

MAHCET Abstract Reasoning

Sample Paper – 7

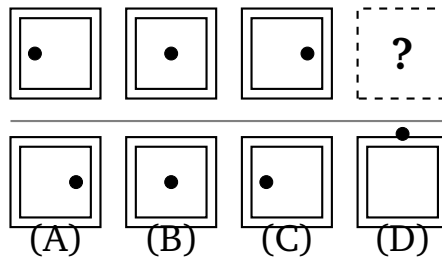
Duration: 19 Minutes **Total Marks:** 25 **Questions:** 25 **Negative Marking:** None

Instructions

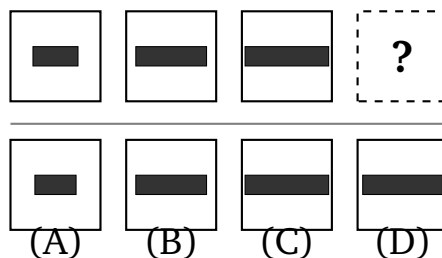
- This paper contains 25 questions from the Abstract Reasoning section of MAHCET.
- Each question carries 1 mark. There is no negative marking for wrong answers.
- All questions are compulsory. Choose the best option from (A), (B), (C), (D).
- This is a Computer Based Test (CBT). No physical calculator is allowed.
- Attempt all questions within the allotted time of 19 minutes.

Abstract Reasoning

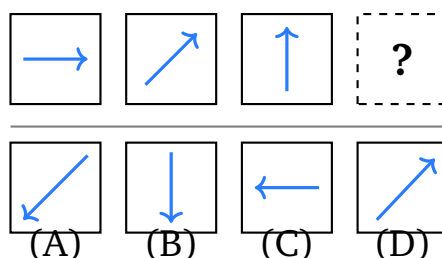
Q1. Find the missing figure in the series.



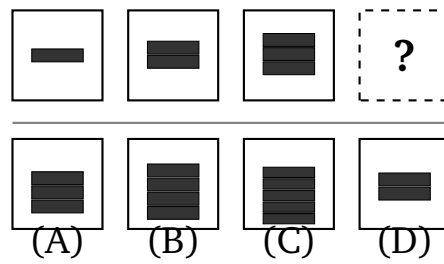
Q2. Find the missing figure in the series.



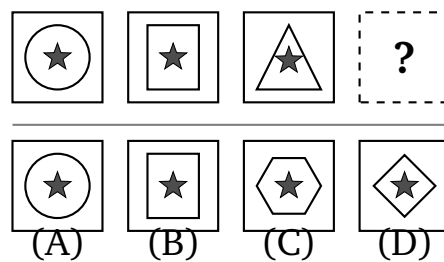
Q3. Find the missing figure in the series.



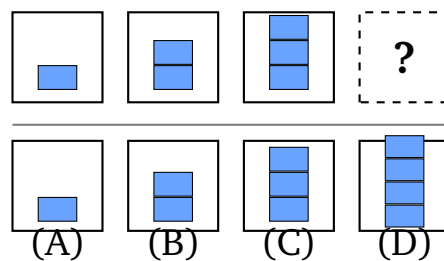
Q4. Find the missing figure in the series.



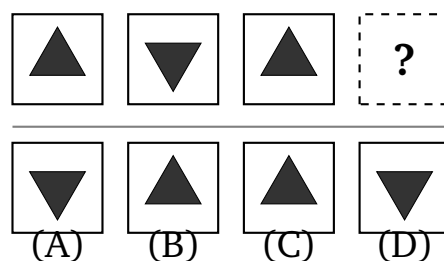
Q5. Find the missing figure in the series.



Q6. Find the missing figure in the series.

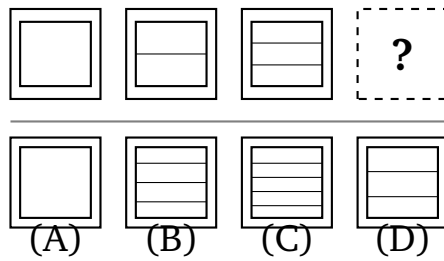


Q7. Find the missing figure in the series.

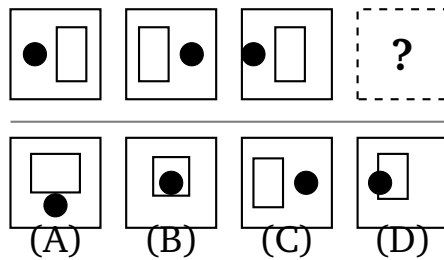


Q8. Find the missing figure in the series.

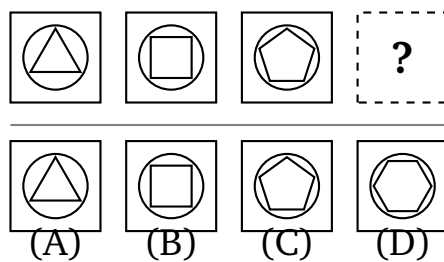




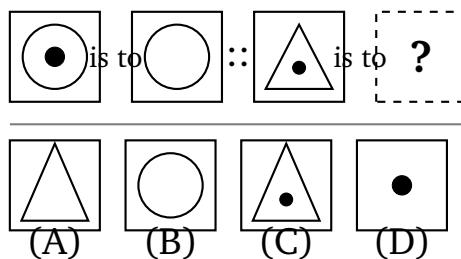
Q9. Find the missing figure in the series.



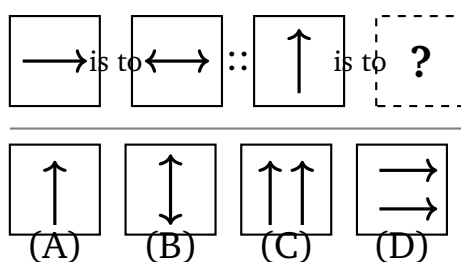
Q10. Find the missing figure in the series.



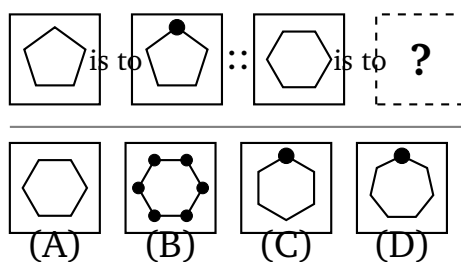
Q11. Choose the figure that completes the analogy.



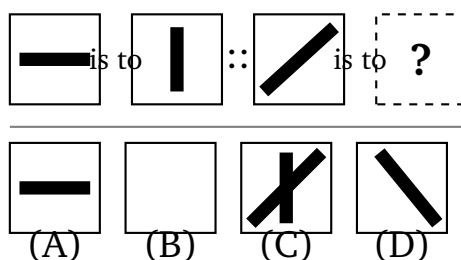
Q12. Choose the figure that completes the analogy.



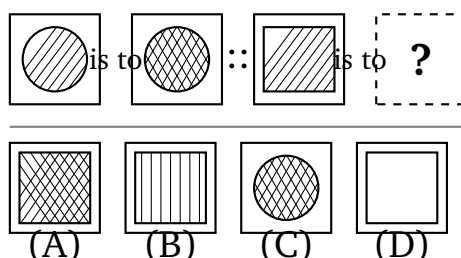
Q13. Choose the figure that completes the analogy.



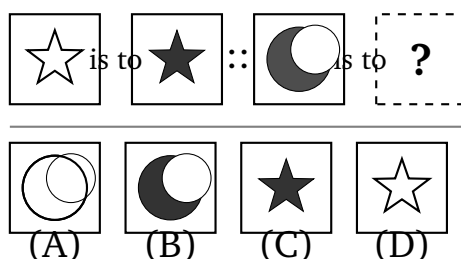
Q14. Choose the figure that completes the analogy.



Q15. Choose the figure that completes the analogy.

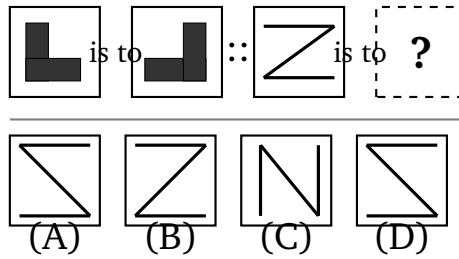


Q16. Choose the figure that completes the analogy.

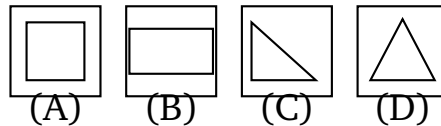


Q17. Choose the figure that completes the analogy.

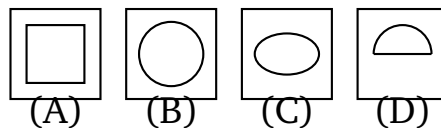




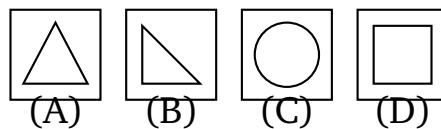
Q18. Which figure does NOT belong to the group?



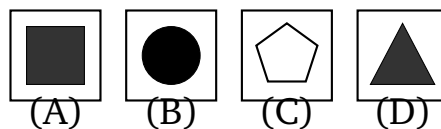
Q19. Which figure does NOT belong to the group?



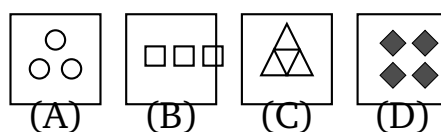
Q20. Which figure does NOT belong to the group?



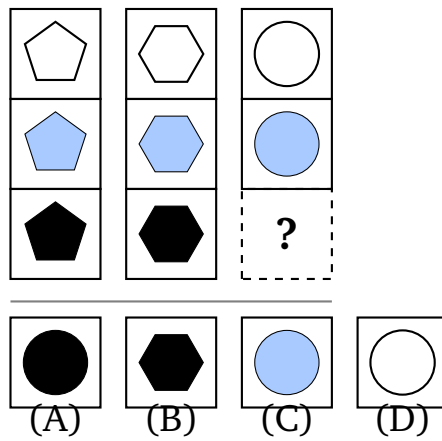
Q21. Which figure does NOT belong to the group?



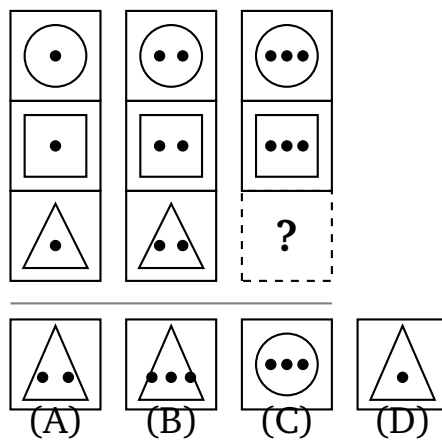
Q22. Which figure does NOT belong to the group?



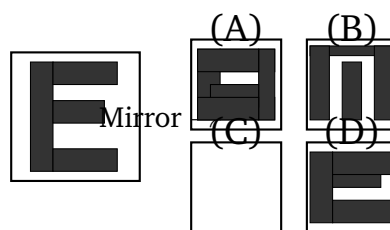
Q23. Find the missing figure in the 3×3 matrix.



Q24. Find the missing figure in the 3×3 matrix.



Q25. Select the correct mirror image of the given figure.



Detailed Solutions

1.

Solution**Concept — Series: Dot Cycling Left to Right**

Identify the rule: A filled dot moves inside a square from left to center to right, then cycles back to left: Step 1 = left, Step 2 = center, Step 3 = right.

Apply the rule: After reaching the right position (Step 3), the dot cycles back to the left position in Step 4. Option C shows the dot at the left side of the square.

Why other options are wrong:

- Option A: Dot at right – matches Step 3, already used.
- Option B: Dot at center – matches Step 2, already used.
- Option D: Dot placed outside the frame – invalid position, not part of the pattern.

Final Answer: Dot cycles left→center→right→left; Step 4 = left = C. ⇒ C

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

2.

Solution**Concept — Series: Rectangle Growing Wider**

Identify the rule: A filled black horizontal rectangle grows wider by 1 unit at each step: Step 1 = 1 unit, Step 2 = 2 units, Step 3 = 3 units.

Apply the rule: Step 4 requires a 4-unit wide rectangle, spanning nearly the full width of the option frame. Option D shows this widest rectangle.

Why other options are wrong:

- Option A: 1 unit wide – matches Step 1.
- Option B: 2 units wide – matches Step 2.
- Option C: 3 units wide – matches Step 3.

Final Answer: Rectangle grows 1 unit wider per step; Step 4 = 4-unit wide = D. ⇒ D

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



3.

Solution**Concept — Series: Arrow Rotating 45° Counter-Clockwise****Identify the rule:** The arrow rotates 45° counter-clockwise at each step: East (0°) → NE (45°) → North (90°).**Apply the rule:** The next 45° CCW rotation from North gives NW (135° from East), pointing upper-left. Option A shows the arrow pointing NW.**Why other options are wrong:**

- Option B: Arrow pointing North – matches Step 3, already used.
- Option C: Arrow pointing West – skips one step (over-rotates by 45°).
- Option D: Arrow pointing NE – matches Step 2, already used.

Final Answer: Arrow rotates 45° CCW per step; Step 4 = NW direction = A. ⇒**A****Answer: (A)** [Go Back to Q3](#)

4.

Solution**Concept — Series: Increasing Rows of Rectangles****Identify the rule:** The number of stacked horizontal filled rectangles increases by 1 each step: Step 1 = 1 row, Step 2 = 2 rows, Step 3 = 3 rows.**Apply the rule:** Step 4 requires a stack of 4 rows. Option B shows 4 stacked filled rectangles.**Why other options are wrong:**

- Option A: 3 rows – matches Step 3.
- Option C: 5 rows – overshoots the pattern by one.
- Option D: 2 rows – matches Step 2.

Final Answer: Rows increase by 1 per step; Step 4 = 4 rows = B. ⇒ **B****Answer: (B)** [Go Back to Q4](#)

5.

Solution**Concept — Series: Fixed Inner Star, Changing Outer Shape****Identify the rule:** The inner 5-pointed star remains fixed while the outer shape changes each step: Step 1 = circle, Step 2 = square, Step 3 = triangle.**Apply the rule:** The sequence follows the progression circle → square → triangle → hexagon. Step 4 must have a hexagonal outer shape with the same inner star. Option C shows a hexagon with the star inside.**Why other options are wrong:**

- Option A: Circle with star – matches Step 1, already used.
- Option B: Square with star – matches Step 2, already used.
- Option D: Diamond (rotated square) with star – not the next shape in progression.

Final Answer: Outer shape progresses to hexagon in Step 4; inner star unchanged = C. ⇒ **Answer: (C)** [Go Back to Q5](#)

6.

Solution**Concept — Series: Growing Stack of Blocks****Identify the rule:** A vertical stack of filled blocks grows by 1 block at each step from the bottom: Step 1 = 1 block, Step 2 = 2 blocks, Step 3 = 3 blocks.**Apply the rule:** Step 4 requires a stack of 4 blocks. Option D shows 4 blocks stacked vertically.**Why other options are wrong:**

- Option A: 1 block – matches Step 1.
- Option B: 2 blocks – matches Step 2.
- Option C: 3 blocks – matches Step 3.

Final Answer: Stack grows by 1 block per step; Step 4 = 4 blocks = D. ⇒ **Answer: (D)** [Go Back to Q6](#)

7.

Solution**Concept — Series: Filled Triangle Rotating 60° Clockwise**

Identify the rule: A filled equilateral triangle rotates 60° clockwise at each step: apex pointing Up (90°) → apex upper-right (30°) → apex lower-right (330°).

Apply the rule: The next 60° CW rotation from lower-right gives apex at bottom (270°), meaning the triangle points downward. Option A shows the filled triangle with apex pointing down.

Why other options are wrong:

- Option B: Triangle pointing up – matches Step 1, already used.
- Option C: Triangle pointing lower-right – matches Step 3, already used.
- Option D: Triangle pointing upper-right – matches Step 2, already used.

Final Answer: Triangle rotates 60° CW per step; Step 4 = apex pointing down = A. ⇒

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

8.

Solution**Concept — Series: Increasing Horizontal Lines Inside Rectangle**

Identify the rule: The number of horizontal lines inside the outer rectangle increases by 1 each step: Step 1 = 0 lines (plain), Step 2 = 1 line, Step 3 = 2 lines.

Apply the rule: Step 4 requires 3 horizontal lines evenly spaced inside the rectangle. Option B shows the rectangle with 3 interior horizontal lines.

Why other options are wrong:

- Option A: 0 lines (plain rectangle) – matches Step 1.
- Option C: 4 lines – overshoots the pattern by one.
- Option D: 2 lines – matches Step 3.

Final Answer: Lines increase by 1 per step; Step 4 = 3 lines = B. ⇒

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



9.

Solution**Concept — Series: Two-Shape Position Alternation**

Identify the rule: A filled circle and an outline square alternate positions between left and right across each frame: Step 1 = circle left/square right, Step 2 = square left/circle right, Step 3 = circle left/square right (repeats).

Apply the rule: Step 4 must repeat the pattern of Step 2: square on the left side, circle on the right side. Option C shows the outline square on the left and filled circle on the right.

Why other options are wrong:

- Option A: Circle below and square above – vertical arrangement, not the horizontal swap pattern.
- Option B: Both shapes overlapping at center – does not follow the left-right swap rule.
- Option D: Both shapes on the same side – breaks the alternation pattern.

Final Answer: Step 4 = square left/circle right (alternation) = C. $\Rightarrow$ C

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

10.

Solution**Concept — Series: Inscribed Polygon with Increasing Sides**

Identify the rule: An outer circle contains an inscribed regular polygon whose number of sides increases by 1 at each step: Step 1 = triangle (3 sides), Step 2 = square (4 sides), Step 3 = pentagon (5 sides).

Apply the rule: Step 4 requires the inscribed polygon to have 6 sides: a regular hexagon inside the circle. Option D shows a circle with an inscribed hexagon.

Why other options are wrong:

- Option A: Circle with triangle – matches Step 1 (3 sides).
- Option B: Circle with square – matches Step 2 (4 sides).
- Option C: Circle with pentagon – matches Step 3 (5 sides).



Final Answer: Inscribed polygon gains one side per step; Step 4 = hexagon = D.

⇒ D

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

11.

Solution

Concept — Analogy: Inner Element Removed

Identify the rule: The inner element is removed while the outer shape is retained: FigA (large circle + inner filled dot) → FigB (large circle only, inner dot removed). Apply the same rule to FigC (triangle + inner filled dot).

Apply the rule: Removing the inner filled dot from the triangle leaves only the plain outline triangle. Option A shows the triangle with nothing inside.

Why other options are wrong:

- Option B: Outline circle – wrong outer shape (circle instead of triangle).
- Option C: Triangle + inner circle – inner element retained, not removed.
- Option D: Small circle only – outer shape removed instead of inner element.

Final Answer: Inner dot removed; plain outline triangle remains = A. ⇒ A

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



12.

Solution**Concept — Analogy: Single Shape Becomes Symmetric Pair**

Identify the rule: A single arrow is reflected to create a symmetric pair (double-headed arrow): FigA (single right arrow) $\rightarrow$ FigB (left-right double-headed arrow $\leftrightarrow$). Apply the same transformation to FigC (single upward arrow).

Apply the rule: A single upward arrow reflected to make a symmetric pair gives a vertical double-headed arrow ($\updownarrow$). Option B shows the up-down double-headed arrow.

Why other options are wrong:

- Option A: Single upward arrow – same as FigC, no transformation applied.
- Option C: Two upward arrows side by side – incorrect, both point same direction.
- Option D: Two rightward arrows stacked – wrong direction and not a symmetric pair.

Final Answer: Single upward arrow $\rightarrow$ up-down symmetric pair = B. $\Rightarrow$ B

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

13.

Solution**Concept — Analogy: One Vertex Highlighted**

Identify the rule: A plain polygon gains one highlighted (filled dot) vertex at the top: FigA (plain pentagon) $\rightarrow$ FigB (pentagon with top vertex highlighted). Apply the same rule to FigC (plain hexagon).

Apply the rule: The plain hexagon gains one filled dot at its top vertex. Option C shows the hexagon with exactly one vertex highlighted at the top.

Why other options are wrong:

- Option A: Plain hexagon – same as FigC, no transformation applied.
- Option B: Hexagon with all vertices highlighted – excessive, rule says only one vertex.



- Option D: Heptagon with one vertex highlighted – wrong shape (7 sides instead of 6).

Final Answer: Plain hexagon → hexagon with one top vertex highlighted = C. ⇒

C

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

14.

Solution

Concept — Analogy: Line Rotating 90° Clockwise

Identify the rule: A bold line rotates 90° clockwise: FigA (horizontal) → FigB (vertical, 90° CW). The same 90° CW rotation applies: FigC (forward diagonal '/') → answer.

Apply the rule: A forward diagonal '/' (lower-left to upper-right) rotated 90° CW becomes a backward diagonal '\' (upper-left to lower-right). Option D shows this backward diagonal.

Why other options are wrong:

- Option A: Horizontal line – same as FigA, no rotation.
- Option B: Forward diagonal – same as FigC, no rotation.
- Option C: Vertical line – the 90° CW rotation of FigA, not FigC.

Final Answer: Forward diagonal rotated 90° CW = backward diagonal = D. ⇒

D

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



15.

Solution**Concept — Analogy: Hatching to Cross-Hatching**

Identify the rule: One-directional hatching is upgraded to cross-hatching (two directions) while keeping the same outer shape: FigA (circle with diagonal hatching) → FigB (circle with cross-hatching). Apply the same rule to FigC (square with diagonal hatching).

Apply the rule: The square with diagonal hatching becomes a square with cross-hatching. Option A shows the square with two sets of crossing lines inside.

Why other options are wrong:

- Option B: Square with vertical lines – wrong type of hatching.
- Option C: Circle with cross-hatching – correct hatching but wrong shape (circle instead of square).
- Option D: Plain square – hatching removed entirely, not upgraded.

Final Answer: Hatched square → cross-hatched square = A. ⇒ A

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

16.

Solution**Concept — Analogy: Outline to Filled**

Identify the rule: An outline (empty) shape is converted to the same shape fully filled: FigA (outline 5-pointed star) → FigB (filled 5-pointed star). Apply the same rule to FigC (outline crescent shape).

Apply the rule: The outline crescent becomes a filled (solid black) crescent. Option B shows the filled crescent.

Why other options are wrong:

- Option A: Outline crescent – same as FigC, fill not added.
- Option C: Filled star – correct transformation but wrong shape (star instead of crescent).
- Option D: Outline star – wrong shape and not filled.



Final Answer: Outline crescent $\rightarrow$ filled crescent = B. $\Rightarrow$ **B**

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

17.

Solution

Concept — Analogy: Shape Rotated 90° Clockwise

Identify the rule: The shape is rotated 90° clockwise: FigA (L-shape, standard orientation) $\rightarrow$ FigB (L-shape rotated 90° CW). Apply the same rotation to FigC (Z-shape).

Apply the rule: A Z-shape rotated 90° clockwise produces an N-shape (two vertical bars connected by a diagonal going the other way). Option C shows the N-shape.

Why other options are wrong:

- Option A: S-shape – mirror of Z, not a 90° CW rotation.
- Option B: Z unchanged – same as FigC, no rotation applied.
- Option D: Z rotated 180° – upside-down Z, not 90° CW.

Final Answer: Z rotated 90° CW = N-shape = C. $\Rightarrow$ **C**

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

18.

Solution

Concept — Odd One Out: Right Angles

Identify the rule: Three figures share a common property: they each contain at least one right angle. Option A (square) has four right angles, Option B (rectangle) has four right angles, and Option C (right triangle) has one right angle.

Apply the rule: Option D is an equilateral triangle, which has all angles equal to 60° and contains no right angle. This makes it the odd one out.

Why other options are wrong:

- Option A: Square – 4 right angles, belongs to the group.



- Option B: Rectangle – 4 right angles, belongs to the group.
- Option C: Right triangle – contains exactly one right angle, belongs to the group.

Final Answer: Equilateral triangle has no right angles; odd one out = D. $\Rightarrow$ D

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

19.

Solution

Concept — Odd One Out: Curved vs Angular Boundary

Identify the rule: Three figures have entirely curved boundaries: Option B (circle), Option C (ellipse), and Option D (semicircle) are all formed by curved lines. Option A is a square with four straight sides and sharp corners.

Apply the rule: The square is the only figure with angular (straight) sides, making it the odd one out among curved shapes.

Why other options are wrong:

- Option B: Circle – fully curved boundary, belongs to the group.
- Option C: Ellipse – fully curved boundary, belongs to the group.
- Option D: Semicircle – curved arc boundary, belongs to the group.

Final Answer: Square has angular sides while others are curved; odd one out = A. $\Rightarrow$ A

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



20.

Solution**Concept — Odd One Out: Symmetry About Vertical Axis**

Identify the rule: Three figures are symmetric about their vertical axis: Option A (equilateral triangle – apex is centered), Option C (circle – fully symmetric), and Option D (square – left-right symmetric). Option B is a right triangle whose right angle is at one corner, making it asymmetric about the vertical axis.

Apply the rule: The right triangle cannot be divided by a vertical axis into two mirror-image halves, making it the odd one out.

Why other options are wrong:

- Option A: Equilateral triangle – symmetric about vertical axis through apex.
- Option C: Circle – perfectly symmetric about any axis.
- Option D: Square – symmetric about vertical axis through center.

Final Answer: Right triangle is not vertically symmetric; odd one out = B. $\Rightarrow$ **B**

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

21.

Solution**Concept — Odd One Out: Filled vs Outline**

Identify the rule: Three figures are solid/filled shapes: Option A (solid black square), Option B (solid black circle), and Option D (solid black triangle) are all completely filled. Option C is an outline pentagon with no fill at all.

Apply the rule: The outline pentagon is the only shape without any fill, making it the odd one out among solid filled shapes.

Why other options are wrong:

- Option A: Solid black square – filled, belongs to the group.
- Option B: Solid black circle – filled, belongs to the group.
- Option D: Solid black triangle – filled, belongs to the group.

Final Answer: Outline pentagon has no fill while others are solid; odd one out = C. $\Rightarrow$ **C**



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

22.

Solution

Concept — Odd One Out: Count of Elements

Identify the rule: Three figures each contain exactly 3 elements: Option A (3 circles), Option B (3 squares), and Option C (3 triangles). Option D contains 4 diamonds arranged in a 2×2 grid.

Apply the rule: Option D has 4 elements while all others have 3, making it the odd one out regardless of shape.

Why other options are wrong:

- Option A: 3 circles – element count = 3, belongs to the group.
- Option B: 3 squares – element count = 3, belongs to the group.
- Option C: 3 triangles – element count = 3, belongs to the group.

Final Answer: 4 diamonds has different count; odd one out = D. $\Rightarrow$ **D**

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

23.

Solution

Concept — Matrix: Fill Level $\times$ Shape

Identify the rule: Two simultaneous rules govern the matrix: rows control fill level (Row 1 = outline, Row 2 = gray/light blue, Row 3 = solid black), and columns control shape (Col 1 = pentagon, Col 2 = hexagon, Col 3 = circle).

Apply the rule: Cell (3,3) is Row 3 (solid black fill) and Col 3 (circle). The missing figure is a solid black filled circle. Option A shows this.

Why other options are wrong:

- Option B: Solid black hexagon – correct fill but wrong shape (Col 2 shape).
- Option C: Gray circle – correct shape but wrong fill (Row 2 fill instead of Row 3).



- Option D: Outline circle – correct shape but wrong fill (Row 1 fill instead of Row 3).

Final Answer: Row 3 = solid black; Col 3 = circle; missing = solid black circle = A. $\Rightarrow$

Answer: (A) [Go Back to Q23](#)

24.

Solution

Concept — Matrix: Shape $\times$ Dot Count

Identify the rule: Two simultaneous rules: rows control shape (Row 1 = circles, Row 2 = squares, Row 3 = triangles), and columns control the number of dots inside (Col 1 = 1 dot, Col 2 = 2 dots, Col 3 = 3 dots).

Apply the rule: Cell (3,3) is Row 3 (triangle) and Col 3 (3 dots). The missing figure is a triangle containing 3 dots. Option B shows this.

Why other options are wrong:

- Option A: Triangle with 2 dots – correct shape but wrong dot count (Col 2).
- Option C: Circle with 3 dots – correct dot count but wrong shape (Row 1).
- Option D: Triangle with 1 dot – correct shape but wrong dot count (Col 1).

Final Answer: Row 3 = triangle; Col 3 = 3 dots; missing = triangle with 3 dots = B. $\Rightarrow$

Answer: (B) [Go Back to Q24](#)



25.

Solution**Concept — Mirror Image: Left-Right Reflection of E-shape**

Identify the rule: A left-right (horizontal) mirror image flips the figure about the vertical axis. The original E-shape has its vertical bar on the LEFT with three horizontal bars extending to the RIGHT. After reflection, the vertical bar moves to the RIGHT and the bars extend to the LEFT (creating a reversed-E or $\exists$ shape).

Apply the rule: Option C shows the vertical bar on the right side with all three horizontal bars extending leftward – the correct mirror image.

Why other options are wrong:

- Option A: Vertical bar on left, bars extending right – this is the original figure, not its mirror.
- Option B: E rotated 90° CW – shows a comb-like shape, which is a rotation not a reflection.
- Option D: E upside-down – this is a vertical flip, not the required left-right mirror.

Final Answer: Correct mirror has vertical bar on right, bars extend left ($\exists$ shape)
= C. $\Rightarrow$

Answer: (C) [Go Back to Q25](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	D	3	A	4	B	5	C
6	D	7	A	8	B	9	C	10	D
11	A	12	B	13	C	14	D	15	A
16	B	17	C	18	D	19	A	20	B
21	C	22	D	23	A	24	B	25	C

