

Figure Matrix

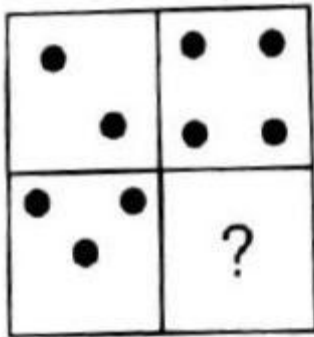
In this type of questions, more than one set of figures is given in the form of a matrix, all of them following the same rule. The candidate is required to analyse the complete sets; find out the common rule and then on its basis, find the missing figure in the incomplete set.

The non-verbal reasoning relies heavily on checking the student's ability to access shapes and symbols that are related through a rule. For example, in a number series, several numbers are related to each other through a rule. Similarly, in the figure matrix, each segment is connected through a rule. Let us solve some examples and see what we exactly mean by this.

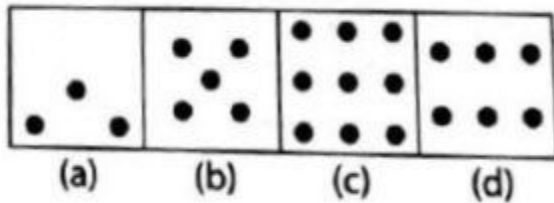
Solved Examples

Example 1: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:



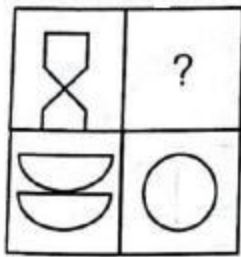
- A. (a)
- B. (b)
- C. (c)
- D. (d)

E. None of these

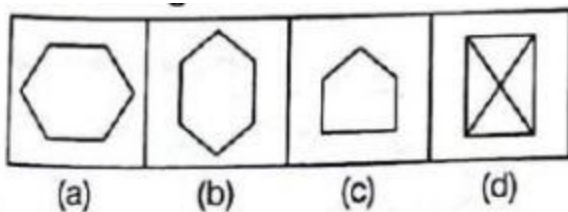
Answer: Clearly, in the upper row, the number of dots in the second is twice the number of dots in the first figure. Similarly, in the lower row, the number of dots in the second figure must be twice the number of dots in the lower first figure. So, the number of dots in the missing segment is $= 2 \times 3 = 6$. Thus the correct answer is D. (d).

Example 2: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer figures:



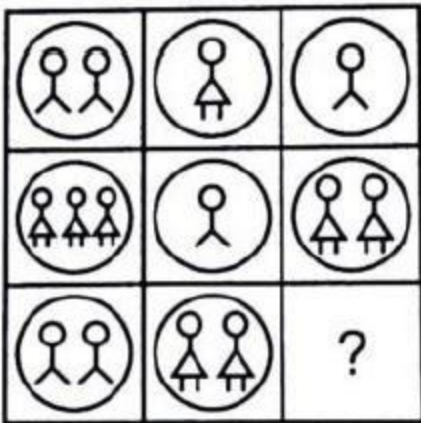
A. (a)

- B. (b)
- C. (c)
- D. (d)
- E. none of the above

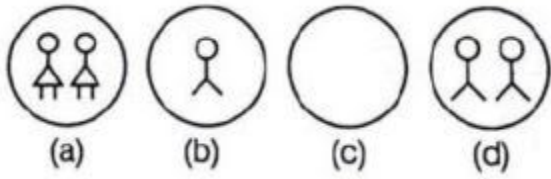
Answer: The two parts of the first figure are rearranged and joined along the longer sides. The common side is then removed to form the second figure. Hence the answer is B. (b).

Example 3: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:



- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. none of the above

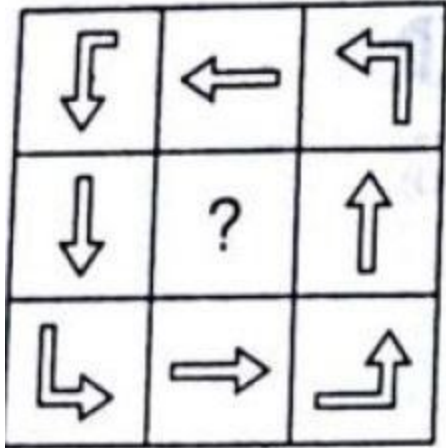
Answer: Clearly, in each row, the number of elements in the third figure is equal to the difference in the number of elements in the first and second figures. Also, the third figure has the same types of elements as that of the first figure. Therefore, the answer is clearly C. (c).

Learn Counting of Figures here.

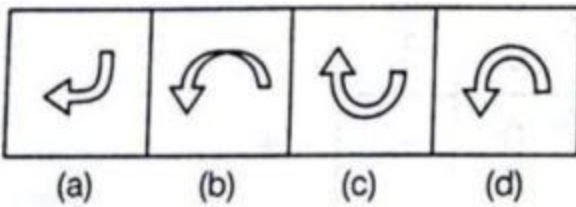
Examples Of Higher Order

Example 4: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:

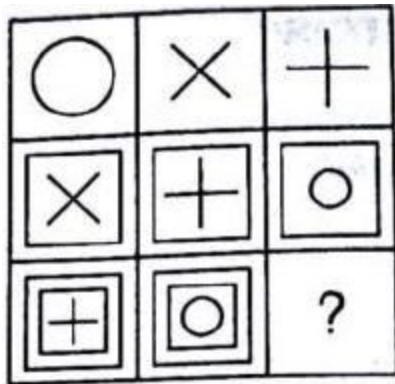


- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. none of these

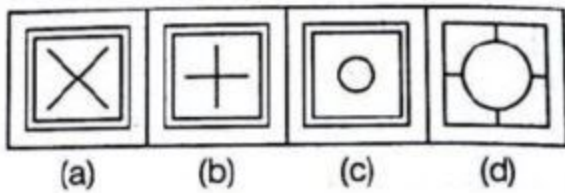
Answer: In the question figure, all the arrows are headed in the same direction. They are all pointing in an anticlockwise direction. So the answer can either be (b) or (d). In (b), the shape of the arrow is unnecessarily peculiar. Hence the only shape that fits the matrix will be D. (d).

Example 5: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:

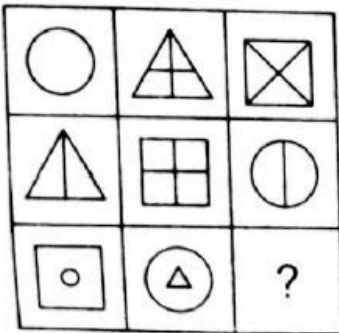


- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. none of the above

Answer: Each column has one '+', one 'o' and one 'x'. The first figure of each column is without boundary and the second one is in the square. The third figure is in two squares. As there are '+' and 'o' in the third column. So figure 'x' will be surrounded by two squares and the correct answer is A.
(a).

Example 5: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:



(a) (b) (c) (d)

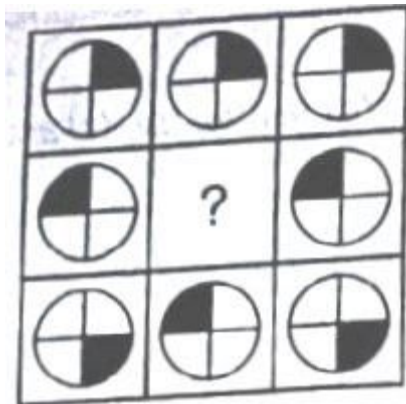
A. (a)

- B. (b)
- C. (c)
- D. (d)
- E. none of the above

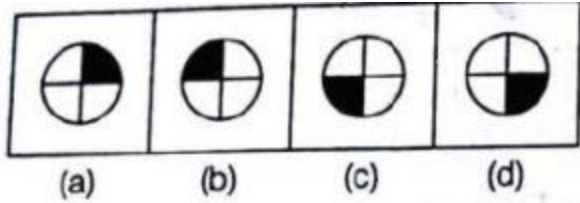
Answer: There is a triangle after the circle and a square after triangle. In the last row, we have to find the figure inside the triangle. In the next segment of the column, there is a triangle and there must be a square inside the triangle. Thus the answer will be C. (c).

Example 6: In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Problem Figure:



Answer Figures:



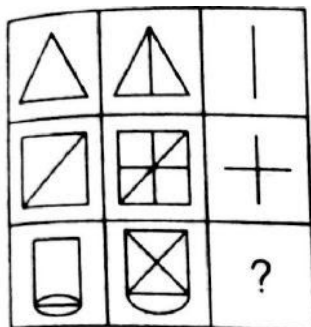
- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. none of the above

Answer: In the first and the third set, the black portion of the middle image is diagonally opposite to that of the first image. Hence, the second image in the second set must be the option D. (d).

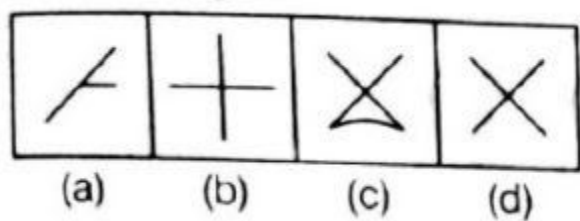
Practice Problems For You

In the following question, find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?

Q1: Problem Figure:



Answer Figures:

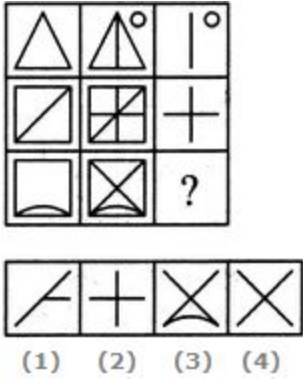


- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. none of these

Ans: D. (d)

Figure Matrix Question and Answer:

1 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1
.

E 2
.

C 3
.

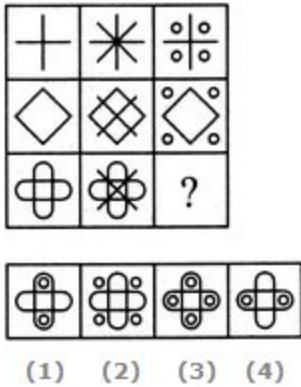
D 4
.

Answer: Option **D**

Explanation:

The third figure in each row comprises parts which are not common to the first two figures.

2 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1
.

E
2
.

C
3
.

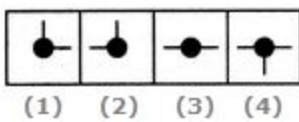
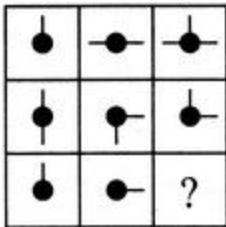
D
4
.

Answer: Option B

Explanation:

In each row, the second figure is obtained from the first figure by adding two mutually perpendicular line segments at the centre and the third figure is obtained from the first figure by adding four circles outside the main figure.

3 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1
.

E
2
.

C
3
.

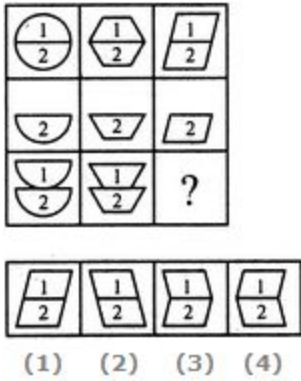
E
4
.

Answer: Option A

Explanation:

In each row, the third figure comprises of a black circle and only those line segments which are not common to the first and the second figures.

4 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1

.

E 2

.

C 3

.

D 4

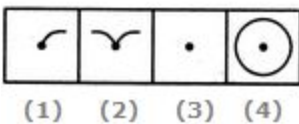
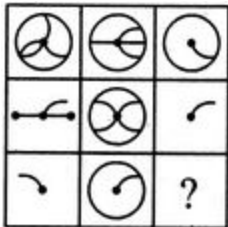
.

Answer: Option C

Explanation:

In each column, the second figure (middle figure) is obtained by removing the upper part of the first figure (uppermost figure) and the third figure (lowermost figure) is obtained by vertically inverting the upper part of the first figure.

5 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1

E
2

C
3

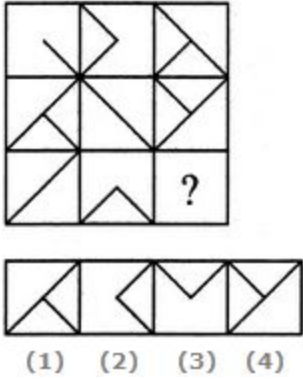
D
4

Answer: Option C

Explanation:

The third figure in each row comprises the parts common to the first two figures.

6 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1

B 2

C 3

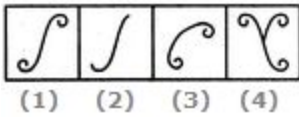
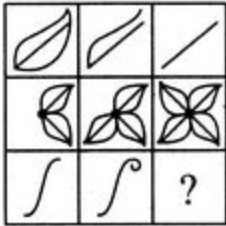
D 4

Answer: Option **B**

Explanation:

The third figure in each row comprises parts which are not common to the first two figures.

7 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1

.

E 2

.

C 3

.

E 4

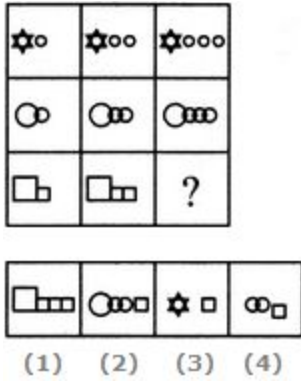
.

Answer: Option A

Explanation:

The number of components in each row either increases or decreases from left to right. In the third row, it increases.

8 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1

E
2

C
3

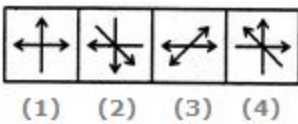
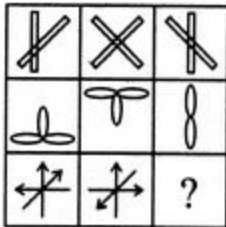
E
4

Answer: Option **A**

Explanation:

In each row, the second figure is obtained from the first figure by increasing the number of smaller elements by one and the third figure is obtained from the second figure by increasing the number of smaller elements by one.

9 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1
.

E
2
.

C
3
.

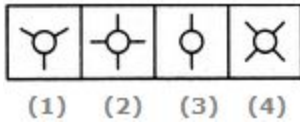
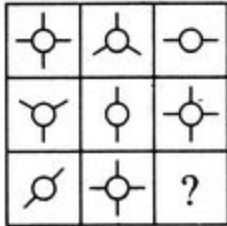
E
4
.

Answer: Option C

Explanation:

The third figure in each row comprises parts which are not common to the first two figures.

1 Select a suitable figure from the four alternatives that would complete
 0 the figure matrix.



A 1

.

E 2

.

C 3

.

D 4

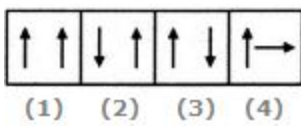
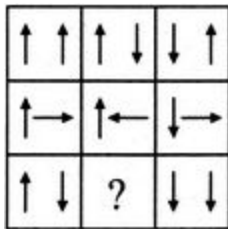
.

Answer: Option **A**

Explanation:

Each row (as well as each column) contains a figure consisting of a circle and two line segments, a figure consisting of a circle and three line segments and a figure consisting of a circle and four line segments.

- 1 Select a suitable figure from the four alternatives that would complete the figure matrix.



A
1

E
2

C
3

D
4

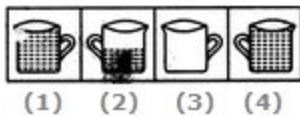
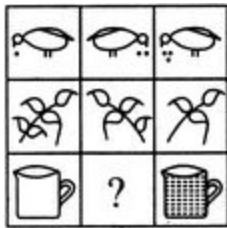
Answer: Option **A**

Explanation:

In each row, the second figure is obtained from the first figure by reversing the direction of the RHS arrow and the third figure is

obtained from the second figure by reversing the direction of both the arrows.

- 1 Select a suitable figure from the four alternatives that would complete
- 2 the figure matrix.



A 1

.

E 2

.

C 3

.

C 4

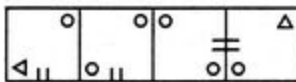
.

Answer: Option B

Explanation:

In each row, the figures are getting laterally inverted in each step. The number of components or the quantities are either increasing or decreasing from left to right sequentially.

- 1 Select a suitable figure from the four alternatives that would complete
- 3 the figure matrix.



(1) (2) (3) (4)

A
1

.

E
2

.

C
3

.

D
4

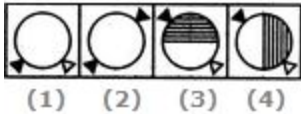
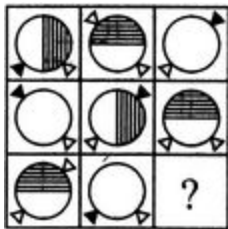
.

Answer: Option **C**

Explanation:

The second figure is obtained from the first figure by moving the line segment to the opposite side of the square boundary and replacing it with two similar line segments. Also, the element in the lower-left corner gets replaced by two similar elements - one placed in the upper-left and the other placed in the lower-right corner.

- 1 Select a suitable figure from the four alternatives that would complete
- 4 the figure matrix.



A 1

.

E 2

.

C 3

.

D 4

.

Answer: Option D

Explanation:

In each row, there are 3 types of shadings of circles - a circle is unshaded, another circle has its right half shaded with vertical lines and yet another circle has its upper half shaded with horizontal lines. There are three specified positions of the two triangles each of which is used only once in a row. Also, two of the figures in each row have one triangle shaded.

- 1 Select a suitable figure from the four alternatives that would complete the figure matrix.

└	┘	
┌	┐	
		?

			+
(1)	(2)	(3)	(4)

A 1

.

E 2

.

C 3

.

E 4

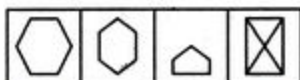
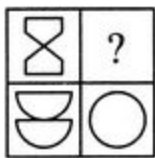
.

Answer: Option C

Explanation:

In each row, the third figure is a collection of the common elements (line segments) of the first and the second figures.

- 1 Select a suitable figure from the four alternatives that would complete the figure matrix.



(1) (2) (3) (4)

A 1

.

E 2

.

C 3

.

E 4

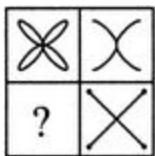
.

Answer: Option B

Explanation:

The two parts of the first figure are rearranged and joined along the longer sides. The common side is then lost to form the second figure.

-
- 1 Select a suitable figure from the four alternatives that would complete
7 the figure matrix.



(1) (2) (3) (4)

A 1

.

E 2

.

C 3

.

E 4

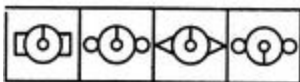
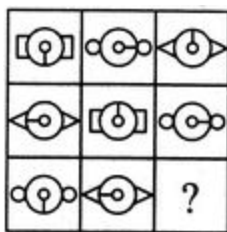
.

Answer: Option C

Explanation:

The second figure is a part of the first figure (but is not exactly the same as the first figure).

-
- 1 Select a suitable figure from the four alternatives that would complete
8 the figure matrix.



(1) (2) (3) (4)

A 1
.

E 2
.

C 3
.

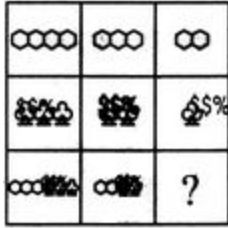
E 4
.

Answer: Option **A**

Explanation:

In each row, the central part of the first figure rotates either 90° CW or 90° ACW to form the central part of the second figure and the central part of the first figure rotates through 180° to form the central part of the third figure. Also, in each row, there are 3 types of side elements - rectangles, circles and triangles.

-
- 1 Select a suitable figure from the four alternatives that would complete
9 the figure matrix.



A
1
.

E
2
.

C
3
.

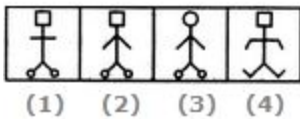
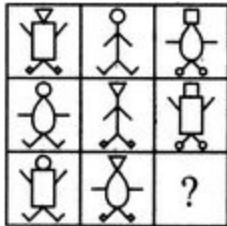
E
4
.

Answer: Option B

Explanation:

In each column, the third figure (lowermost figure) contains one less number of hexagons as the first figure (uppermost figure) and the same number of trees as the second figure (middle figure).

2 Select a suitable figure from the four alternatives that would complete
 0 the figure matrix.



A 1

.

E 2

.

C 3

.

E 4

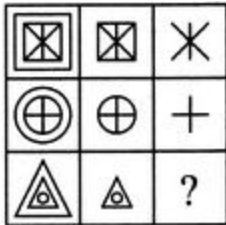
.

Answer: Option B

Explanation:

There are 3 types of faces, 3 types of bodies, 3 types of hands and 3 types of legs, each of which is used only once in a single row. So, the features which have not been used in the first two figures of the third row would combine to produce the missing figure.

- 2 Select a suitable figure from the four alternatives that would complete
1 the figure matrix.



(1) (2) (3) (4)

A
1

E
2

C
3

D
4

Answer: Option **D**

Explanation:

In each row, the second figure is obtained by removing the outermost element of the first figure and the third figure is obtained by removing the outermost element of the second figure.

2 Select a suitable figure from the four alternatives that would complete
 2 the figure matrix.

▢	▢▢	▢▢▢
▢▢	▢▢▢▢	▢▢▢▢▢▢
▢▢▢	▢▢▢▢▢▢	?

- (1) ▢▢▢▢▢▢▢▢ (3) ▢▢▢▢▢▢▢▢▢▢
 (2) ▢▢▢▢▢▢▢▢▢▢ (4) ▢▢▢▢▢▢▢▢▢▢▢▢▢▢

A 1

E 2

C 3

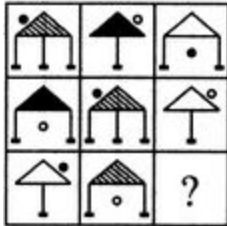
E 4

Answer: Option C

Explanation:

In each row (as well as in each column), the number of rectangles in the second figure is two times the number of rectangles in the first figure and the number of rectangles in the third figure is three times the number of rectangles in the first figure.

- 2 Select a suitable figure from the four alternatives that would complete
 3 the figure matrix.



A 1

.

E 2

.

C 3

.

E 4

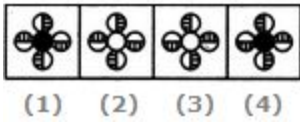
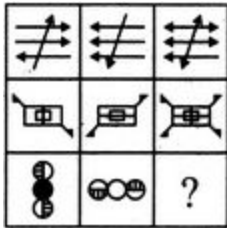
.

Answer: Option **C**

Explanation:

There are 3 types of shadings in the triangles, 3 types of legs, 3 positions of circles, each of which is used only once in a single row. The circle is shaded in alternate figures.

2 Select a suitable figure from the four alternatives that would complete
 4 the figure matrix.



A 1

E 2

C 3

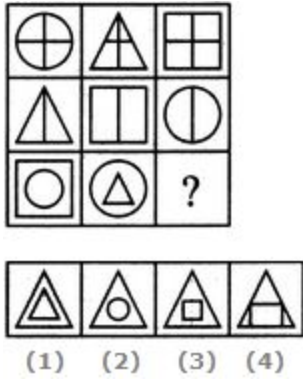
D 4

Answer: Option D

Explanation:

In each row, the third figure is a combination of the first and the second figure.

2 Select a suitable figure from the four alternatives that would complete
6 the figure matrix.



A 1

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E 2

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C 3

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E 4

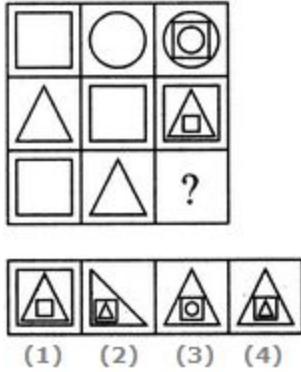
.

Answer: Option **C**

Explanation:

In each row, the triangle follows the circle, the square follows the triangle and the circle follows the square. In case of the third row, the above rule exists for the inner as well as the outer elements.

2 Select a suitable figure from the four alternatives that would complete
 7 the figure matrix.



A 1

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E 2

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C 3

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D 4

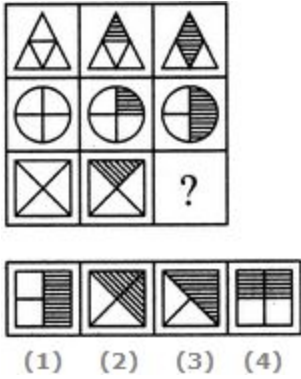
.

Answer: Option **D**

Explanation:

In each row, the second figure forms the innermost and the outermost elements of the third figure and the first figure forms the middle element of the third figure.

2 Select a suitable figure from the four alternatives that would complete
8 the figure matrix.



A 1

E 2

C 3

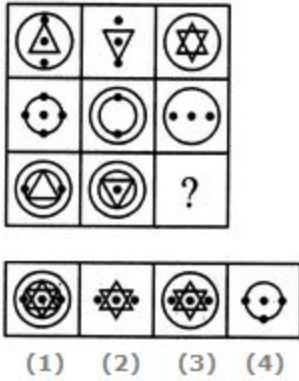
D 4

Answer: Option **B**

Explanation:

In each row, the second figure is obtained by shading one of the four parts of the first figure and the third figure is obtained by shading two out of the four parts of the first figure.

2 Select a suitable figure from the four alternatives that would complete
 9 the figure matrix.



A 1

E 2

C 3

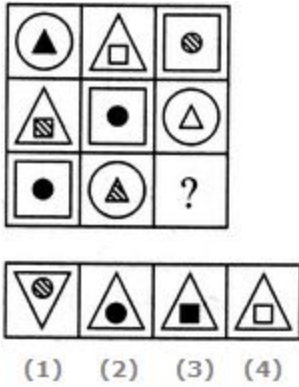
E 4

Answer: Option B

Explanation:

The third figure in each row comprises of parts which are not common to the first two figures.

3 Select a suitable figure from the four alternatives that would complete
 0 the figure matrix.



A
1

E
2

C
3

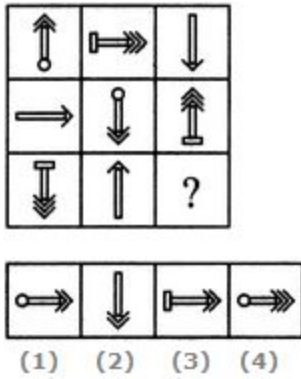
D
4

Answer: Option D

Explanation:

In each row, there are three types of outer elements (circle, triangle and square), three types of inner elements (circle, triangle and square) and three types of shadings in the inner elements (black, white and lines).

3 Select a suitable figure from the four alternatives that would complete
 1 the figure matrix.



A
1

E
2

C
3

C
4

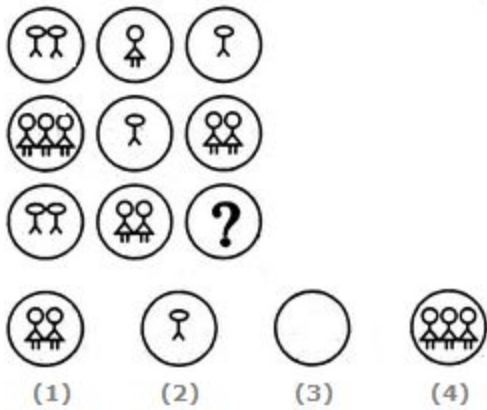
Answer: Option **A**

Explanation:

In each row, there are three types of arrows - an arrow with a single head and without any base, an arrow with double head having a circle at its base, an arrow with triple head having a rectangle at its base.

Also, in each row, the arrows point in three directions - upwards, downwards and towards the right.

3 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1

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E 2

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C 3

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E 4

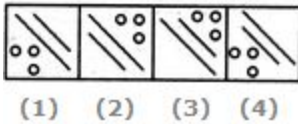
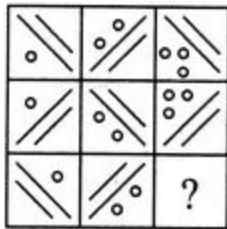
.

Answer: Option C

Explanation:

In each row, the number of elements in the third figure is equal to the difference in the number of elements in the first and second figures. Also, the third figure has the same types of elements (if any) as the elements in the first figure.

- 3 Select a suitable figure from the four alternatives that would complete the figure matrix.



A 1

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E 2

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C 3

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E 4

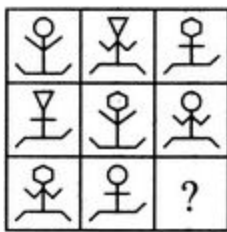
.

Answer: Option B

Explanation:

In each row, the second figure is obtained by rotating the first figure through 90° CW or 90° ACW and adding a circle to it. Also, the third figure is obtained by adding two circles to the first figure (without rotating the figure).

-
- 3 Select a suitable figure from the four alternatives that would complete
4 the figure matrix.



A 1

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E 2

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C 3

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D 4

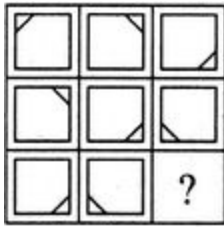
.

Answer: Option D

Explanation:

There are 3 types of faces, 3 types of hands and 3 types of legs. Each type is used once in each row! So, the features not used in the first two figures of the third row would together form the missing figure.

- 3 Select a suitable figure from the four alternatives that would complete
5 the figure matrix.



(1) (2) (3) (4)

A 1

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E 2

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C 3

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D 4

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Answer: Option B

Explanation:

In each row, the first figure is rotated through 90° CW to obtain the second figure and the second figure is rotated through 90° CW to obtain the third figure.

References Links

<https://www.indiabix.com/non-verbal-reasoning/figure-matrix/>

<https://www.indiabix.com/non-verbal-reasoning/figure-matrix/018001>