

Chapter 4 Fill in the blanks Solutions

1. 3; Elements move one step ACW in each step and get inverted alternately.

2. 1; The arrow moves half a side CW and after reaching the end point moves to the other side on the same end while the other two elements move half a side and get inverted laterally on the same side.

3. 1; The upper-right element is replaced by a new one and other elements move one step ACW in cyclic order in the first step. In the next step the upper-left element is replaced and other four move one step CW in cyclic order.

4. 5; Elements move half a side from left to right and right to left in each step and get rotated by 180° ACW alternately.

5. 1; The inner figure gets enlarged and comes out and a new figure comes in the next step. Arrows rotate by 180° and change side in one step and arc replaced by new ones in the next.

6. 1; The main figure rotates by 90° ACW alternately while the inner elements reverse their order in each step. The external arrows get inverted and interchange their position.

7. 1; Elements move one side ACW. One of the elements gets inverted and one is replaced by a new one.

8. 4; Elements rotate by 45° and 180° ACW alternately while the set of elements rotates by 45° ACW in each step 9. 2; The whole figure rotates by 90° ACW and 180° alternately.

10. 1; The main fig. rotates by 90° ACW and 45° CW alternately while the inner arrowhead moves to outer one in each step.

11.5; The figures rotate by 90° ACW and the element outside gets inverted and moves inside while a new element appears outside.

12. 1; The dot moves 2, 3, 4, 5 steps CW in consecutive steps while the middle part of the lower shaded part rotates 90° ACW in each step.

13. 1; Beginning from the CW element, the elements move 1,3 and 5 sides ACW in one step and rotate by 90° CW in the next.

14. 5; The element in the centre interchanges alternately with left and right element of the middle row while the third one is replaced by a new one. The upper and lower elements change sides in each step and are replaced by new ones alternately.

15. 2; Alternately, the figure gets laterally inverted and rotates by 180°.

16.4; The outgrowth and grooves get inverted on their base in one step and the whole figure rotates by 90° CW in the next. The central element rotates by 90° ACW alternately.

17. 3; The elements move one step from left to right and get inverted while new elements appear on the extreme left.

18. 5; Elements move one step downwards and are replaced by new ones alternately.

19. 4; The upper element rotates by 180° and gets vertically inverted in alternate steps while the shading of the lower fig, moves one step CW alternately.

20. 1; The elements move half a side ACW in each step and are replaced by new ones in alternate steps in manner (2,4), (1,3)...

21. 2; The square moves one step CW, an extra square is added on the CW side in one step while in the next step the new square moves one step and the former one is lost. The square changes its direction in each step. circle and the shaded triangle appear alternately and their number increases by one alternately while they move one and two steps alternately.

22. 1; In each step the middle element gets doubled and becomes outermost and innermost in the next step. A new element appears in the middle.

23.4; The lower element gets inverted laterally in alternate steps. The upper elements move from right to left while the leftmost becomes rightmost and gets inverted.

24. 4; The elements interchange their positions diagonally in alternate steps. The upper-left and the lower-right elements rotate 90° ACW while the upper-right and the lower-left rotate 90° CW in each step.



25. 1; The arrow and the dash move one and two steps alternately while they move inside and outside the hexagon. The inner elements change their shape, size and number (from two to one) alternately.

26. 3; The elements move one step from left to right in each step. After reaching the rightmost position a new element appears at leftmost.

27. 5; The outer element changes its shape and number alternately while they move one side ACW and rotate by 90° ACW. The inner shaded part moves one seep ACW in each step and one and two octants are shaded alternately.

28. 1; The CW element moves two sides ACW in subsequent steps and the other corner element changes its shape while the central element remains in its place.

29. 2; The inner element becomes outer in the next step while they move 1, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$ sides ACW in subsequent steps.

30. 5; The upper two elements get laterally inverted and interchange their positions alternately while the arrow inside trapezium changes its direction alternately.

31.5; In alternate steps the whole figure rotates by 180° and moves up and down and new head is added. The head of the smaller element changes everytime while the smaller element rotates by 180° alternatively.

32. 2; In each step the elements rotate by 90° ACW. The central element is replaced by a new one and the corner elements move one side ACW alternately.

33. 1; From upper to lower element the first and second and the third and fourth interchange their places in one step. In the next all except third from top get inverted and first and fourth and second and third interchange.

34. 1; In alternate steps the two elements move one side ACW. The shaded bar inside trapezium rotates by 90° ACW alternately. The other figure consist 2 elements wherein the inner element enlarges in shape and becomes outer element.

35. 4; The central element interchanges alternately with corner and side elements. The remaining one element is replaced by a new one.

36. 2; The elements rotate by 180° and shift one side ACW. The shading and size change alternately.

37. 5; In alternate steps figures move one side ACW. The elements inside square type of figure get inverted alternately.

38. 1; The whole figure rotates by 45° ACW. The end item of double element moves to single element while new end item appears on them in one step. In the next step the end items as well as the middle one get inverted.

39.2; The elements in the right column move one step downward while a new element comes at the top position. The small circle in the middle column moves up and down while the left element moves up and down.

40. 5; Out of three rows elements of one row interchange among themselves while the others remain static. The whole set of figures rotates by 90° ACW.

41. 3; In each step the whole figure shifts one side ACW. The outside elements also shift one side ACW while the pin reverses its direction. One of the inner elements rotates by 90° CW and the other by 90° ACW in alternate steps.

42. 3; New element appears at the centre while the existing element rotates by 90° CW and moves one step upwards. The upper-middle element shifts to lower-left and lower-right positions alternately

43. 1; New element appears ACW of the pre-existing side elements disappear.

44. 2; The upper and lower elements interchange positions alternately while arc-like element rotates by 90° ACW in each step. The RHS element replaces the LHS element and gets enlarged in one step while both of them are replaced by new ones in the next step.

45. 4; Alternately, whole figure rotates by 90° and 180° CW and the curve with shaded region moves inside and outside.

46. 2; In each step the corner element shifts one side ACW and changes its shape. The arc rotates by 90° CW and elements within it change shape and colour.

47. 3; In each step the corner elements move up and down. Alternately, the single element on LHS becomes double and moves to RHS while the split parts in the middle get combined to form a symmetrical figure.

48. 5; In alternate steps the figures shift two sides and one side CW while they rotate by 90° ACW and interchange their places. The inner elements also rotate by 90° CW alternately.

49. 4; Alternately, the pins rotate by 90° and 180° CW while their shading changes in each step.



50. 4; Two identical elements appear in each step — one at CW corner and another at centre. Element present at the centre is lost while the other elements move half a side ACW.

51. 1; In each step one of the upper elements beginning from the left one rotates by 180°. Two of the middle row - elements and two of the lower row rotates by 90° ACW while one of the lower row rotates by 180°.

52. 2; The bent bar outside the circle rotates by 180° and 90° ACW alternately. The bent bar intersecting the circle rotates by 90° CW.

53. 3; In alternate steps the whole figure rotates by 45° and 135° ACW while the adjacent elements turn inside and outside.

54. 4; The angular element rotates by 45°, 90°, 135°, 180° ACW. While the adjacent line shifts to other side. The arc rotates by 90° ACW in each step.

55. 1; Elements rotate by 90° CW and 90° ACW alternately while they shift one side CW.

56.2; Two of the elements interchange their positions while the remaining one moves from lower to upper position . and vice versa. One of the elements gets enlarged from middle to right then left and again middle.

57. 5; The elements rotate by 90° CW and shift one side ACW.

58. 3; The whole figure rotates by 45° CW and 180° and the adjacent elements change their side.

59. 5; The elements along the sides move one side and half-a-side CW alternately. The central element rotates by 90° CW in each step while one petal and half a petal is added to it in alternate steps.

60. 2; The main figure rotates by 90° and 45° CW after every alternate steps. The adjacent elements shift one step ACW in each step and change their directions alternately.

61. 4; In the first step CW element goes to the centre and central element becomes ACW element. The other two elements move one and half a side CW. In the next step ACW element goes to centre and central element becomes CW element. The other two elements move half a side ACW.

62. 1; In each steps the square rotates by 90° CW and the circle rotates by 45° ACW. The half quadrant of the square is shaded on ACW side in each step while half quadrant of circle is unshaded in alternate steps.

63. 3; Elements move one step upwards. One of them get enlarged in each step. The columns of elements move half-a-side from left to right.

64. 3; The whole figure rotates by 45° and 90° ACW in alternate steps. One dash is lost in each step while one ball is lost is alternate steps. The circle shifts from one end to the other in each step.

65. 3; Elements rotate by 90° ACW and 180° alternately. A new element appears at the upper-left corner in each step while the element appearing at the centre disappears. The movement of the elements is from $1 \rightarrow 6 \rightarrow 9$ $\rightarrow 7 \rightarrow 4 \rightarrow 5$.

66. 3; In each step one corner element moves diagonally, two other on its CW side move one side ACW while the fourth remains static. This movement itself rotates by 90° CW. The inner elements move one side CW.

67. 5; The outermost and innermost arcs rotate by 90 CW and 180° alternately while the middle arc rotates by 180° and 45° CW alternately,

68. 1; A new element appears at the centre in each step which moves to lower- right position in the next step. This combination is only visible in option (1)



69. 5; In each step the upper shaded triangle gets laterally inverted and moves from left to right. One dash is lost from the lower side alternately from either side. The inner elements on either ends change side and get reversed alternately.

70. 1; Elements move one step downwards and the lowermost goes to uppermost position. The number and position of each row remain constant. Elements are replaced by new ones after three steps.

71. 3; In each step the rows of elements shift one step downwards. The elements on either side of the row interchange alternately with the central element of the row while the third is replaced by a new one.

72. 2; The whole figure rotates by 45°, 90°, 135°, 180° ... ACW in subsequent steps. The shadings of triangles and square change alternately.

73.4; In the first step elements of the left and middle column shift one step ACW in cyclic order. In the next step the elements of middle and right column shift one step CW in cyclic order. The elements of the third column interchange places.

74. 1; The three-sided element rotates by 90° ACW and 180° and shifts one side and two sides ACW alternately. The arrow moves from left to middle to right then again middle and so on in subsequent steps.

75. 2; In each step the ACW element interchanges with central element and the other two elements move oneand-a-half sides ACW.

76. 4; In alternate steps 'C' becomes `-' and 90° CW-rotated 'C' becomes `I' and vice versa while in the next step the elements move half a side ACW.

77. 1_, In the first step the odd-numbered elements from top rotate by 90° CW. In the next step the evennumbered elements from top rotate by 90° ACW.

78. 1; In alternate steps the diagonal and bisector of the square rotate by 90°. The outer elements move one and two sides ACW respectively and rotate by 90° CW and 180°.

79. 3; The central element of each row interchanges place alternately with elements on either sides. The row of elements moves one step upwards. The topmost goes to lowermost position in the next step.

80. 1; One and two arcs are added on the CW side alternately. The whole figure rotates by 45°, 90°, 135° ... CW in subsequent steps.

81. 1; In the first step two adjacent elements interchange, their places while the other three move one step CW in cyclic order. In the next step CW end of interchanged elements moves to centre while ACW-end elements moves half-a-side CW. The other corner elements move half-a-side ACW while the remaining peripheral elements move half-a-side CW and central element moves to middle of the side. In subsequent steps this movement itself rotates by 90° ACW.

82.4; In the first step the elements of each column interchange places while the left and right column elements also interchange their columns. In the next step the right column elements interchange their places while elements of left and middle column move one step ACW in cyclic order.

83. 2; In the first step the upper right shifts to upper left, centre to upper right, lower middle to upper middle and middle right to lower middle. The upper left and middle left are lost and new elements appear at centre and lower right respectively. In the next step upper right shifts to upper left, centre to upper right, and lower right to middle left. New elements appear at centre, lower middle and middle right.

84.1; The upper right moves to top of middle column. The middle column elements move one step downwards and lower of middle column moves to upper left. A new element appears at upper right.

85. 5; In each step new element appears at centre which moves alternately to right and left side.

86. 3; The upper two elements interchange their places. So do central and lower right. This movement itself rotates by 90° ACW.

87.2; In each step new elements appear at upper right and lower middle positions. The upper right moves to middle right then to lower left. The lower middle moves to centre -4 lower right -4 middle left in subsequent steps.

88. 3; In each step the element on the CW end shifts to centre while the central element shifts to the middle of mid and ACW element. The other two elements move one-and-a-half sides CW. Elements are replaced by



new ones after four steps.

89. 1; In each step the element at upper-left moves to centre, centre to lower-right, and lower-right to upperleft position. The other two elements interchange their positions and are replaced by new ones al ternately.

90. 2; In each step two of the elements on CW side move half a-side CW while a new element appears on the CW end. Element on the ACW end disappear.

91. 4; The CW-end element moves half-a-side CW. The second element from CW-end moves one-and-a-half sides CW and so on the third, fourth ... by 2 $\frac{1}{2}$, 3 $\frac{1}{2}$

92. 1; A new element appears at the centre and the central element moves to upper-middle position. The preexisting element at upper-middle position moves half-a-side ACW and CW alternately.

93. 2; One extra square gets shaded in each step. The sequence is the 1st , 3rd , 5th , 7th square ACW after the previously shaded part.

94. 4; The main figure rotates by 90° CW and gets inverted alternately. The shaded part moves one step ACW in alternate step.

95. 3; The black spot moves one and two steps ACW alternately and the cross moves two steps CW alternately.

96. 5; The corner elements rotate by 90° ACW on their own position in each step. Elements of the middle column get inverted vertically and laterally, alternately.

97. 3; The corner elements move three steps forward and middle elements move one step forward CW. The cental element gets shaded in one step and replaced by a new one in the next.

98. 4; The central element rotates by 90° ACW and 180° alternately. The corner elements shift one side and two sides ACW alternately while they rotate by 90° ACW alternately. One of the corner elements beginning from the upper left rotates by 90° CW.

99. 1; In every subsequent step an extra element is added to the hexagon.

100.4; The shaded portion moves one step anticlockwise in each step. One extra portion gets shaded alternately. 101. 4; The elements once move two steps clockwise and then one step anticlockwise. This procedure is continued.

102. 2; The arrow (on the side of the square) moves clockwise from side to side and itself turns 90° anticlockwise while the second one moves anticlockwise from side to side and once indicates outside the square and in the next step indicates inside the square.

103.2; Each subsequent figure is obtained from the previous figure by rotating the shaded portions by 45° clockwise and alternately shading an extra portion. '

104. 2; The main figure is alternately a triangle and a square. The number of stripes increases by one each time.

105.4; Consider the circle to be divided into eight parts. Assume the shaded part in fig. 1 to be the first eighth (one "eighth" = half of a quarter). Then the odd-numbered eighths get shaded each time (1st, 3rd, 5th, 7th). Once they are exhausted, we go to even-numbered eighths.

106. 1; One line is added to the outer figure each time. The asterisk shifts in an anticlockwise (ACW) direction.

107. 1; The direction of the arrow gets reversed. The circle within the main shape shifts in a clockwise (CW) direction. The dot does not change its position.

108.2; The diagonal line starts alternately from the bottom-left and bottom-right ends. The arrow rotates CW by 90°.

109.2; Each of the elements oscillates on horizontal lines.

110.5; The line which joins the centre to one of the sides rotates by 90° CW. A semi-diagonal gets added each time in the CW direction.

111.2; The lines rotate CW by 45°. A new line, alternately continuous and broken, gets added in the CW direction.

112. 3; The shaded squares move one step each in an anticlockwise direction.

113. 5; The line segment rotates by 45° CW in each step. In alternate steps the square gets shaded and arrowhead is added to the line segment.

114. 3; The elements move one side clockwise (CW) while the arc moves one side ACW.

115.2; The inner design gets enlarged into the outer one in the subsequent figure.



116.2; All the elements shift by one step in an anticlockwise direction.

117.5; The circle and +' sign interchange their places and the dot shifts to the next corner in a clockwise direction in each subsequent step.

118. 3; In this problem one part of the circle is lost and a dot appears in its place in each step.

119. 3; The two dots are always opposite to each other.

120. 2; The figure should be five-sided with an open end.

121. 5; The elements move one step CW and one step ACW in alternate steps.

122. 2; The cross moves anticlockwise by 45° at a time on the circumference while the dot moves the length of a radius to the centre at a time and then to the circumference a quarter of an arc anticlockwise, alternately.

123. 1; The figure increases by one side and contains a new element inside.

124. 1; The whole figure rotates by 45° CW. The upper two elements interchange their positions alternately. So do the lower two elements.

125.5; The semi-circular element shifts one side ACW while it rotates by 90° CW. The element inside it replaces the single element on the ACW side and a new element appears inside it.

126. 1; The arrow gets inverted laterally in one step while the arc and triangular element get laterally inverted in the next step. The elements interchange their positions and move vertically alternately.

127. 1; The figure rotates by 45°, 90°, 135°, 180°... CW in subsequent steps while the adjacent elements interchange their positions alternately.

128. 3; The whole figure rotates by 90° ACW and 180° alternately while the shaded part gets unshaded and vice versa after two steps.

129. 2; The whole figure rotates by 90°, 180°, 270°, 360°.... ACW while the adjacent element gets repeated after three steps.

130. 4; The arrow rotates by 90° CW, 180°, 135° CW and 180° while the pin rotates by 135° CW and 180° alternately. Both the elements shift diagonally in alternate steps. The square moves one step CW in each step. 131. 1; The whole figure rotates by 90° ACW in each step. The arrow, semicircle and dash change their direction in subsequent steps. .

132. 2; The triangle moves one step diagonally upward in each step while it rotates by 90° CW in alternate steps. The rectangle moves one step diagonally downwards and rotates by 90° CW in each step.

133.4; The elements move in rows. After reaching one end they move to the other end. The upper two elements move from right to left while the lower two move from left to right in each step. The two middle elements reverse their direction in each step.

134. 2; In each step the upper-right moves to upper-left position. The lower-left element becomes the uppermiddle while the lower-right reduces in size and becomes the upper-right. The upper-middle gets enlarged and becomes lower-right while a new element appears at lower-left position in one step. In the next step new elements appear both at lower left and lower right.

135. 5; The whole figure rotates by 180° and 45° CW alternately.

136. 1; The circle shifts one side CW and becomes large and small alternately. One of the triangles moves one side CW and other by one side ACW. The triangles change their size in each step.

137.4; The central element interchanges place alternately with the element on either side and get inverted while the third one is replaced by a new one. The whole figure rotates by 45° ACW in each step.

138.3; The whole figure rotates by 45°, 90°, 135°, 180°. ACW in subsequent steps while end elements interchange their places alternately on either ends in subsequent steps.

139. 5; In each step the elements move one step downwards and towards right. A new element appears at the top-left position while the lower one is lost.

140. 1; The column of elements moves half-a-side from left to right. The central element interchanges alternately with upper and lower elements and the third element is placed at the lower end of the next column.



141. 4; In each step the similar corner elements move to middle of the sides while moves to the centre. New elements appear at the corners. one of the middle elements

142. 3; The elements placed at the ends left and the right diagonals change their shape alternately while the other elements move half a side ACW.

143.3; If we assign numbers 1 to 9 from left to right downwards to the elements starting movement of element is from 2 - 1 - 4 - 8 - 9 - 6 - 2 and 3 - 5 - 7 - 3 in one step. In the step diagonal movement is similar, 3 - 5 - 7 - 3 while others interchange in pairs 1 - 9, 2 - 8 and 4 - 6.

144. 2; In each step upper left becomes upper right, upper right becomes middle and a new element appears at upper left position. In the lower row middle and left ones interchange positions in one step and all the elements are replaced by new ones in the next step. This goes on alternately.

145. 4; The existing elements move one side CW and a new element appears alternately on ACW and CW ends.

146. 1; The CW element rotates by 90° ACW and moves one quadrant ACW. The ACW element also rotates by 90° ACW and moves two quadrant CW while the third element assumes a new shape and moves to opposite quadrant.

147. 1; The main figure rotates by 135° CW and the inside element is replaced by the outer element of the previous figure. The outer element shifts one-and-a-half sides ACW and is replaced by new ones.

148. 3; In each step the upper right and upper middle interchange their positions and one of them is replaced by a new one. The lower left and lower middle also interchange their positions. The rows also interchange their positions.

149. 1; In each step a new element appears at the centre. The central element moves to upper middle position and upper middle moves half-a-side CW and half-a-side ACW alternately.

150. 5; In each step one of the corner elements moves to centre and a new element appears in its place. Two corner elements on the ACW side of one which moves to centre, moves one side ACW while the third moves diagonally. This process moves in CW direction.

151. 3; In one step the upper left moves to lower left, lower left moves to upper right and upper right moves to lower right. A new element appears at upper left position. In the next step upper right and lower right move to upper left and lower left positions. The upper left moves to lower right and a new element appears at upper right position.

152. 1; In subsequent steps the CW elements move one-and-a-half sides, two sides, two-and-a-half sides... While a new element appears half-a-side CW to the ACW element which moves half-a-side lesser than the others.

153. 1; In alternate steps, the right column elements move to left diagonally and horizontally while new elements appear in the right column.

154.4; The central element moves to the CW end. ACW element moves to centre while other two elements move one side ACW.

155.3; The whole figure rotates by 90° ACW and 45° ACW alternately. The elements move from right to left. The middle element remains unchanged while other two rotate by 180°.

156. 3; In each step the ACW element moves to centre while central element moves to CW end. The other elements move half-a-side and one side ACW alternately.

157.2; In the first step the upper-left and lower-right interchange places. Lower-left moves to upper-right, upper-right and central elements move one step downward diagonally and rotate by 90° CW. In the next step the 90° CW. This process goes lower-left and upper-right interchange places while central element rotates by on. 158, 2; The elements move one step from left to right. the 'rightmost becomes the leftmost. The rows of elements move one step downwards. From lowermost position the row shifts to uppermost. right,

159. 4; In each step lower-left moves to right middle, left-middle moves to upper-left, central to lower-upperright to upper-middle. Elements are replaced by new ones after two steps. New elements appear at middle-left, lower-left, centre and upper-right positions respectively.



160. 1; In subsequent steps the lower, middle, and upper pair of curves rotate by 1800 in left column and so do the middle, upper, and lower pair of elements in right column.

161. 3; The middle element rotates by 180° alternately. While the arrow and the fork rotate by 90° ACW in each step and interchange places alternately.

162. 4; In each step the element moves from left circle to lower-left, lower-left to upper-right --> upper-left --> lower-right --> right box. A new element appears in left circle.

163. 1; The whole figure rotates by 90° CW. The element at ACW end shifts to CW end, the CW element shifts to middle-position, while the third one is replaced by a new one.

164. 2; Elements of the right column move one step upwards, the uppermost going to lowermost position. The columns of elements move from left to right. The right one goes to left position in each step.

165. 3; Elements move one side CW. Three dashes and one dash respectively is added alternately to each element in alternate steps.

166. 4; In alternate steps, the whole figure rotates by 180° and 45° CW. While the smaller elements get inverted. 167. 2; The arrow and the hammer-like element rotate by 90° CW while other two elements rotate by 90° ACW. The elements move one side ACW.

168. 1; In alternate steps the whole figure rotates by 90° ACW and 180° and smaller elements on the ends get inverted. The smaller element in the middle rotates by 90° CW in each step and is replaced by a new one after three steps.

169. 5; The whole figure rotates by 90° and 135° CW alternately. The dash moves from the first to third and from the third to first bar.

170. 1; In each step the elements move one step upward diagonally. The elements rotate 90° ACW alternately.

171. 2; The element with rhomboid head rotates by 90° ACW while the other rotates by 90° CW. The elements move one side ACW.

172. 2; Elements move from right to left alternately. The leftmost becomes rightmost. Size of the elements gets increased and reduced alternately.

173.5; The whole figure rotates by 90° ACW. The shape of the middle close-ended element changes in each step while the innermost element moves to upper position and a new element comes in its place in each step.

174. 1; From fig. 1 to 2: The corner elements rotate by 90° CW. The middle elements rotate by 90° ACW and the central element rotates by 180°.

175.4; The middle item oscillates. When it moves to left, the left element goes up, and when it moves to the right, the right element goes up.

176. 3; In subsequent steps line on the forehead gets curved upward, then straight and then downward. The ear gets downward, upward and straight while the mouth gets upwards and downward. The face becomes circular and eliptical alternately.

177. 5; The number of lines increases by one while the number of other elements increases by two in each step.

178. 2; The dot moves one step CW and two steps ACW while the dash moves two steps ACW and one step CW in alternate steps.

179. 2; In each step the elements move half a side CW. Two of the elements rotate by 90° CW and the other two rotate by 90° ACW.

180. 3; The figure gets rotated by 45°, 90°, 135°, 180° CW in subsequent steps.

181.3; The main figure gets rotated by 180° CW in each step. The black spot moves one side CW irrespective of the figure's movement.

182. 4; The elements move in a set pattern: from upper-left to lower-left, from lower-left to lower-right, from upper-right to centre and from centre to upper-left in each step.

183. 2; The figure rotates by 45° and 90° ACW alternately. The arrowheads get inverted in each step.

184. 4; The corner element moves 1, 2, 3 ... sides ACW while changing its shape. The lowermost element goes to top in the next step and the upper two descend one step each. A new element comes at the lowermost place.



185. 2; In each consecutive step, one line is added alternately with symbol or "V" attached to it and the elements get inverted.

186.3; The mirror image of the corner elements move one side CW. The central element gets vertically inverted in one step and replaced by a new one in the next.

187. 5; One of the side figures comes in the middle and gets rotated by 90° ACW and two new similar figure steps. appear on either side of it.

188. 2; The shaded part increases by ½, 1, 1½, 2, ... circles and moves in ACW direction in consecutive

189. 3; In each step the middle-column elements move one step upward and a new element appears at the lower place while in alternate steps the left and right column elements move one step upward. The upper middle moves to the lower position and the top one is lost. The elements in the remaining column remain static.

190. 5; In each step one of the peripheral elements (which has two other elements at half-a-side distance on either side) comes to centre while the central element moves half-a-side ACW to the element which moves to centre. The other four peripheral elements move half-a-side ACW. The central element and one of the peripheral elements are replaced by new ones after two steps.

191. 1; The pentagon moves one step towards left on the middle row on a three-point path. One and two sides of pentagon is lost alternately while 0, 1, 2, 1 sides are added to it in subsequent steps. Similar element is repeated in the upper row after three steps. The bar with triangle moves half-a-side upward in each step, rotates by 90° ACW and gets laterally inverted.

192.2; In alternate steps the outer shading moves 2 and 1 steps ACW while the inner shading moves one step CW.

193. 5; In each step the middle-right element moves to centre while a new element appears at middle-right. The arrow and the half-shaded square rotates by 90° CW in each step. Their position follows if 1 = 4 then 2 = 5 rule.

194.2; In each step the elements move one step from right to left. The leftmost moves to rightmost position. The-flaglike element rotates by 180° and gets laterally inverted in alternate steps. The triangle on bar moves half-a-side downward and changes its side in each step, while the third one gets inverted in each step and changes its shape alternately.

195. 4; All the side elements rotates by half a side ACW direction. A new element is introduced in middle which is shift to the side in CW direction in every step.

196. 1; A new element is introduced everytime ahead of the column. In next step, the new elements increase in number and the whole column in rotated in ACW direction.