4.5 Rotation: 30-minute Pack

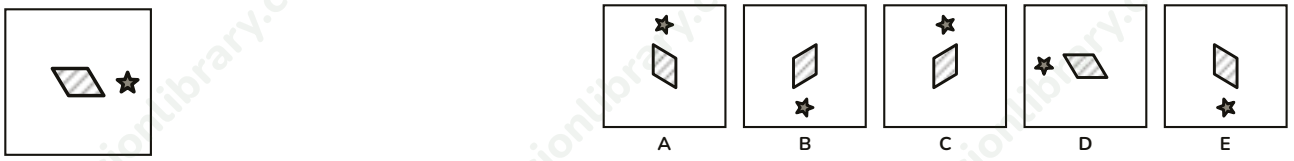
GL ASSESSMENT GL-EP.N7 · Calculators not allowed · about 30 minutes

Total Marks

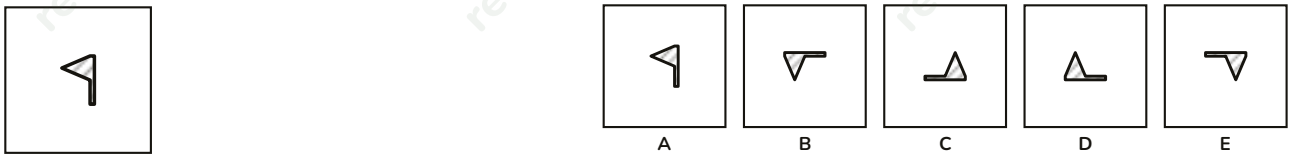
Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

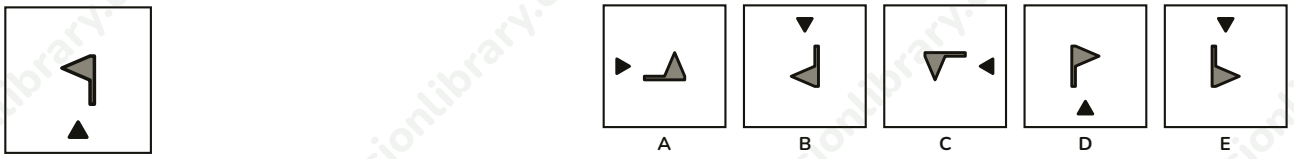
1 The shape in the stem is rotated 90 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?



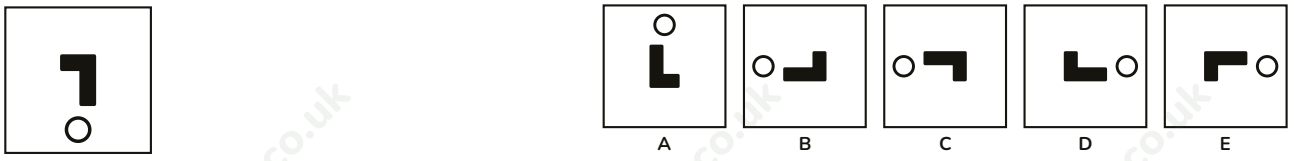
2



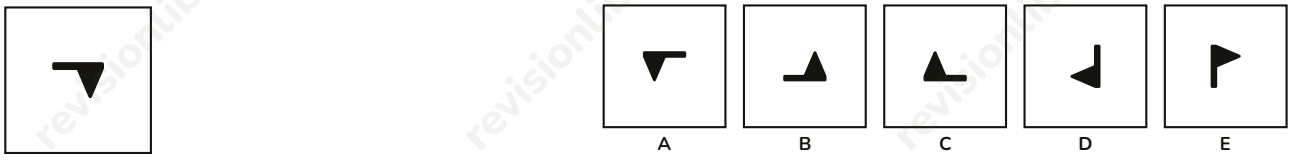
3 The shape in the stem is rotated 180 degrees about its centre. Which option, A to E, shows the shape after this rotation?



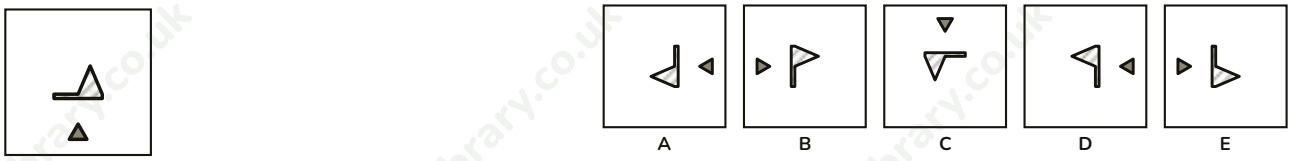
4 The shape in the stem is rotated 270 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?



5 The shape in the stem is rotated 180 degrees about its centre. Which option, A to E, shows the shape after this rotation?

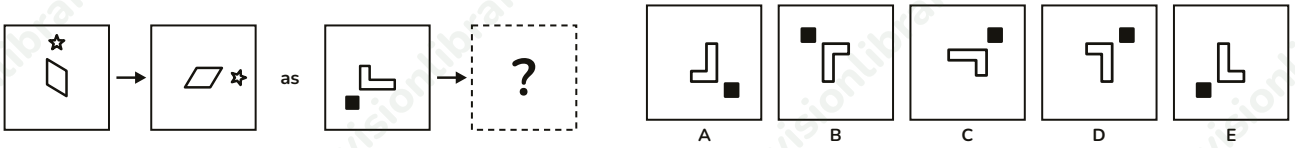


6 The shape in the stem is rotated 90 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?

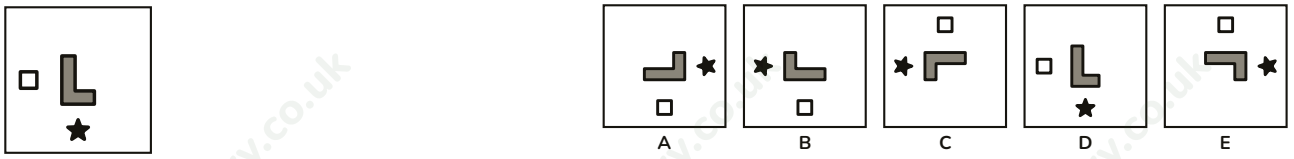


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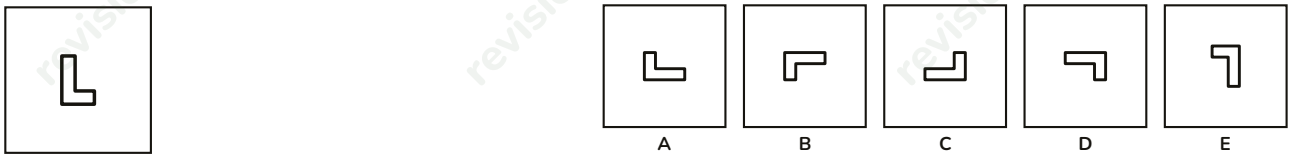
7 Shape 1 is rotated to give Shape 2 (shown as a pair below). Apply the same rotation to Shape 3. Which option, A to E, shows the result?



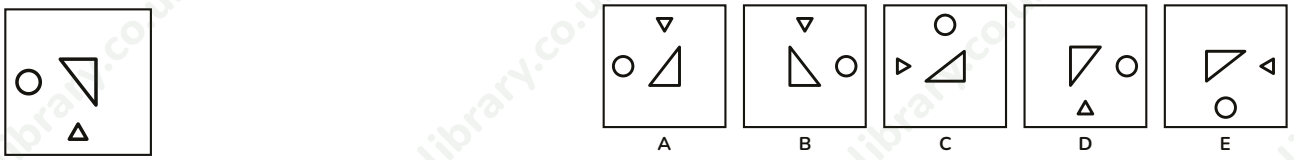
8 The shape in the stem is rotated 90 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?



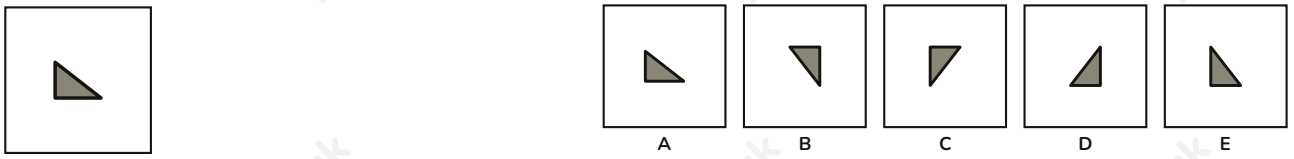
9 The shape in the stem is rotated 90 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?



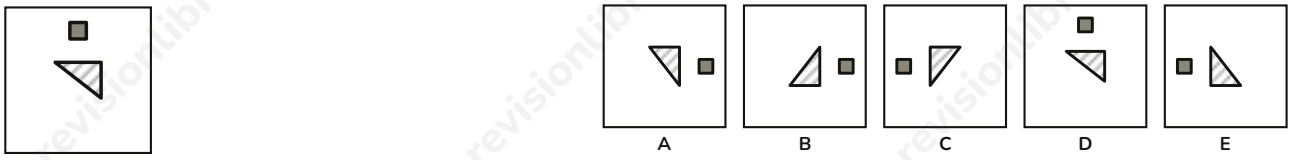
10 The shape in the stem is rotated 180 degrees about its centre. Which option, A to E, shows the shape after this rotation?



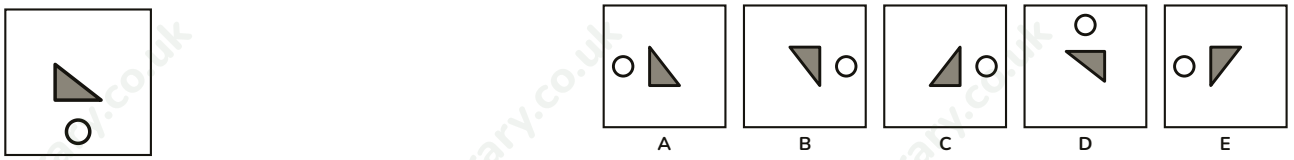
11 The shape in the stem is rotated 90 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?



12 The shape in the stem is rotated 270 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?

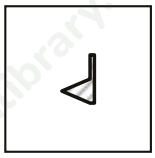


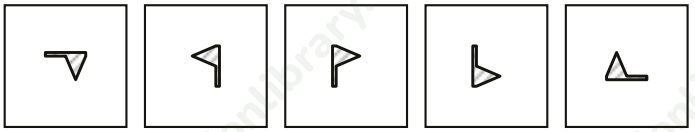
13 The shape in the stem is rotated 90 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?



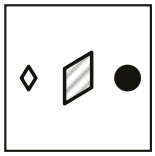
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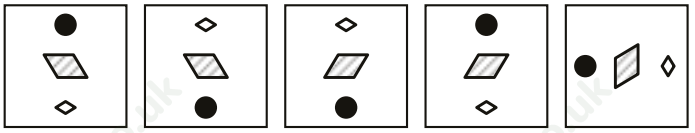
14 The shape in the stem is rotated 180 degrees about its centre. Which option, A to E, shows the shape after this rotation?





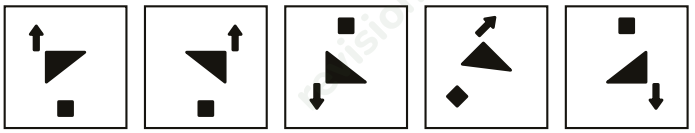
15 The shape in the stem is rotated 90 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?



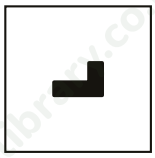


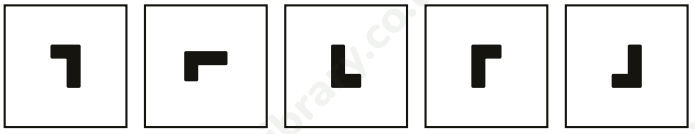
16 The shape in the stem is rotated 90 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?



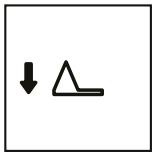


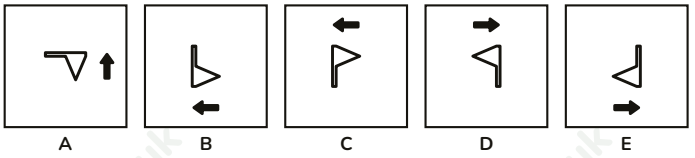
17 The shape in the stem is rotated 90 degrees clockwise about its centre. Which option, A to E, shows the shape after this rotation?



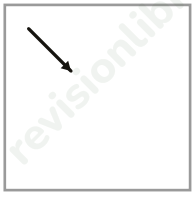


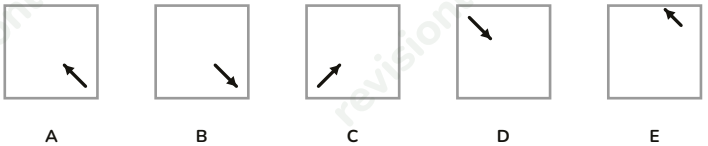
18 The shape in the stem is rotated 270 degrees anticlockwise about its centre. Which option, A to E, shows the shape after this rotation?





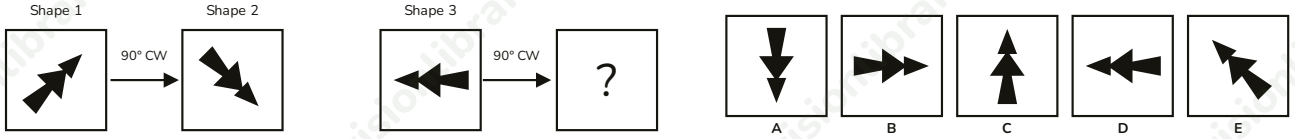
19 The square in the stem is rotated 180 degrees about its centre. Which option, A to E, shows the square after this rotation?





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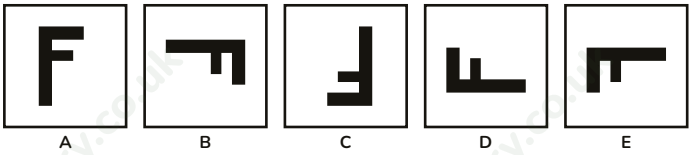
20 Shape 1 is rotated 90 degrees clockwise to give Shape 2 (shown as a pair below). Apply the same rotation to Shape 3. Which option, A to E, shows the result?



21 Four of the five options below show the same letter tile rotated by a different multiple of 90 degrees. One option does not belong - it has been reflected (mirror-imaged) rather than rotated. Which option is the odd one out?



bold black F tile
(starting orientation)



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Mark scheme · 4.5 Rotation: 30-minute Pack

Question 1

selects option C: A medium diagonally hatched parallelogram with long edges running down to up and short edges slanting up-right and a small mid-grey star with one point facing left in the top part (cao) **B1**

Answer: C) A medium diagonally hatched parallelogram with long edges running down to up and short edges slanting up-right and a small mid-grey star with one point facing left in the top part

Question 2

selects option B: A medium diagonally hatched flag with the pennant at the left end of the pole on its down side (cao) **B1**

Answer: B) A medium diagonally hatched flag with the pennant at the left end of the pole on its down side

Question 3

selects option E: A medium mid-grey flag with the pennant at the down end of the pole on its right side and a small solid black triangle with one point facing down in the top part (cao) **B1**

Answer: E) A medium mid-grey flag with the pennant at the down end of the pole on its right side and a small solid black triangle with one point facing down in the top part

Question 4

selects option B: A medium solid black L-shape with its long arm extending left from the corner and its short arm extending up and a small unshaded (white) circle in the left part (cao) **B1**

Answer: B) A medium solid black L-shape with its long arm extending left from the corner and its short arm extending up and a small unshaded (white) circle in the left part

Question 5

selects option C: A medium solid black flag with the pennant at the left end of the pole on its up side (cao) **B1**

Answer: C) A medium solid black flag with the pennant at the left end of the pole on its up side

Question 6

selects option E: A medium diagonally hatched flag with the pennant at the down end of the pole on its right side and a small mid-grey triangle with one point facing right in the left part (cao) **B1**

Answer: E) A medium diagonally hatched flag with the pennant at the down end of the pole on its right side and a small mid-grey triangle with one point facing right in the left part

Question 7

selects option B: A medium unshaded (white) L-shape with its long arm extending down from the corner and its short arm extending right and a small solid black square in the top-left (cao) **B1**

Answer: B) A medium unshaded (white) L-shape with its long arm extending down from the corner and its short arm extending right and a small solid black square in the top-left

Question 8

selects option A: A medium mid-grey L-shape with its long arm extending left from the corner and its short arm extending up and a small solid black star with one point facing left in the right part and a small unshaded (white) square in the bottom part (cao) **B1**

Answer: A) A medium mid-grey L-shape with its long arm extending left from the corner and its short arm extending up and a small solid black star with one point facing left in the right part and a small unshaded (white) square in the bottom part

Question 9

selects option B: A medium unshaded (white) L-shape with its long arm extending right from the corner and its short arm extending down (cao) **B1**

Answer: B) A medium unshaded (white) L-shape with its long arm extending right from the corner and its short arm extending down

Question 10

selects option B: A medium unshaded (white) right-angled triangle with its right angle at the down-left corner and legs extending up and right and a small unshaded (white) triangle with one point facing down in the top part and a small unshaded (white) circle in the right part (cao) **B1**

Answer: B) A medium unshaded (white) right-angled triangle with its right angle at the down-left corner and legs extending up and right and a small unshaded (white) triangle with one point facing down in the top part and a small unshaded (white) circle in the right part

Question 11

selects option C: A medium mid-grey right-angled triangle with its right angle at the up-left corner and legs extending down and right (cao) **B1**

Answer: C) A medium mid-grey right-angled triangle with its right angle at the up-left corner and legs extending down and right

Question 12

selects option C: A medium diagonally hatched right-angled triangle with its right angle at the up-left corner and legs extending down and right and a small mid-grey square in the left part (cao) **B1**

Answer: C) A medium diagonally hatched right-angled triangle with its right angle at the up-left corner and legs extending down and right and a small mid-grey square in the left part

Question 13

selects option C: A medium mid-grey right-angled triangle with its right angle at the down-right corner and legs extending up and left and a small unshaded (white) circle in the right part (cao) **B1**

Answer: C) A medium mid-grey right-angled triangle with its right angle at the down-right corner and legs extending up and left and a small unshaded (white) circle in the right part

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Question 14

selects option C: A medium diagonally hatched flag with the pennant at the up end of the pole on its right side (cao) **B1**

Answer: C) A medium diagonally hatched flag with the pennant at the up end of the pole on its right side

Question 15

selects option B: A medium diagonally hatched parallelogram with long edges running right to left and short edges slanting up-left and a small unshaded (white) diamond with its long diagonal running right to left in the top part and a small solid black circle in the bottom part (cao) **B1**

Answer: B) A medium diagonally hatched parallelogram with long edges running right to left and short edges slanting up-left and a small unshaded (white) diamond with its long diagonal running right to left in the top part and a small solid black circle in the bottom part

Question 16

selects option A: A medium solid black right-angled triangle with its right angle at the up-left corner and legs extending right and down and a small solid black square in the bottom part and a small solid black arrow pointing up in the top-left (cao) **B1**

Answer: A) A medium solid black right-angled triangle with its right angle at the up-left corner and legs extending right and down and a small solid black square in the bottom part and a small solid black arrow pointing up in the top-left

Question 17

selects option C: A medium solid black L-shape with its long arm extending up from the corner and its short arm extending right (cao) **B1**

Answer: C) A medium solid black L-shape with its long arm extending up from the corner and its short arm extending right

Question 18

selects option C: A medium unshaded (white) flag with the pennant at the up end of the pole on its right side and a small solid black arrow pointing left in the top part (cao) **B1**

Answer: C) A medium unshaded (white) flag with the pennant at the up end of the pole on its right side and a small solid black arrow pointing left in the top part

Question 19

Correct option identified (A oe) - the arrow's corner moves from top-left to bottom-right (two steps of the corner cycle), and its pointing direction rotates from south-east to north-west, keeping it pointed at the centre **B1**

Answer: A

Question 20

Correct option identified (C oe) - a tip pointing left, rotated 90 degrees clockwise the same way Shape 1 became Shape 2, points up **B1**

Answer: C

Question 21

Correct option identified (E oe) - this combination (arm-end left, arms pointing down) does not occur at any 90, 180 or 270 degree rotation of the tile; it can only be produced by reflecting the shape **B1**

Answer: E

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