answer: (C) [Go Back to Q4](#)

Sol. 5.

Solution

Concept — Rotation of an Arrow: A 90° counter-clockwise (CCW) rotation turns any direction 90° to the left on a compass.

Step 1 — Original direction: Arrow points **right** (East, 0).

Step 2 — Apply 90° CCW:

East $\xrightarrow{+90^\circ \text{ CCW}}$ North (Up)

Counter-clockwise from East goes to North (upward).

Why other options are wrong:

- A (right): no rotation; identical to original.



- B (left): requires 180° rotation.
- C (down): would result from 90° clockwise, the opposite direction.

Final Answer: Arrow pointing up $\Rightarrow$ D

Answer: (D) [Go Back to Q5](#)

Sol. 6.

Solution

Concept — Counting Rectangles in a Grid: In an $m \times n$ unit grid, the number of distinct rectangles $= \binom{m+1}{2} \times \binom{n+1}{2}$.

Step 1 — Identify dimensions: $m = 3$ columns, $n = 2$ rows.

Step 2 — Calculate:

$$\binom{4}{2} \times \binom{3}{2} = 6 \times 3 = 18$$

Verification by size:

- 1×1 : $3 \times 2 = 6$; 2×1 : $2 \times 2 = 4$; 3×1 : $1 \times 2 = 2$
- 1×2 : $3 \times 1 = 3$; 2×2 : $2 \times 1 = 2$; 3×2 : $1 \times 1 = 1$
- Total: $6 + 4 + 2 + 3 + 2 + 1 = 18 \checkmark$

Why other options are wrong:

- A (12): counts only single-row-height rectangles.
- B (15), C (16): common under-counts, omitting some sizes.

Final Answer: 18 rectangles $\Rightarrow$ D

Answer: (D) [Go Back to Q6](#)



Sol. 7.

Solution

Concept — Number Table (Doubling Rule): Each value in a row is double the value immediately to its left.

Step 1 — Verify the rule:

- Row 1: $2 \rightarrow 4 \rightarrow 8$ ($\times 2$ each). ✓
- Row 2: $3 \rightarrow 6 \rightarrow 12$ ($\times 2$ each). ✓
- Row 3: $5 \rightarrow 10 \rightarrow ?$

Step 2 — Find the missing value:

$$10 \times 2 = 20$$

Why other options are wrong:

- A (15): uses a $\times 3$ rule (5×3), not $\times 2$.
- C (25): uses $\times 5$ rule; D (50): also inconsistent with doubling.

Final Answer: $20 \Rightarrow$ B

Answer: (B) [Go Back to Q7](#)

Sol. 8.

Solution

Concept — 3D Cube Counting (Staircase): Count unit cubes column by column.

Step 1 — Count by column (left to right in the figure):

- Left column (3 steps high, 1 deep): **3 cubes**
- Middle column (2 steps high, 1 deep): **2 cubes**
- Right column (1 step high, 1 deep): **1 cube**

Step 2 — Total:

$$3 + 2 + 1 = 6$$

Why other options are wrong:

- A (4): counts only the visible front faces.



- B (5): undercounts by one column.
- D (7): overcounts by adding a phantom cube.

Final Answer: 6 unit cubes $\Rightarrow$

Answer: (C) [Go Back to Q8](#)

Sol. 9.

Solution

Concept — Letter Coding (Shift +2): Each letter is replaced by the letter 2 positions ahead in the alphabet.

Step 1 — Verify with ROSE $\rightarrow$ TQUG: $R(18)+2=T(20)\checkmark$, $O(15)+2=Q(17)\checkmark$, $S(19)+2=U(21)\checkmark$, $E(5)+2=G(7)\checkmark$.

Step 2 — Encode BLUE:

$$B(2) + 2 = D(4), \quad L(12) + 2 = N(14), \quad U(21) + 2 = W(23), \quad E(5) + 2 = G(7)$$

Code = DNWG.

Why other options are wrong:

- A (CMVF): applies +1 shift throughout.
- B (CNWG): shifts B by only +1 ($B \rightarrow C$).
- C (DMWF): shifts L and E by +1 instead of +2.

Final Answer: DNWG $\Rightarrow$

Answer: (D) [Go Back to Q9](#)

Sol. 10.

Solution

Concept — Geometric Progression (Common Ratio = 3): Each term is the previous term multiplied by a fixed ratio.

Step 1 — Identify ratio: $9 \div 3 = 3$, $27 \div 9 = 3$, $81 \div 27 = 3$. Common ratio $r = 3$.



Step 2 — Next term:

$$81 \times 3 = 243$$

Why other options are wrong:

- B (162): 81×2 — uses ratio 2.
- C (324): 81×4 — uses ratio 4.
- D (216): 6^3 — no consistent multiplicative rule with the series.

Final Answer: $243 \Rightarrow$ A

Answer: (A) [Go Back to Q10](#)

Sol. 11.

Solution

Concept — Row Position Formula: If a person is p th from one end and q th from the other, the total count is $p + q - 1$ (subtracting 1 avoids double-counting the person).

Step 1 — Apply the formula:

$$\text{Total} = 15 + 20 - 1 = 34$$

Step 2 — Verify: From left: position 15 $\Rightarrow$ 14 to her left. From right: position 20 $\Rightarrow$ 19 to her right. Total = $14 + 1 + 19 = 34$. ✓

Why other options are wrong:

- B (35): $15 + 20 = 35$ — forgets to subtract 1.
- C (33): off by 1 in the wrong direction.
- D (36): adds 1 instead of subtracting.

Final Answer: 34 students $\Rightarrow$ A

Answer: (A) [Go Back to Q11](#)



Sol. 12.

Solution

Concept — Counting Odd Integers in a Range: Odd numbers between 10 and 30 (exclusive) run from 11 to 29.

Step 1 — List:

11, 13, 15, 17, 19, 21, 23, 25, 27, 29

Step 2 — Count: 10 numbers.

Formula check: $\frac{29 - 11}{2} + 1 = \frac{18}{2} + 1 = 9 + 1 = 10. \checkmark$

Why other options are wrong:

- A (8): likely stops at 27 or misses the first/last.
- C (9): off by one.
- D (11): inadvertently includes an even boundary number.

Final Answer: 10 odd numbers $\Rightarrow$ **B**

Answer: (B) [Go Back to Q12](#)

Sol. 13.

Solution

Concept — Average Speed: Average speed = total distance $\div$ total time (not arithmetic mean of speeds).

Step 1 — Travel times:

$$t_1 = \frac{24}{12} = 2 \text{ h}, \quad t_2 = \frac{36}{18} = 2 \text{ h}$$

Step 2 — Totals:

$$D = 24 + 36 = 60 \text{ km}, \quad T = 2 + 2 = 4 \text{ h}$$

Step 3 — Average speed:

$$\bar{v} = \frac{60}{4} = 15 \text{ km/h}$$

Why other options are wrong:



- B (14 km/h): no standard formula gives this for these values.
- C (16 km/h): similarly unsupported.
- D (18 km/h): the speed of the second segment only.

Final Answer: 15 km/h $\Rightarrow$

Answer: (A) [Go Back to Q13](#)

Sol. 14.

Solution

Concept — Design History (Bauhaus): The Bauhaus was the most influential design and art school of the 20th century.

Step 1 — Key dates:

- **1919:** Founded in Weimar, Germany, by architect **Walter Gropius**. It merged fine arts with applied crafts under one roof.
- 1925: Relocated to Dessau.
- 1932: Moved briefly to Berlin.
- 1933: Closed under Nazi pressure.

Step 2 — Legacy: Bauhaus alumni shaped graphic design, typography, furniture, and modern architecture globally; its philosophy still underlies design education.

Why other options are wrong:

- A (1910): nine years before the founding.
- C (1929): the school already existed and was in Dessau by then.
- D (1933): the year of closure, not founding.

Final Answer: 1919 $\Rightarrow$

Answer: (B) [Go Back to Q14](#)



Sol. 15.

Solution

Concept — Design History (Wassily Chair): The Model B3 is an icon of Bauhaus modernism.

Step 1 — Historical facts: Marcel Breuer (1902–1981), a Hungarian-American Bauhaus student and later master, designed the chair in 1925–26 in Dessau. Inspired by the tubular steel frame of his Adler bicycle, Breuer bent seamless steel tubing into a structural seat frame, stretched with canvas or leather straps. The chair was later nicknamed *Wassily* in honour of Wassily Kandinsky, who admired it.

Why other options are wrong:

- A (Gropius): founded the Bauhaus but did not design this chair.
- B (Mies van der Rohe): designed the Barcelona Chair and Brno Chair, not the Wassily.
- D (Moholy-Nagy): Bauhaus master of light art and photography; not furniture.

Final Answer: Marcel Breuer ⇒

Answer: (C) [Go Back to Q15](#)

Sol. 16.

Solution

Concept — Design Philosophy (Dieter Rams — Ten Principles): Dieter Rams (born 1932) articulated a definitive ethical framework for product design.

Step 1 — The ten principles (summary): Good design is (1) innovative, (2) useful, (3) aesthetic, (4) understandable, (5) unobtrusive, (6) honest, (7) long-lasting, (8) thorough, (9) environmentally friendly, (10) *as little design as possible*.

Step 2 — Influence: Rams's tenth principle ("Less, but better") deeply influenced Apple's Jony Ive and the aesthetic of the iPod, iPhone, and iMac.

Why other options are wrong:

- B (5), C (7), D (12): the canonical list has exactly **10** principles, no more, no fewer.

Final Answer: 10 ⇒



Answer: (A) [Go Back to Q16](#)

Sol. 17.

Solution

Concept — Indian Design History (NID Ahmedabad): NID was established following the landmark Eames India Report.

Step 1 — Historical sequence:

- **1958:** The Government of India commissioned Charles and Ray Eames to assess India's design education needs. Their resulting **India Report (1958)** recommended establishing a national design institution.
- **1961:** Acting on the report, the **National Institute of Design** was founded in Ahmedabad, Gujarat, under the Ministry of Commerce and Industry.

Why other options are wrong:

- A (1947): India's independence year; NID came 14 years later.
- B (1950): India became a republic; NID came 11 years later.
- C (1956): two years before the Eames India Report was even submitted.

Final Answer: 1961 ⇒ **D**

Answer: (D) [Go Back to Q17](#)

Sol. 18.

Solution

Concept — Indian Folk Art (Warli): NID DAT tests knowledge of India's craft and folk traditions.

Step 1 — Warli art: Practised by the **Warli tribe** of the Palghar district in **Maharashtra** (and the adjacent Gujarat border region). White rice-paste pigment on a reddish-brown mud background creates geometric motifs — circles, triangles, and squares — arranged into narrative scenes of harvesting, hunting, and festive dancing (especially the *tarpa* circle dance).

Step 2 — Recognition: Artist **Jivya Soma Mashe** (1934–2018) internationalised Warli art; it is now a GI-tagged traditional art form of Maharashtra.



Why other options are wrong:

- A (Gujarat): home to Rogan painting and Patola weave; Warli is associated with Maharashtra.
- C (MP): home to Gond and Bhil art.
- D (Rajasthan): home to Phad scroll and Mandana art.

Final Answer: Maharashtra $\Rightarrow$

Answer: (B) [Go Back to Q18](#)

Sol. 19.

Solution

Concept — Gestalt Principles (Figure-Ground): The Gestalt school describes how perception organises visual scenes into wholes.

Step 1 — Figure-Ground defined: The principle states that perception automatically separates a visual scene into a **figure** (the salient foreground object, perceived as having a definite shape) and a **ground** (the undifferentiated background). The same region can be ambiguously read as either — the classic example is *Rubin's Vase* (two faces or one vase).

Step 2 — Distinguish from other Gestalt principles:

- **Similarity:** similar elements seen together (Option A).
- **Continuity:** eye follows smooth paths (Option B).
- **Figure-Ground:** foreground vs. background (Option C — **correct**).
- **Closure:** incomplete shapes perceived as complete (Option D).

Final Answer: Foreground/background organisation $\Rightarrow$

Answer: (C) [Go Back to Q19](#)



Sol. 20.

Solution

Concept — Colour Theory (Complementary Colours): The colour wheel organises colours by spectral relationships.

Step 1 — Definition: Complementary colours are pairs **directly opposite each other** on the colour wheel (e.g. red–green, blue–orange, yellow–violet in the RYB model). When juxtaposed they create maximum contrast; when mixed in equal pigment amounts they neutralise to a grey or brown.

Why other options are wrong:

- A (Analogous): colours *adjacent* on the wheel (e.g. red, orange, yellow).
- B (Triadic): three colours equally spaced (120° apart).
- D (Monochromatic): variations of one hue only.

Final Answer: Complementary colours $\Rightarrow$

Answer: (C) [Go Back to Q20](#)

Sol. 21.

Solution

Concept — Design Principles (Rhythm): Among the core design principles, rhythm governs organised visual movement.

Step 1 — Rhythm defined: Rhythm is the principle of organised movement achieved by **repeating** visual elements (lines, shapes, colours, textures) in a regular, alternating, progressive, or random manner. It guides the viewer's eye through the composition and creates a sense of energy and flow. Types: regular, alternating, progressive (gradation), and flowing rhythm.

Why other options are wrong:

- B (Unity): makes all elements feel coherent but does not imply movement or repetition.
- C (Proportion): concerns size relationships between elements.
- D (Contrast): highlights differences between elements.

Final Answer: Rhythm $\Rightarrow$

Answer: (A) [Go Back to Q21](#)



Sol. 22.

Solution

Concept — Typography (Tracking, Kerning, Leading): Three distinct spacing parameters control typographic spacing.

Step 1 — Definitions:

- **Leading:** vertical baseline-to-baseline distance between lines of text.
- **Tracking:** **uniform** letter-spacing adjustment applied across a selected range of characters (a word, sentence, or whole block). Increases or decreases the space between *all* characters evenly.
- **Kerning:** space adjustment between *specific letter pairs* (e.g. AV, To, WA) to correct optical imbalances.
- **Measure:** the width of a text column.

Step 2 — Identify tracking: Uniform letter-spacing across a range = **tracking** = Option B.

Why other options are wrong:

- A: describes leading.
- C: describes kerning (the option text even names it).
- D: describes the measure (column width).

Final Answer: Uniform letter-spacing across a range $\Rightarrow$ B

Answer: (B) [Go Back to Q22](#)

